

TOSHIBA

Small Signal and Logic Devices



**Selection
Guide 2019**

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1. MOSFETs

Over 500mA Series MOSFETs (Semi-Power Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	CST3B	VESM (SOT-723)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	WCSP6C
Bottom View 	Bottom View 	Bottom View 					Bottom View 
0.8x0.6	1.0x0.6	1.2x0.8	1.2x1.2	2.0x2.1	1.6x1.6	2.0x2.1	1.5x1.0

P-Channel Single MOSFET

Package	Part Number	V _{oss} (V)	V _{ess} (V)	I _o (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	Ciss typ. (pF)	Note	
					V _{GS} = -1.2V	V _{GS} = -1.5V	V _{GS} = -1.8V	V _{GS} = -2.5V	V _{GS} = -4V	V _{GS} = -4.5V	V _{GS} = -10V				
CST3C	SSM3J64CTC ☆	\$	-12	+/-10	-1.0	11300	1310	890	560	-	370	-	-	50	
	SSM3J65CTC ☆	\$	-20	+/-10	-0.7	11300	1550	1070	700	-	500	-	-	48	
CST3	SSM3J56ACT ☆	\$	-20	+/-8	-1.4	4000	900	660	480	-	390	-	1.6	100	
CST3B	SSM3J46CTB	\$	-20	+/-8	-2.0	-	250	178	133	-	103	-	4.7	290	
VESM	SSM3J66MFV ☆ #	\$	-20	+6/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
	SSM3J56MFV	\$	-20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100	
WCSP6C	SSM6J771G	\$	-20	+/-12	-5.0	-	-	-	47.5	-	35	34.7(@-8V) 31(@-8.5V)	9.8	870	
ES6	SSM6J216FE	\$	-12	+/-8	-4.8	-	88.1	56	39.3	-	32	-	12.7	1040	
	SSM6J213FE	\$	-20	+/-8	-2.6	-	250	178	133	-	103	-	4.7	290	
	SSM6J215FE	\$	-20	+/-8	-3.4	-	154	104	79	-	59	-	10.4	630	
	SSM6J212FE	\$	-20	+/-8	-4.0	-	94	65.4	49	-	40.7	-	14.1	970	
	SSM6J207FE	\$	-30	+/-20	-1.4	-	-	-	491	-	251	-	137		
	SSM6J214FE	\$	-30	+/-12	-3.6	-	-	149.6	77.6	-	57	50	7.9	560	
UFM	SSM3J132TU	\$	-12	+/-6	-5.4	94	39	29	21	-	17	-	33	2700	
	SSM3J135TU	\$	-20	+/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J145TU ☆ #	\$	-20	+6/-8	-3.0	-	260	180	132	-	103	-	4.6	270	
	SSM3J134TU	\$	-20	+/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J144TU ☆ #	\$	-20	+6/-8	-3.2	-	240	168	123	-	93	-	4.7	290	
	SSM3J120TU ●	\$	-20	+/-8	-4.0	-	140	78	49	38	-	-	22.3	1484	⇒ SSM3J133TU
	SSM3J130TU	\$	-20	+/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J140TU ☆ #	\$	-20	+6/-8	-4.4	-	63.2	41.1	31	-	25.8	-	24.8	1800	
	SSM3J133TU	\$	-20	+/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J143TU ☆ #	\$	-20	+6/-8	-5.5	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J112TU #	\$	-30	+/-20	-1.1	-	-	-	-	790	-	390	-	86	
	SSM3J118TU #	\$	-30	+/-20	-1.4	-	-	-	-	480	-	240	-	137	
	SSM3J117TU #	\$	-30	+/-20	-2.0	-	-	-	-	225	-	117	-	280	
UF6	SSM6J50TU #	\$	-20	+/-10	-2.5	-	-	205 (@-2V)	100	-	64	-	-	800	
	SSM6J422TU ☆ #	\$	-20	+6/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J412TU	\$	-20	+/-8	-4.0	-	99.6	67.8	51.4	-	42.7	-	12.8	840	
	SSM6J424TU ☆ #	\$	-20	+6/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J414TU	\$	-20	+/-8	-6.0	-	54	36	26	-	22.5	-	23.1	1650	
	SSM6J402TU #	\$	-30	+/-20	-2.0	-	-	-	-	225	-	117	5.3	280	
	SSM6J410TU #	\$	-30	+/-20	-2.1	-	-	-	-	393	-	216	2.9	120	
	SSM6J401TU	\$	-30	+/-20	-2.5	-	-	-	-	145	-	73	16	730	

☆ New Products, ● Recommend Another New Product

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

UDFN6B (SOT-1220)	SOT-23F	S-Mini (SOT-346)	TSOP6F (SOT-26F)
Bottom View 			
2.0x2.0	2.9x2.4	2.9x2.5	2.9x2.8

P-Channel Single MOSFET

Package	Part Number	V _{DS} (V)	V _{GS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note	
					V _{GS} = -1.2V	V _{GS} = -1.5V	V _{GS} = -1.8V	V _{GS} = -2.5V	V _{GS} = -4V	V _{GS} = -4.5V	V _{GS} = -10V				
UDFN6B	SSM6J512NU ☆	\$	-12	+/-10	-10.0	-	-	40.1	25.7	20.5 (@-3.6V)	18.7	16.2 (@-8V)	19.5	1400	
	SSM6J505NU	\$	-12	+/-6	-12.0	61	30	21	16	-	12	-	37.6	2700	
	SSM6J511NU ☆	\$	-12	+/-10	-14.0	-	-	19.2	13.5	11.5 (@-3.6V)	10	9.1 (@-8V)	47	3350	
	SSM6J503NU	\$	-20	+/-8	-6.0	-	89.6	57.9	41.7	-	32.4	-	12.8	840	
	SSM6J502NU	\$	-20	+/-8	-6.0	-	60.5	38.4	28.3	-	23.1	-	24.8	1800	
	SSM6J501NU	\$	-20	+/-8	-10.0	-	43	26.5	19	-	15.3	-	29.9	2600	
	SSM6J507NU ☆	\$	-30	+20/25	-10.0	-	-	-	-	32	28	20	13.6	1150	
SOT-23F	SSM3J338R	\$	-12	+/-10	-6.0	-	-	45.3	27.9	21.9 (@-3.6V)	20.2	17.6 (@-8V)	19.5	1400	
	SSM3J327R	\$	-20	+/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J377R ☆ #	\$	-20	+6/-8	-3.9	-	240	168	123	-	93	-	4.6	290	
	SSM3J331R	\$	-20	+/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J371R ☆ #	\$	-20	+6/-8	-4.0	-	150	100	75	-	55	-	10.4	630	
	SSM3J328R ●	\$	-20	+/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	⇒ SSM3J355R
	SSM3J378R ☆ #	\$	-20	+6/-8	-6.0	-	88.4	56	39.7	-	29.8	-	12.8	840	
	SSM3J355R ☆	\$	-20	+/-10	-6.0	-	-	52.3	38.8	-	30.1	-	16.6	1030	
	SSM3J358R ☆	\$	-20	+/-10	-6.0	-	-	49.3	32.8	27.7 (@-3.6V)	25.3	22.1 (@-8V)	38.5	1331	
	SSM3J334R	\$	-30	+/-20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J374R ☆ #	\$	-30	+10/20	-4.0	-	-	-	-	136	105	71	5.9	280	
	SSM3J340R	\$	-30	+20/25	-4.0	-	-	-	-	86	73	45	6.2	492	
	SSM3J332R	\$	-30	+/-12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J372R ☆ #	\$	-30	+6/12	-6.0	-	-	144	72	-	50	42	8.2	560	
	SSM3J356R ☆ #	\$	-60	+10/20	-2.0	-	-	-	-	400	360	300	8.3	330	
SSM3J351R ☆ #	\$	-60	+10/20	-3.5	-	-	-	-	184	164	134	15.1	660		
S-Mini	SSM3J325F	\$	-20	+/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J375F ☆ #	\$	-20	+6/-8	-2.0	-	311	231	179	-	150	-	4.6	270	
	SSM3J352F ☆	\$	-20	+/-12	-2.0	-	-	443	199	-	136	110	5.1	210	
	SSM3J353F ☆	\$	-30	+20/25	-2.0	-	-	-	-	274	232	150	3.4	159	
TSOP6F	SSM6J801R	\$	-20	+6/-8	-6.0	-	88.4	56	39.7	-	32.5	-	12.8	840	
	SSM6J808R ★	\$	-40	+10/20	-7.0	-	-	-	-	52	47.2	34.8	24.2	1020	
	SSM6J811R ★	\$	-60	+10/20	-3.5	-	-	-	-	184	164	134	15.1	660	

☆ New Products, ★ Under Development (The specification is subject to change without notice.), ● Recommend Another New Product
AEC-Q101 qualified, \$ With protection Zener diode between gate and source

CST3 (SOT-883)	CST3B	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	ES6 (SOT-563)	UF6 (SOT-363F)	UDFN6B (SOT-1220)	WCSP6C
Bottom View 	Bottom View 						Bottom View 	Bottom View 
1.0x0.6	1.2x0.8	1.2x1.2	1.6x1.6	2.0x2.1	1.6x1.6	2.0x2.1	2.0x2.0	1.5x1.0

N-Channel Single MOSFET

Package	Part Number	V _{oss} (V)	V _{ess} (V)	I _o (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note
					V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 10V			
CST3	SSM3K56CT ● \$	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	⇒ SSM3K56ACT
	SSM3K56ACT ☆ \$	20	+/-8	1.4	-	840	480	300	-	235	-	1.0	55	
CST3B	SSM3K59CTB ☆ \$	40	+/-12	2.0	-	-	420	268	238(@3.6V) 231(@4.2V)	228	215 (@8V)	1.1	130	
VESM	SSM3K36MFV # \$	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
	SSM3K56MFV # \$	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
WCSP6C	SSM6K781G	12	+/-8	7.0	-	124	47.4	23.2	-	18	-	5.4	600	
SSM	SSM3K36FS ● # \$	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	⇒ SSM3K56FS
	SSM3K56FS # \$	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55	
ES6	SSM6K204FE \$	20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195	
	SSM6K211FE \$	20	+/-10	3.2	-	118	82	59	-	47	-	10.8	510	
	SSM6K24FE \$	30	+/-12	0.5	-	-	-	180	-	145	-	-	245	
	SSM6K208FE \$	30	+/-12	1.9	-	-	296	177	133	-	-	1.9	123	
	SSM6K202FE \$	30	+/-12	2.3	-	-	145	101	85	-	-	-	270	
	SSM6K217FE \$	40	+/-12	1.8	-	-	400	248	218(@3.6V) 211(@4.2V)	208	195 (@8V)	1.1	130	
UFM	SSM3K36TU # \$	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46	
	SSM3K62TU ☆ # \$	20	+/-8	0.8	432	139	89	68	-	57	-	2.0	177	
	SSM3K122TU # \$	20	+/-10	2.0	-	304	211	161	123	-	-	3.4	195	
	SSM3K121TU # \$	20	+/-10	3.2	-	140	93	63	48	-	-	5.9	400	
	SSM3K123TU # \$	20	+/-10	4.2	-	66	43	32	28	-	-	13.6	1010	
	SSM3K127TU # \$	30	+/-12	2.0	-	-	286	167	123	-	-	1.5	123	
	SSM3K116TU # \$	30	+/-12	2.2	-	-	-	135	-	100	-	-	245	
	SSM3K131TU # \$	30	+/-20	6.0	-	-	-	-	-	41.5	27.6	10.1	450	
	SSM3H137TU ☆ # \$	34	+/-20	2.0	-	-	-	-	295	280	240	3.0	119	Built-in Active Clamp Zener
	SSM3K2615TU ☆ # \$	60	+/-20	2.0	-	-	-	580 (@3.3V)	440	-	300	6.0	150	
	SSM3K341TU ☆ # \$	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
SSM3K361TU ☆ # \$	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C	
UF6	SSM6K405TU \$	20	+/-10	2.0	-	307	214	164	126	-	-	3.4	195	
	SSM6K404TU # \$	20	+/-10	3.0	-	147	100	70	55	-	-	5.9	400	
	SSM6K403TU # \$	20	+/-10	4.2	-	66	43	32	28	-	-	16.8	1050	
	SSM6K406TU # \$	30	+/-20	4.4	-	-	-	-	-	38.5	25	12.4	490	
	SSM6K407TU # \$	60	+/-20	2.0	-	-	-	-	440	-	300	6.0	150	
UDFN6B	SSM6K504NU # \$	30	+/-20	9.0	-	-	-	-	-	26	19.5	4.8	620	
	SSM6K513NU ☆	30	+/-20	15.0	-	-	-	-	-	12	8.9	7.5	1130	
	SSM6K514NU ☆	40	+/-20	12.0	-	-	-	-	-	17.3	11.6	7.5	1110	
	SSM6K341NU ☆ \$	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
	SSM6K361NU ☆ \$	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C

☆ New Products, ● Recommend Another New Product

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

SOT-23F	TSOP6F (SOT-26F)
	
2.9x2.4	2.9x2.8

N-Channel Single MOSFET

Package	Part Number	V _{DS} (V)	V _{GS} (V)	I _D (A)	R _{DS(ON)} max (mΩ)							Q _g typ. (nC)	C _{iss} typ. (pF)	Note
					V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 10V			
SOT-23F	SSM3K344R ☆ \$	20	+/-8	3.0	-	232	139	91	-	71	-	2.0	153	
	SSM3K345R ☆ \$	20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410	
	SSM3K329R # \$	30	+/-12	3.5	-	-	289	170	126	-	-	1.5	123	
	SSM3K324R \$	30	+/-12	4.0	-	-	109	72	-	56	-	2.2	200	
	SSM3K376R ☆ # \$	30	+12/-8	4.0	-	-	109	72	-	56	-	2.2	200	
	SSM3K336R ☆ # \$	30	+/-20	3.0	-	-	-	-	-	140	95	1.7	126	
	SSM3K333R #	30	+/-20	6.0	-	-	-	-	-	42	28	3.4	436	
	SSM3K335R # \$	30	+/-20	6.0	-	-	-	-	-	56	38	2.7	340	
	SSM3K347R ☆ # \$	38	+/-20	2.0	-	-	-	-	480	410	340	2.5	86	Built-in Active Clamp Zener
	SSM3K337R # \$	38	+/-20	2.0	-	-	-	-	200	176	150	3.0	120	Built-in Active Clamp Zener
	SSM3K339R \$	40	+/-12	2.0	-	-	390	238	208(@3.6V) 201(@4.2V)	198	185(@8V)	1.1	130	
	SSM3K357R ☆ # \$	60	+/-12	0.65	-	-	-	2400(@3V)	-	1800(@5V)	-	1.5	43	Built-in Active Clamp Zener
	SSM3K2615R ☆ # \$	60	+/-20	2.0	-	-	-	580(@3.3V)	440	-	300	6.0	150	
	SSM3K318R ☆ # \$	60	+/-20	2.5	-	-	-	-	-	145	107	7.0	235	
TSOP6F	SSM3K341R ☆ # \$	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
	SSM3K361R ☆ # \$	100	+/-20	3.5	-	-	-	-	-	92	69	3.2	430	Tch=175°C
	SSM6K818R ☆ # \$	30	+/-20	15.0	-	-	-	-	12	8.9	7.5	1130		
	SSM6K809R ☆ # \$	60	+/-20	6.0	-	-	-	-	69	51	36	9.3	550	Tch=175°C
	SSM6K810R ☆ # \$	100	+/-20	3.5	-	-	-	-	92	69	3.2	430		
	SSM6K819R ★ # \$	100	+/-20	10.0	-	-	-	-	-	36.4	25.8	8.5	1110	Tch=175°C

☆ New Products, ★ Under Development (The specification is subject to change without notice.)

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ES6 (SOT-563)	UF6 (SOT-363F)	US6 (SOT-363)	UDFN6 (SOT-1118)	TSOP6F (SOT-26F)
			Bottom View 	
1.6x1.6	2.0x2.1	2.0x2.1	2.0x2.0	2.9x2.8

Dual MOSFET

Package	Polarity	Part Number		V _{oss} (V)	V _{ess} (V)	I _o (A)	R _{DS(on)} max (mΩ)							Q _g typ. (nC)	Ciss typ. (pF)	Note	
							V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 10V				
ES6	P-ch x 2	SSM6P41FE	\$	-20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110		
		SSM6P56FE ★	\$	-20	+/-8	-0.8	4000	900	660	480	-	390	-	1.6	100		
	N-ch x 2	SSM6N36FE #	\$	20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
		SSM6N56FE ☆ #	\$	20	+/-8	0.8	-	840	480	300	-	235	-	1.0	55		
	N-ch + P-ch	SSM6L14FE	\$	-20	+/-10	0.8	-	600	450	330	-	240	-	2.0	90		
			\$	-20	+/-8	-0.72	-	1040	670	440	-	300	-	1.76	110		
		SSM6L36FE #	\$	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46		
			\$	-20	+/-8	-0.33	-	3600	2700	1600 (@2.8V)	-	1310	-	1.2	43		
UDFN6	P-ch x 2	SSM6P47NU	\$	-20	+/-8	-4.0	-	242	170	125	-	95	-	4.6	290		
		SSM6P69NU ☆ #	\$	-20	+6/-12	-4.0	-	-	157	76	-	56	45	6.74	480		
		SSM6P49NU	\$	-20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480		
	N-ch x 2	SSM6N61NU ☆ #	\$	30	+/-8	4.0	-	108	74	45	-	33	-	3.6	410		
		SSM6N55NU #	\$	30	+/-20	4.0	-	-	-	-	-	64	46	2.5	280		
		SSM6N67NU ☆ #	\$	30	+12/-8	4.0	-	-	82	53	-	39.1	-	3.2	310		
		SSM6N68NU ☆ #	\$	30	+12/-8	4.0	-	-	180	117	-	84	-	1.8	129		
		SSM6N57NU	\$	30	+/-12	4.0	-	-	82	53	-	39.1	-	3.2	310		
		SSM6N58NU	\$	30	+/-12	4.0	-	-	180	117	-	84	-	1.8	129		
	N-ch + P-ch	SSM6L61NU	\$	-20	+/-8	4.0	-	108	74	45	-	33	-	3.6	410		
			\$	-20	+/-12	-4.0	-	-	157	76	-	56	45	6.74	480		
	UF6	P-ch x 2	SSM6P54TU #	\$	-20	+/-8	-1.2	-	555	350	228	-	-	-	7.7	331	
			SSM6P39TU #	\$	-20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250	
			SSM6P40TU #	\$	-30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120	
N-ch x 2		SSM6N36TU #	\$	20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
		SSM6N62TU #	\$	20	+/-8	0.8	456	173	120	98	-	85	-	2.0	177		
		SSM6N39TU #	\$	20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260		
		SSM6N24TU #	\$	30	+/-12	0.5	-	-	-	180	-	145	-	-	245		
		SSM6N40TU #	\$	30	+/-20	1.6	-	-	-	-	182	-	122	5.1	180		
			\$	30	+/-20	1.6	-	-	-	-	-	182	-	122	5.1	180	
N-ch + P-ch		SSM6L36TU #	\$	20	+/-10	0.5	-	1520	1140	850	-	660	630 (@5V)	1.23	46		
			\$	-20	+/-8	-0.33	-	3600	2700	1600 (@2.8V)	-	1310	-	1.2	43		
		SSM6L39TU #	\$	20	+/-10	1.6	-	247	190	139	119	-	-	7.5	260		
			\$	-20	+/-8	-1.5	-	-	430	294	213	-	-	6.4	250		
		SSM6L12TU #	\$	30	+/-12	0.5	-	-	-	180	-	145	-	-	245		
		\$	-20	+/-12	-0.5	-	-	-	430	260	-	-	-	218			
US6	N-ch x 2	SSM6N43FU #	\$	20	+/-10	0.5	-	1520	1140	850	-	660	630(@5V)	1.23	46		
			\$	-30	+/-20	-1.4	-	-	-	-	403	-	226	2.9	120		
	N-ch + P-ch	SSM6N357R ☆	\$	60	+/-12	0.65	-	-	-	2400 (@3V)	-	1800 (@5V)	-	1.5	43	Built-in Active Clamp Zener	
		SSM6N815R ☆	\$	100	+/-20	2.0	-	-	-	-	180	142	103	3.1	290		
		SSM6N813R ☆ #	\$	100	+/-20	3.5	-	-	-	-	-	154	112	3.6	242		
		SSM6L807R ☆	\$	30	+12/-12	4	-	-	82	53	-	39.1	-	3.2	310		
			\$	-20	+12/-12	-4	-	-	157	76	-	56	45	6.74	480		
		SSM6L820R ☆ #	\$	30	+12/-8	4	-	-	82	53	-	39.1	-	3.2	310		
			\$	-20	+6/-12	-4	-	-	157	76	-	56	45	6.74	480		
			\$	-20	+6/-12	-4	-	-	157	76	-	56	45	6.74	480		

☆ New Products, ★ Under Development (The specification is subject to change without notice.)

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

■ Less than 500mA Series MOSFETs (Standard Type)

Package Dimensions (unit: mm)

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	UFM (SOT-323F)	USM (SOT-323)	S-Mini (SOT-346)
Bottom View	Bottom View					
0.8x0.6	1.0x0.6	1.2x1.2	1.6x1.6	2.0x2.1	2.0x2.1	2.9x2.5

P-Channel Single MOSFET

Package	Part Number	V _{DS} (V)	V _{GS} (V)	I _D (A)	R _{DS(on)} max (Ω)							Note
					V _{GS} = -1.2V	V _{GS} = -1.5V	V _{GS} = -1.8V	V _{GS} = -2.5V	V _{GS} = -4V	V _{GS} = -4.5V	V _{GS} = -10V	
CST3C	SSM3J35CTC ☆ \$	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
CST3	SSM3J35CT \$	-20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J15CT \$	-30	+/-20	-0.1	-	-	-	32	12	-	-	
VESM	SSM3J35MFV ● # \$	-20	+/-10	-0.1	44	22	-	11	8	-	-	⇒ SSM3J56MFV
	SSM3J16FV ● # \$	-20	+/-10	-0.1	-	45	-	12	8	-	-	⇒ SSM3J56MFV
	SSM3J35AMFV ☆ \$	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J15FV # \$	-30	+/-20	-0.1	-	-	-	32	12	-	-	
SSM	SSM3J35FS # \$	-20	+/-10	-0.1	44	22	-	11	8	-	-	
	SSM3J35AFS ☆ \$	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	
	SSM3J36FS # \$	-20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	
	SSM3J15FS # \$	-30	+/-20	-0.1	-	-	-	32	12	-	-	
UFM	SSM3J36TU # \$	-20	+/-8	-0.33	-	3.6	2.7	1.6(@-2.8V)	-	1.31	-	
USM	SSM3J16FU # \$	-20	+/-10	-0.1	-	45	-	12	8	-	-	
	SSM3J15FU # \$	-30	+/-20	-0.1	-	-	-	32	12	-	-	
	SSM3J09FU # \$	-30	+/-20	-0.2	-	-	-	6(@-3.3V)	4.2	-	2.7	
S-Mini	SSM3J15F # \$	-30	+/-20	-0.1	-	-	-	32	12	-	-	
	2SJ168 ● \$	-60	+/-20	-0.2	-	-	-	-	-	-	2	⇒ SSM3J168F
	SSM3J168F ☆ # \$	-60	+10/-20	-0.4	-	-	-	-	2	1.9	1.55	

☆ New Products, ● Recommend Another New Product
AEC-Q101 qualified, \$ With protection Zener diode between gate and source

CST3C	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	SOT23 (SOT-23)	S-Mini (SOT-346)
Bottom View	Bottom View					
0.8x0.6	1.0x0.6	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.4	2.9x2.5

N-Channel Single MOSFET

Package	Part Number	V _{oss} (V)	V _{ess} (V)	I _o (A)	R _{DS(on)} max (Ω)								Note
					V _{GS} = 1.2V	V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 5V	V _{GS} = 10V	
CST3C	SSM3K16CTC ☆	\$	20	+/-10	0.2	-	5.6	4	3	-	2.2	-	-
	SSM3K35CTC ☆	\$	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-
	SSM3K15ACTC ☆	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
	SSM3K72CTC ☆	\$	60	+/-20	0.15	-	-	-	5.7(typ.)	-	4.7	4.4	3.9
CST3	SSM3K16CT ●	\$	20	+/-10	0.1	-	15	-	4	3	-	-	⇒ SSM3K37CT
	SSM3K35CT	\$	20	+/-10	0.18	20	8	-	4	3	-	-	-
	SSM3K37CT	\$	20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-
	SSM3K15ACT	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
	SSM3K72KCT ☆	\$	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5
VESM	SSM3K16FV ● #	\$	20	+/-10	0.1	-	15	-	4	3	-	-	⇒ SSM3K37MFV
	SSM3K35MFV #	\$	20	+/-10	0.18	20	8	-	4	3	-	-	-
	SSM3K37MFV	\$	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-
	SSM3K35AMFV ☆	\$	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-
	SSM3K15AMFV	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
	SSM3K44MFV #	\$	30	+/-20	0.1	-	-	-	7	4	-	-	-
SSM	SSM3K16FS ● #	\$	20	+/-10	0.1	-	15	-	4	3	-	-	⇒ SSM3K37FS
	SSM3K35FS #	\$	20	+/-10	0.18	20	8	-	4	3	-	-	-
	SSM3K37FS	\$	20	+/-10	0.2	-	5.6	4.05	3.02	-	2.2	-	-
	SSM3K35AFS ☆	\$	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-
	SSM3K44FS #	\$	30	+/-20	0.1	-	-	-	7	4	-	-	-
	SSM3K15AFS	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
	SSM3K72CFs	\$	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9
	SSM3K72KFS ☆ #	\$	60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5
USM	SSM3K16FU #	\$	20	+/-10	0.1	-	15	-	4	3	-	-	-
	SSM3K15AFU	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
	SSM3K48FU	\$	30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-
	SSM3K09FU #	\$	30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7
	SSM3K17FU #	\$	50	+/-7	0.1	-	-	-	40	20	-	-	-
	SSM3K7002CFU ☆	\$	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9
	SSM3K7002KFU ☆ #	\$	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5
SOT23	T2N7002AK ☆	\$	60	+/-20	0.2	-	-	-	-	-	4.7	4.4	3.9
	T2N7002BK ☆	\$	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5
S-Mini	SSM3K15F #	\$	30	+/-20	0.1	-	-	-	7	4	-	-	-
	SSM3K7002KF ☆ #	\$	60	+/-20	0.4	-	-	-	-	-	1.75	1.65	1.5

☆ New Products, ● Recommend Another New Product

AEC-Q101 qualified, \$ With protection Zener diode between gate and source

ESV (SOT-553)	ES6 (SOT-563)	USV (SOT-353)	UF6 (SOT-363F)	US6 (SOT-363)
				
1.6x1.6	1.6x1.6	2.0x2.1	2.0x2.1	2.0x2.1

Dual MOSFET

Package	Polarity	Part Number	V _{oss} (V)	V _{ess} (V)	I _o (A)	R _{DS(ON)} max (Ω)								Note
						V _{es} =1.2V	V _{es} =1.5V	V _{es} =1.8V	V _{es} =2.5V	V _{es} =4V	V _{es} =4.5V	V _{es} =5V	V _{es} =10V	
ESV	P-ch x 2	SSM5P16FE	\$	-20	+/-10	-0.1	-	45	-	12	8	-	-	-
	N-ch x 2	SSM5N16FE	\$	20	+/-10	0.1	-	15	-	4	3	-	-	-
		SSM5N15FE	\$	30	+/-20	0.1	-	-	-	7	4	-	-	-
ES6	P-ch x 2	SSM6P35FE	#	-20	+/-10	-0.1	44	22	-	11	8	-	-	-
		SSM6P35AFE ☆	\$	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-
		SSM6P36FE	#	-20	+/-8	-0.33	-	3.6	2.7	1.6(@2.8V)	-	1.31	-	-
		SSM6P15FE	#	-30	+/-20	-0.1	-	-	-	32	12	-	-	-
	N-ch x 2	SSM6N16FE ●	#	20	+/-10	0.1	-	15	-	4	3	-	-	-
		SSM6N35FE	#	20	+/-10	0.18	20	8	-	4	3	-	-	-
		SSM6N37FE	\$	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-
		SSM6N35AFE ☆	\$	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-
		SSM6N44FE	#	30	+/-20	0.1	-	-	-	7	4	-	-	-
		SSM6N15AFE	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
		SSM6N7002BFE	\$	60	+/-20	0.2	-	-	-	-	-	3.3	2.6	2.1
	N-ch + P-ch	SSM6L35FE	#	20	+/-10	0.18	20	8	-	4	3	-	-	-
				-20	+/-10	-0.1	44	22	-	11	8	-	-	-
USV	P-ch x 2	SSM5P15FU	\$	-30	+/-20	-0.1	-	-	-	32	12	-	-	-
	N-ch x 2	SSM5N16FU	\$	20	+/-10	0.1	-	15	-	4	3	-	-	-
		SSM5N15FU	\$	30	+/-20	0.1	-	-	-	7	4	-	-	-
UF6	P-ch x 2	SSM6P36TU	#	-20	+/-8	-0.33	-	3.6	2.7	1.6(@2.8V)	-	1.31	-	-
US6	P-ch x 2	SSM6P35FU	#	-20	+/-10	-0.1	44	22	-	11	8	-	-	-
		SSM6P35AFU ☆	\$	-20	+/-10	-0.25	20	4	2.9	2.1	-	1.4	-	-
		SSM6P15FU	#	-30	+/-20	-0.1	-	-	-	32	12	-	-	-
	N-ch x 2	SSM6N16FU ●	\$	20	+/-10	0.1	-	15	-	4	3	-	-	-
		SSM6N35FU	#	20	+/-10	0.18	20	8	-	4	3	-	-	-
		SSM6N35AFU ☆	\$	20	+/-10	0.25	9	3.1	2.4	1.6	-	1.1	-	-
		SSM6N37FU	\$	20	+/-10	0.25	-	5.6	4.05	3.02	-	2.2	-	-
		SSM6N48FU	\$	30	+/-20	0.1	-	-	-	5.4	3.2	-	-	-
		SSM6N44FU	#	30	+/-20	0.1	-	-	-	7	4	-	-	-
		SSM6N15AFU	\$	30	+/-20	0.1	-	-	-	6	3.6	-	-	-
		SSM6N09FU	\$	30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7
		SSM6N17FU	#	50	+/-7	0.1	-	-	-	40	20	-	-	-
		SSM6N7002CFU ☆	\$	60	+/-20	0.17	-	-	-	-	-	4.7	4.4	3.9
		SSM6N7002KFU ☆	#	60	+/-20	0.3	-	-	-	-	-	1.75	1.65	1.5
	N-ch + P-ch	SSM6L35FU	#	20	+/-10	0.18	20	8	-	4	3	-	-	-
				-20	+/-10	-0.1	44	22	-	11	8	-	-	-
			\$	30	+/-20	0.4	-	-	-	1.7(@3.3V)	1.2	-	-	0.7
				-30	+/-20	-0.2	-	-	-	6(@-3.3V)	4.2	-	-	2.7

☆ New Products, ● Recommend Another New Product
 # AEC-Q101 qualified, \$ With protection Zener diode between gate and source

MOSFET with Diode

Package Dimensions (unit: mm)

ESV (SOT-553)	UFV (SOT-353F)	UDFN6 (SOT-1118)
		
1.6x1.6	2.0x2.1	2.0x2.0

Package	Polarity	Part Number	V _{DSS} (V)	V _{GSS} (V)	I _O (A)	MOSFET							Diode				Note	
						R _{DS(ON)} max (mΩ)						C _{iss} typ. (pF)	V _F (V)	I _O (A)	V _F max (V)			
						V _{GS} = 1.5V	V _{GS} = 1.8V	V _{GS} = 2.5V	V _{GS} = 4V	V _{GS} = 4.5V	V _{GS} = 5V				V _{GS} = 10V	@I _F (A)		
ESV	P-ch + SBD	SSM5G06FE	\$ -20	+/-10	-0.1	45000	-	12000	8000	-	-	-	11	12	0.1	0.5	0.1	
	N-ch + SBD	SSM5H06FE	\$ 20	+/-10	0.1	15000	-	4000	3000	-	-	-	9.3	12	0.1	0.5	0.1	
UFV	P-ch + SBD	SSM5G02TU	\$ -12	+/-12	-1.0	-	-	240	160	-	-	-	310	12	0.5	0.43	0.5	
		SSM5G09TU	\$ -12	+/-8	-1.5	-	-	200	130	-	-	-	550	12	0.5	0.43	0.5	
	N-ch + SBD	SSM5G11TU	\$ -30	+/-20	-1.4	-	-	-	403	-	-	226	120	30(¥)	0.7(¥¥)	0.44	0.7(¥¥)	
		SSM5H08TU	\$ 20	+/-12	1.5	-	-	220	160	-	-	-	125	20	0.5	0.43(typ.)	0.5	
		SSM5H01TU	\$ 30	+/-20	1.4	-	-	-	450	-	-	200	106	20	0.5	0.43(typ.)	0.5	
		SSM5H11TU	\$ 30	+/-20	1.6	-	-	-	182	-	-	122	180	30(¥)	0.7(¥¥)	0.44	0.7	
		SSM5H16TU	\$ 30	+/-12	1.9	-	296	177	133	-	-	-	123	30	0.8	0.55	0.8	
		N-ch + Switching Diode	SSM5H90ATU	\$ 20	+/-10	2.4	-	-	89	65	-	-	-	200	80	0.1	1.2	0.1
UDFN6	P-ch + SBD	SSM6G18NU	\$ -20	+/-8	-2.0	261	185	143	-	112	-	-	270	30	1	0.58	1	
	N-ch + SBD	SSM6H19NU	\$ 40	+/-12	2.0	-	390	238	208(@3.6V) 201(@4.2V)	198	-	185 (@8V)	130	40	0.5	0.57	0.5	

\$ With protection Zener diode between gate and source, ¥ V_{RRM}, ¥¥ I_{F(AV)}

1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

■ Part Naming Conventions

Small-Signal MOSFET SSM Series

Ex) SSM 3 K 329 R
 ① ② ③ ④ ⑤

① Small-Signal MOSFET

② Pin count

③ Polarity and internal configuration

K: N-channel, single

J: P-channel, single

N: N-channel, dual

P: P-channel, dual

L: N-channel and P-channel (dual)

E: N-channel and P-channel (pre-wired as a load switch)

H: N-channel and SBD

G: P-channel and SBD

Q: PNP and P-channel

④ Serial number of the products

⑤ Package

3-pin F: S-Mini

FU: USM

FS: SSM

FV: VESM

TU: UFM

CT: CST3

CTB: CST3B

CTC: CST3C

R: SOT-23F

5-pin F: SMV

FU: USV

FE: ESV

TU: UFV

6-pin G: WCSP6C

R: TSOP6F

FU: US6

FE: ES6

TU: UF6

NU: UDFN6/UDFN6B

2. Bipolar Transistors

General-Purpose Transistors

Package Dimensions (unit: mm)

Classification	V _{CE0} (V)	I _c (mA)	CST3 (SOT-883)		VESM (SOT-723)		SSM (SOT-416)	
			Bottom View					
								
			1.0x0.6		1.2x1.2		1.6x1.6	
Part Number								
			NPN	PNP	NPN	PNP	NPN	PNP
General Purpose	50	100	2SC6026CT	2SA2154CT				
	50	150			2SC6026MFV #	2SA2154MFV #	2SC4738 #	2SA1832 #

Classification	$ V_{CE0} $ (V)	$ I_C $ (mA)	USM (SOT-323)		UFM (SOT-323F)		S-Mini (SOT-346)		SOT23 (SOT-23)	
										
			2.0x2.1	2.0x2.1	2.9x2.5	2.9x2.4				
			Part Number							
			NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP
General Purpose	30	500		2SA1588 #				2SA1182 #		
	50	150	2SC4116 #	2SA1586 #			2SC2712 #	2SA1162 #	TBC847 ☆	TBC857 ☆
			TTC4116FU	TTA1586FU						
	200							TMBT3904 ☆	TMBT3906 ☆	
	50	500					2SC3325 # TTC1949	2SA1313 #		
45						TTA1713				
Low Noise	120	100	2SC4117 #	2SA1587 #			2SC2713 #	2SA1163 #		
							2SC3324	2SA1312		
Low Saturation	15	800						2SA1362 #		
Muting	20	300	2SC4213				2SC3326 #			
High Current	20	2500				2SA2215 #				
	25	800					2SC3265 #	2SA1298 #		
	50	1000			2SC6135 #					
	50	1700				2SA2195 #				
	50	2500			2SC6100 #					
High Breakdown	300	100						2SA1721		
	600	50					2SC6105			

☆ New Products
AEC-Q101 qualified

1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

Classification	$ V_{CE0} $ (V)	$ I_C $ (mA)	ESV (SOT-553)	USV (SOT-353)	SMV (SOT-25)			
			 1.6x1.6	 2.0x2.1	 2.9x2.8			
			Part Number					
			Complementary	NPNx2	PNPx2	NPNx2	PNPx2	Complementary
General Purpose	50	150	HN4B01JE 	2SC4944 	2SA1873 	2SC4207 	2SA1618 	
					HN4A56JU 			
Low Noise	120	100				HN4C06J 	HN4A06J 	HN4B06J 
					HN4C51J 	HN4A51J 		
High Current	25	800					HN4A08J 	

Classification	$ V_{CE0} $ (V)	$ I_C $ (mA)	ES6 (SOT-563)			US6 (SOT-363)			SM6 (SOT-26)		
			 1.6x1.6			 2.0x2.1			 2.9x2.8		
			Part Number								
			NPNx2	PNPx2	Complementary	NPNx2	PNPx2	Complementary	NPNx2	PNPx2	Complementary
General Purpose	50	150	HN1C01FE # 	HN1A01FE # 	HN1B04FE # 	HN1C01FU # 	HN1A01FU # 	HN1B01FU # 	HN1C01F 	HN1A01F 	HN1B01F 
						HN2C01FU 	HN2A01FU 	HN1B04FU # 			
						HN3C56FU 		HN3B02FU 			
	50	500							HN1C07F 	HN1A07F 	
										HN1A02F 	
High Current	15	800									
Muting	20	300				HN1C03FU # 			HN1C03F 		

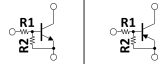
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Bias Resistor Built-in Transistors (BRTs)

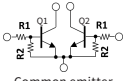
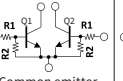
Package Dimensions (unit: mm)

		V_{CE0} (V)	I_{C0} (mA)	Resistance		VESM (SOT-723)		SSM (SOT-416)		USM (SOT-323)		S-Mini (SOT-346)	
													
						1.2x1.2		1.6x1.6		2.0x2.1		2.9x2.5	
													
				R1 (typ.) (kΩ)	R2 (typ.) (kΩ)	NPN	PNP	NPN	PNP	NPN	PNP	NPN	PNP
Part Number													
50	100	4.7	4.7	RN1101MFV #	RN2101MFV #	RN1101 #	RN2101 #	RN1301 #	RN2301 #	RN1401 #	RN2401 #		
		10	10	RN1102MFV #	RN2102MFV #	RN1102 #	RN2102 #	RN1302 #	RN2302 #	RN1402 #	RN2402 #		
		22	22	RN1103MFV #	RN2103MFV #	RN1103 #	RN2103 #	RN1303 #	RN2303 #	RN1403 #	RN2403 #		
		47	47	RN1104MFV #	RN2104MFV #	RN1104 #	RN2104 #	RN1304 #	RN2304 #	RN1404 #	RN2404 #		
		2.2	47	RN1105MFV #	RN2105MFV #	RN1105 #	RN2105 #	RN1305 #	RN2305 #	RN1405 #	RN2405 #		
		4.7	47	RN1106MFV #	RN2106MFV #	RN1106 #	RN2106 #	RN1306 #	RN2306 #	RN1406 #	RN2406 #		
		10	47	RN1107MFV #	RN2107MFV #	RN1107 #	RN2107 #	RN1307 #	RN2307 #	RN1407 #	RN2407 #		
		22	47	RN1108MFV #	RN2108MFV #	RN1108 #	RN2108 #	RN1308 #	RN2308 #	RN1408 #	RN2408 #		
		47	22	RN1109MFV #	RN2109MFV #	RN1109 #	RN2109 #	RN1309 #	RN2309 #	RN1409 #	RN2409 #		
		4.7	∞	RN1110MFV #	RN2110MFV #	RN1110 #	RN2110 #	RN1310 #	RN2310 #	RN1410 #	RN2410 #		
		10	∞	RN1111MFV #	RN2111MFV #	RN1111 #	RN2111 #	RN1311 #	RN2311 #	RN1411 #	RN2411 #		
		22	∞	RN1112MFV #	RN2112MFV #	RN1112 #	RN2112 #	RN1312 #	RN2312 #	RN1412 #	RN2412 #		
		47	∞	RN1113MFV #	RN2113MFV #	RN1113 #	RN2113 #	RN1313 #	RN2313 #	RN1413 #	RN2413 #		
		1	10	RN1114MFV #	RN2114MFV #	RN1114 #	RN2114 #	RN1314 #	RN2314 #	RN1414 #	RN2414 #		
		2.2	10	RN1115MFV #	RN2115MFV #	RN1115 #	RN2115 #	RN1315 #	RN2315 #	RN1415 #	RN2415 #		
		4.7	10	RN1116MFV #	RN2116MFV #	RN1116 #	RN2116 #	RN1316 #	RN2316 #	RN1416 #	RN2416 #		
		10	4.7	RN1117MFV #	RN2117MFV #	RN1117 #	RN2117 #	RN1317 #	RN2317 #	RN1417 #	RN2417 #		
		47	10	RN1118MFV #	-	RN1118	-	RN1318	RN2318	RN1418 #	RN2418 #		
		1	∞	RN1119MFV #	RN2119MFV #	-	-	-	-	-	-		
		100	100	RN1130MFV #	RN2130MFV #	-	-	-	-	-	-		
		100	∞	RN1131MFV #	RN2131MFV #	-	-	-	-	-	-		
		200	∞	RN1132MFV #	RN2132MFV #	-	-	-	-	-	-		

V_{CE0} (V)		I_{C0} (mA)		Resistance		SOT23 (SOT-23)	
							
						2.9x2.4	
							
	R1 (typ.) (kΩ)	R2 (typ.) (kΩ)			NPN	PNP	
			Part Number				
50	100	4.7	4.7	TDTC143E	TDTA143E		
		10	10	TDTC114E	TDTA114E		
		22	22	TDTC124E	TDTA124E		
		47	47	TDTC144E	TDTA144E		
		2.2	47	TDTC123J	TDTA123J		
		4.7	47	TDTC143Z	TDTA143Z		
		10	47	TDTC114Y	TDTA114Y		

V_{CE0} (V)		I_C (mA)		Resistance		S-Mini (SOT-346)	
							
						2.9x2.5	
							
		R1 (typ.) (kΩ)	R2 (typ.) (kΩ)			NPN	PNP
				Part Number			
50	800	1	1	RN1421	RN2421		
		2.2	2.2	RN1422	RN2422		
		4.7	4.7	RN1423	RN2423		
		10	10	RN1424	RN2424		
		0.47	10	RN1425	RN2425		
		1	10	RN1426	RN2426		
		2.2	10	RN1427	RN2427		

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V _{ceo} (V)	I _c (mA)	Resistance		ESV (SOT-553)		USV (SOT-353)		SMV (SOT-25)	
									
				1.6x1.6		2.0x2.1		2.9x2.8	
									
		R1 (typ.) (kΩ)	R2 (typ.) (kΩ)	Common emitter	Common emitter	Common emitter	Common emitter	Common emitter	Common emitter
Part Number									
50	100	4.7	4.7	RN1701JE	RN2701JE	RN1701 #	RN2701 #	RN1501	RN2501
		10	10	RN1702JE	RN2702JE	RN1702 #	RN2702 #	RN1502	RN2502
		22	22	RN1703JE	RN2703JE	RN1703 #	RN2703 #	RN1503	RN2503
		47	47	RN1704JE	RN2704JE	RN1704 #	RN2704 #	RN1504	RN2504
		2.2	47	RN1705JE	RN2705JE	RN1705 #	RN2705 #	RN1505	RN2505
		4.7	47	RN1706JE	RN2706JE	RN1706 #	RN2706 #	RN1506	RN2506
		10	47	RN1707JE	RN2707JE	RN1707 #	RN2707 #	RN1507	RN2507
		22	47	RN1708JE	RN2708JE	RN1708 #	RN2708 #	RN1508	-
		47	22	RN1709JE	RN2709JE	RN1709 #	RN2709 #	RN1509	-
		4.7	∞	RN1710JE	RN2710JE	RN1710 #	RN2710 #	RN1510	RN2510
		10	∞	RN1711JE	RN2711JE	RN1711 #	RN2711 #	RN1511	RN2511
		22	∞	-	RN2712JE	-	-	-	-
		47	∞	-	RN2713JE	-	-	-	-
		1	10	-	-	-	RN2714	-	-

					ES6 (SOT-563)			
								
					1.6x1.6			
					 Point symmetrical			
					R1 (typ.) (kΩ)	R2 (typ.) (kΩ)	Part Number	
50	100	4.7	4.7		RN1901FE #	RN2901FE #	RN4901FE #	RN4981FE #
		10	10		RN1902FE #	RN2902FE #	RN4902FE #	RN4982FE #
		22	22		RN1903FE #	RN2903FE #	RN4903FE #	RN4983FE #
		47	47		RN1904FE #	RN2904FE #	RN4904FE #	RN4984FE #
		2.2	47		RN1905FE #	RN2905FE #	RN4905FE #	RN4985FE #
		4.7	47		RN1906FE #	RN2906FE #	RN4906FE #	RN4986FE #
		10	47		RN1907FE #	RN2907FE #	RN4907FE #	RN4987FE #
		22	47		RN1908FE #	RN2908FE #	RN4908FE #	RN4988FE #
		47	22		RN1909FE #	RN2909FE #	RN4909FE #	RN4989FE #
		4.7	∞		RN1910FE #	RN2910FE #	RN4910FE #	RN4990FE #
		10	∞		RN1911FE #	RN2911FE #	RN4911FE #	RN4991FE #
		2.2/22	47/47		-	-	RN49A1FE	-

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$ V_{ce0} $ (V)		$ I_c $ (mA)		US6 (SOT-363)					
				Resistance					
				 2.0x2.1					
				 Point symmetrical	 Point symmetrical	 Point symmetrical	 Point symmetrical	 Parallel	 Parallel
		R1 (typ.) (kΩ)	R2 (typ.) (kΩ)	Part Number					
50	100	4.7	4.7	RN1901 #	RN2901 #	RN4901 #	RN4981 #	RN1961	RN2961
		10	10	RN1902 #	RN2902 #	RN4902 #	RN4982 #	RN1962	RN2962
		22	22	RN1903 #	RN2903 #	RN4903 #	RN4983 #	RN1963	RN2963
		47	47	RN1904 #	RN2904 #	RN4904 #	RN4984 #	RN1964	RN2964
		2.2	47	RN1905 #	RN2905 #	RN4905 #	RN4985 #	RN1965	RN2965
		4.7	47	RN1906 #	RN2906 #	RN4906 #	RN4986 #	-	-
		10	47	RN1907 #	RN2907 #	RN4907 #	RN4987 #	-	RN2967
		22	47	RN1908 #	RN2908 #	RN4908 #	RN4988 #	RN1968	-
		47	22	RN1909 #	RN2909 #	RN4909 #	RN4989 #	-	RN2969
		4.7	∞	RN1910 #	RN2910 #	RN4910 #	RN4990 #	RN1970	-
		10	∞	RN1911 #	RN2911 #	RN4911 #	-	RN1971	RN2971
		47	∞	-	-	-	-	-	-
		2.2/22	47/47	-	-	RN49A1	-	-	-
		47/2.2	47/47	-	-	-	RN49A2	-	-

$ V_{ce0} $ (V)		$ I_c $ (mA)		SM6 (SOT-26)		
				Resistance		
				 2.9x2.8		
				 Point symmetrical	 Point symmetrical	 Point symmetrical
		R1 (typ.) (kΩ)	R2 (typ.) (kΩ)	Part Number		
50	100	4.7	4.7	RN1601	RN2601	RN4601
		10	10	RN1602	RN2602	RN4602
		22	22	RN1603	RN2603	RN4603
		47	47	RN1604	RN2604	RN4604
		2.2	47	RN1605	RN2605	RN4605
		4.7	47	RN1606	RN2606	RN4606
		10	47	RN1607	RN2607	RN4607
		22	47	RN1608	RN2608	RN4608
		47	22	RN1609	-	RN4609
		4.7	∞	RN1610	RN2610	RN4610
		10	∞	RN1611	-	RN4611
		22	∞	-	-	RN4612
		22/10	22/10	-	-	RN46A1

3. Diodes

■ Schottky Barrier Diodes (SBDs)

Features	Absolute Maximum Ratings		Electrical Characteristics (Ta=25°C)						SL2 (SOD-962)	CL2E	CST2 (SOD-882)	SOD-923	CST2B	
									Bottom View	Bottom View	Bottom View		Bottom View	
	V_{RR}/V_{RM}^* (V)	I_O (A)	V_F			I_S max (μA)		C_T typ. (pF)						
		typ. (V)	max (V)	@ I_F (A)		@ V_R (V)			0.62x0.32	1.0x0.6	1.0x0.6	1.0x0.6	1.2x0.8	
High- V_F and I_O	60	1.0	0.56	0.62	1.0	40	60	130						
	40	2.0	0.47	0.54	2.0	60	40	300						
			0.4	0.47	2.0	300	40	290						
		1.5	0.57	0.63	1.5	50	40	130						
			0.59	0.64	1.5	25	40	130						
			1.0	to 0.63	to 0.70	1.0	20	40	74					CBS10F40 ☆
	0.5	0.74	0.81	0.5	15	40	28			CTS05F40 ☆				
	40*	1.5	0.47	0.55	1.5	200	40	170						
		1.0	to 0.48	to 0.55	1.0	150	40	120					CBS10S40	
		0.5	0.56	0.60	0.5	50	40	42			CTS05S40			
	30	2.0	0.40	0.47	2.0	60	30	380						
			0.34	0.41	2.0	500	30	390						
		1.0	0.43	0.50	1.0	50	30	170						
		0.8	0.40	0.45	0.8	50	30	170						
		0.5	0.38	0.45	0.5	50	30	to 120					CBS05F30 ☆	
		0.5	0.38	0.47	0.5	100	20	-						
	30*	1.5	0.39	-	1.5	500	30	200						
		1.0	0.37	0.45	1.0	500	30	135					CBS10S30	
		0.5	0.41	0.47	0.5	300	30	55			CTS05S30			
Standard	40	0.1	0.54	0.60	0.1	5	40	11						
			0.56	0.62	0.1	5	40	15			1SS417CT	1SS417		
	30	0.2	0.52	0.60	0.2	5	30	to 17			CTS520 ☆			
			0.45	0.50	0.2	30	30	to 26			CTS521 ☆			
		0.1	0.38	0.50	0.1	50	30	15			1SS416CT	1SS416		
			0.51	0.62	0.1	0.7	30	8.2	DSR01S30SL ☆					
	20	0.1	0.41	0.50	0.1	50	30	9.3	DSF01S30SL ☆					
			0.3	0.38	0.45	0.3	50	20	46					
		0.2	0.42	0.50	0.2	50	20	20						
10		0.1	0.35	0.50	0.1	20	10	20						
Low- I_S High Speed	20	0.05	0.50	0.55	0.05	0.5	20	3.9			1SS413CT	1SS413		
	40	1.0	0.52	0.57	1.0	25	40	130		CLS10F40 ★				

☆ New Products, ★ Under Development (The specification is subject to change without notice.)
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	CST2C (SOD-963)	ESC (SOD-523)	USC (SOD-323)	US2H (SOD-323HE)	Electrical Characteristics (Ta=25°C)						Absolute Maximum Ratings		Features
	Bottom View  1.6x0.8	 1.6x0.8	 2.5x1.25	 2.5x1.4	V _F			I _R max (μA)		C _T typ. (pF)	V _R / V _{RM} * (V)	I _O (A)	
					typ. (V)	max (V)	@I _R (A)		@V _R (V)				
				CUHS10F60 ☆	0.56	0.62	1.0	40	60	130	60	1.0	High-V _R and I _O
				CUHS20F40 ☆	0.47	0.54	2.0	60	40	300	40	2.0	
				CUHS20S40 ☆	0.4	0.47	2.0	300	40	290		1.5	
				CUHS15F40 ☆	0.57	0.63	1.5	50	40	130		1.0	
CCS15F40 ☆					0.59	0.64	1.5	25	40	130		0.5	
			CUS10F40 ☆		to 0.63	to 0.70	1.0	20	40	74	40*	1.5	
			CUS05F40 ☆		0.74	0.81	0.5	15	40	28		1.0	
			CUS15S40		0.47	0.55	1.5	200	40	170		0.5	
CCS15S40 ☆			CUS10S40 ☆		to 0.48	to 0.55	1.0	150	40	120		1.5	
			CUS05S40 ☆		0.56	0.60	0.5	50	40	42	30	1.0	
			CUHS20F30 ☆		0.40	0.47	2.0	60	30	380		0.8	
			CUHS20S30 ☆		0.34	0.41	2.0	500	30	390		0.5	
			CUS10F30		0.43	0.50	1.0	50	30	170		1.5	
			CUS08F30 ☆		0.4	0.45	0.8	50	30	170	30*	1.0	Standard
			CUS05F30		0.38	0.45	0.5	50	30	to 120		0.1	
			CUS551V30 ☆		0.38	0.47	0.5	100	20	-		0.2	
CCS15S30 ☆			CUS15S30 ☆		0.39	-	1.5	500	30	200		0.3	
			CUS10S30		0.37	0.45	1.0	500	30	135	40	0.2	
			CUS05S30		0.41	0.47	0.5	300	30	55		0.1	
		CES388 #	CUS357 #		0.54	0.60	0.1	5	40	11		0.1	
					0.56	0.62	0.1	5	40	15		0.2	
		CES520 ☆ #	CUS520 ☆ #		0.52	0.60	0.2	5	30	to 17	30	0.3	
		CES521 ☆	CUS521 ☆ #		0.45	0.50	0.2	30	30	to 26		0.2	
					0.38	0.50	0.1	50	30	15		0.1	
					0.51	0.62	0.1	0.7	30	8.2		0.1	
					0.41	0.50	0.1	50	30	9.3	20	0.3	Low-I _R High Speed
			1SS404 #		0.38	0.45	0.3	50	20	46		0.2	
		1SS424			0.42	0.50	0.2	50	20	20		0.1	
		1SS389 #	1SS367 #		0.35	0.50	0.1	20	10	20		0.05	
		1SS405 #	1SS406 #		0.50	0.55	0.05	0.5	20	3.9	20	1.0	
					0.52	0.57	1.0	25	40	130	40	1.0	

Schottky Barrier Diodes (SBDs)

Features	Absolute Maximum Ratings		Electrical Characteristics (Ta=25°C)						VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	S-Mini (SOT-346)	SOT-23 (SOT-23)		
	V _R / V _{RM} * (V)	I _O (A)	V _F			I _R max (μA)	C _T typ. (pF)								
			typ. (V)	max (V)	@I _F (A)										
High-V _F and I _O	30	1.0	0.47	0.57	1.0	50	30	120	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.5	2.9x2.4		
Standard	40	0.1	0.54	0.6	0.1	5	40	18			1SS322 	1SS294 			
											1SS393 	1SS392 			
											1SS396 				
			0.56	0.62	0.1	5	40	15	1SS423 						
	30	0.2	0.45	0.58	0.1	2	25	trr=1.5ns @I _L =10mA					TBAT54 ☆ 		
													TBAT54C ☆ 		
													TBAT54S ☆ 		
													TBAT54A ☆ 		
		0.1	0.38	0.5	0.1	50	30	15	1SS422 						
	20	0.3	0.38	0.45	0.3	50	20	46			1SS401 				
		0.2	0.36	0.42	0.2	50	20	46							
	10	0.1	0.35	0.5	0.1	20	10	20			1SS395 	1SS394 			
									1SS385FV 	1SS385 	1SS378 	1SS377 			
											1SS372 	1SS374 			
Low-I _R High Speed	20	0.05	0.5	0.55	0.05	0.5	20	3.9							
	10	0.05	0.63	1	0.05	0.5	10	3.2				1SS321 # 			

☆ New Products, # AEC-Q101 qualified

	USQ (SOT-343)	SMQ (SOT-24)	ESV (SOT-553)	UFV (SOT-353)	US6 (SOT-363)	SM6 (SOT-26)	Electrical Characteristics (Ta=25°C)						Absolute Maximum Ratings		Features
							V _F			I _R max (μA)	@V _R (V)	C _T typ. (pF)	V _R / V _{RM} * (V)	I _O (A)	
	2.0x2.1	2.9x2.9	1.6x1.6	2.0x2.1	2.0x2.1	2.9x2.8	typ. (V)	max (V)	@I _F (A)						
				CVJ10F30 			0.47	0.57	1.0	50	30	120	30	1.0	High-V _{FE} and I _O
	1SS383 	1SS319 	HN2S02JE 		HN2S02FU 		0.54	0.6	0.1	5	40	18	40	0.1	
							0.56	0.62	0.1	5	40	15			
							0.45	0.58	0.1	2	25	trr= 1.5ns @I _F =10 mA	30	0.2	
						0.38							0.5	0.1	50
							0.38	0.45	0.3	50	20	46	20	0.3	
					HN2S04FU 		0.36	0.42	0.2	50	20	46		0.2	
	1SS384 				HN2S01FU 	HN2S01F 	0.35	0.5	0.1	20	10	20	10	0.1	
	1SS402 				HN2S03FU 		0.5	0.55	0.05	0.5	20	3.9	20	0.05	Low-I _{FE} High Speed
							0.63	1	0.05	0.5	10	3.2	10	0.05	

Switching Diodes

Absolute Maximum Ratings		Electrical Characteristics (Ta=25°C)		CST2 (SOD-882)	SOD-923	ESC (SOD-523)	USC (SOD-323)	CST3 (SOT-883)	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	SOT23 (SOT-23)	
V _R (V)	I _O (mA)	C _T typ. (pF)	trr typ. (ns)	Bottom View				Bottom View					
													
				1.0x0.6	1.0x0.6	1.6x0.8	2.5x1.25	1.0x0.6	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.4	
30	100	3	-										
80	80	0.5	1.6							1SS362 			
	100	0.3	1.6		1SS427								
		0.5	1.6	1SS387CT		1SS387 #	1SS352 #						
		0.9	1.6					1SS361CT 	1SS361FV # 	1SS361 # 	1SS301 # 		
									1SS362FV # 		1SS302A # 	TBAV99 ☆ 	
		2	-			1SS307E ☆ #							
		2.2	1.6										
		3.0	-							1SS360 # 	1SS300 # 		
		Q1/2=0.9 Q3/4=2.2	1.6										
	215	0.9	1.6									TBAS16 ☆ 	
												TBAW56 ☆ 	
												TBAV70 ☆ 	
100	150	0.9	4 (max)								BAV99W ☆ 		
	215	0.9	4 (max)									BAV70 ☆ 	
	215	0.9	3 (max)									BAV99 ☆ 	
	250	0.35	3 (max)			BAS516 ☆	BAS316 ☆						
200	100	1.5	10				1SS403 #				1SS370 		
			60 (max)			1SS403E ☆							
			30										
400	100	2.5	0.5								1SS397 		

☆ New Products, # AEC-Q101 qualified

	S-Mini (SOT-346)	USQ (SOT-343)	SMQ (SOT-24)	ESV (SOT-553)	USV (SOT-353)	SMV (SOT-25)	ES6 (SOT-563)	US6 (SOT-363)	SM6 (SOT-26)	Electrical Characteristics (Ta=25°C)		Absolute Maximum Ratings	
	 2.9x2.5	 2.0x2.1	 2.9x2.9	 1.6x1.6	 2.0x2.1	 2.9x2.8	 1.6x1.6	 2.0x2.1	 2.9x2.8	C _T typ. (pF)	t _{rr} typ. (ns)	V _R (V)	I _O (mA)
1SS307 										3	-	30	100
								HN2D01FU # 	HN2D01F 	0.5	1.6	80	80
								HN2D02FU # 					
				HN2D01JE 						0.3	1.6		
										0.5	1.6		
1SS184 # 					HN4D02JU 	1SS309 				0.9	1.6	100	100
1SS226 # 							HN1D02FE 	HN1D02FU # 	HN1D02F 				
1SS196 # 													
1SS193 # 													
		1SS382 	1SS272 							2	-	80	100
1SS190 # 					HN4D01JU 	1SS308 							
1SS187 # 							HN1D01FE 	HN1D01FU # 	HN1D01F 				
1SS181 # 													
1SS379 # 										3.0	-	215	215
								HN1D03FU # 	HN1D03F 	Q1/2=0.9 Q3/4=2.2	1.6		
										0.9	1.6		
										0.9	4 (max)	100	150
										0.9	4 (max)		215
										0.9	3 (max)		215
										0.35	3 (max)		250
1SS250 										1.5	10	200	100
			1SS306 								60 (max)		
											30		
1SS398 			1SS399 						HN2D03F 	2.5	0.5	400	100

■ TVS Diodes (ESD Protection Diodes)

Application		Absolute Maximum Ratings		Electrical Characteristics (Ta=25°C)			SL2 (SOD-962)	CST2 (SOD-882)	CST2C (SOD-963)	SOD-923	ESC (SOD-523)	USC (SOD-323)	VESM (SOT-723)	
							Bottom View	Bottom View	Bottom View					
							0.62x0.32 	1.0x0.6 	1.6x0.8 	1.0x0.6 	1.6x0.8 	2.5x1.25 	1.2x1.2 	
		V _{ESD} IEC61000 -4-2 (kV)	I _{PP} tp=8/20μs (A)	V _{RWM} max (V)	C _T typ. (pF)	R _{DYN} typ. (Ω)								
Bi-directional	USB3.1/ Thunderbolt/ RF antenna (NFC)	±20	2.5	3.3	0.3	0.5	DF2B5M5SL ☆							
		±20	2.5	5.0	0.3	0.5	DF2B6M5SL ☆							
		±20	2.0	3.6	0.2	0.5 to 0.8	DF2B5M4SL ☆	DF2B5M4CT ☆						
		±20	2.0	5.5	0.2	0.5 to 0.8	DF2B6M4SL ☆	DF2B6M4CT ☆						
		±15	1.0	11.0	0.2	0.65	DF2B12M4SL ☆							
		±15	0.5	18.5	0.2	0.2	DF2B20M4SL ☆							
		±15	0.5	24.0	0.2	0.2	DF2B26M4SL ☆							
		±12	2.5	5.5	0.1	0.7	DF2B7M3SL							
		±12	2.0	5.0	0.2	1.0	DF2B7M2SL							
		±12	2.5	5.5	0.2	1.0								
		±8	-	5.0	0.2	1.0								
		±12	2.5	5.0	0.3	0.8		DF2B6.8M1ACT						
		±8	-	5.0	0.3	0.9								
		±8	-	8.0	0.3	2.5		DF2B12M1CT						
	USB2.0	±10	1.5	5.5	1.5	0.25	DF2B6USL ☆							
		±30	4.0	5.5	8.5	0.2	DF2B7ASL ☆	DF2B7ACT ☆		DF2B7AFS ☆	DF2B7AE ☆	DF2B7AFU ☆		
	General Purpose/ Audio/ SIM Card	±30	(8)	5.5	(12)	(0.2)	DF2B7BSL ★							
		±17	3.0	5.3	6	0.3	DF2B7SL							
		±17	5.5	3.3	9	0.25	DF2B5SL ☆							
		±23	8.0	3.3	10.5	0.2	DF2B5BSL ★							
	Automotive's CAN/LIN	±8	-	5.0	15	-					DF2B6.8E #			
		±30	2.5	12	9	0.8						DF2B18FU ☆ #		
		±25	3.0	24	9	1.1						DF2B29FU ☆ #		
		±20	2.5	28	6.5	1.5						DF2B36FU ☆ #		
Uni-directional	USB3.1/ Thunderbolt/ RF antenna (NFC)	±20	2.0	3.6	0.35 to 0.45	0.3 to 0.35	DF2S5M4SL ☆	DF2S5M4CT ☆		DF2S5M4FS ★ #				
		±20	2.0	5.5	0.35 to 0.4	0.3 to 0.35	DF2S6M4SL ☆	DF2S6M4CT ☆		DF2S6M4FS ★ #				
	USB2.0	±20	2.5	3.3	0.6	0.3	DF2S5M5SL ☆							
		±20	2.5	5.0	0.6	0.3	DF2S6M5SL ☆							
		±12	3.0	5.0	to 0.5	0.35	DF2S7MSL			DF2S6.8MFS				
		±8	-	5.0	0.5	-							DF3D6.8MFV	
		±8	-	5.0	1.6	0.3		DF2S6.8UCT		DF2S6.8UFS				
		±8	-	5.0	2.5 (max)	-								
		±8	-	19	1.6	0.5		DF2S24UCT						
	General Purpose/ Audio/ SIM Card	±30	2.5	1.5	45	0.2	DF2S5.1ASL ☆							
		±30	2.5	3.5	40	0.25	DF2S5.6ASL ☆							
		±30	2.5	5.0	32	0.3	DF2S6.2ASL ☆							
		±30	2.5	5.0	25	0.5	DF2S6.8ASL ☆							
		±30	2.5	6.5	20	0.8	DF2S8.2ASL ☆							
	Power Supply USB_Vbus	±30	10	5.5	90	0.23		DF2S6P1CT ☆						
		±30	7.5	10	42	0.58		DF2S12P1CT ☆						
		±30	6	12.6	40	0.50		DF2S14P1CT ☆						
		±30	5.5	21	26	0.55		DF2S23P1CT ☆						
		±30	80	5.5	600	0.08			DF2S6P2CTC ☆			DF2S6P2FU ☆		
		±30	60	10	280	0.08			DF2S12P2CTC ☆			DF2S12P2FU ☆		
		±30	50	12.6	270	0.08			DF2S14P2CTC ☆			DF2S14P2FU ☆		
		±30	14	21	160	0.13			DF2S23P2CTC ☆			DF2S23P2FU ☆		

☆ New Products, ★ Under Development (The specification is subject to change without notice.), # AEC-Q101 qualified

	SSM (SOT-416)	USM (SOT-323)	ES6 (SOT-563)	DFN5	DFN6	DFN10	Electrical Characteristics (Ta=25°C)			Absolute Maximum Ratings		Application
				Bottom View 	Bottom View 	Bottom View 						
	1.6x1.6	2.0x2.1	1.6x1.6	1.3x0.8	1.25x1.0	2.5x1.0						
							V_{RWM} max (V)	C_t typ. (pF)	R_{dyn} typ. (Ω)	V_{ESD} IEC61000 -4.2 (kV)	I_{PP} tp= 8/20μs (A)	
							3.3	0.3	0.5	±20	2.5	USB3.1/ Thunderbolt/ RF antenna (NFC)
							5.0	0.3	0.5	±20	2.5	
				DF5G5M4N ☆	DF6D5M4N ☆	DF10G5M4N ☆	3.6	0.2	0.5 to 0.8	±20	2.0	
				DF5G6M4N ☆	DF6D6M4N ☆	DF10G6M4N ☆	5.5	0.2	0.5 to 0.8	±20	2.0	
							11.0	0.2	0.65	±15	1.0	
							18.5	0.2	0.2	±15	0.5	
							24.0	0.2	0.2	±15	0.5	
							5.5	0.1	0.7	±12	2.5	
				DF5G7M2N			5.0	0.2	1.0	±12	2.0	
							5.5	0.2	1.0	±12	2.5	
							5.0	0.2	1.0	±8	-	
					DF6D7M1N	DF10G7M1N	5.0	0.3	0.8	±12	2.5	
							8.0	0.3	2.5	±8	-	
			DF6D6UFE ☆				5.5	1.5	0.25	±10	1.5	USB2.0
							5.5	8.5	0.2	±30	4.0	General Purpose/ Audio/ SIM Card
							5.5	(12)	(0.2)	±30	(8)	
							5.3	6	0.3	±17	3.0	
							3.3	9	0.25	±17	5.5	
							3.3	10.5	0.2	±23	8.0	Automotive's CAN/LIN
							5.0	15	-	±8	-	
		DF3D18FU ☆ #					12	9	0.8	±30	2.5	
		DF3D29FU ☆ #					24	9	1.1	±25	3.0	
		DF3D36FU ☆ #					28	6.5	1.5	±20	2.5	USB3.1/ Thunderbolt/ RF antenna (NFC)
							3.6	0.35 to 0.45	0.3 to 0.35	±20	2.0	
							5.5	0.35 to 0.4	0.3 to 0.35	±20	2.0	USB2.0
							3.3	0.6	0.3	±20	2.5	
							5.0	0.6	0.3	±20	2.5	
	DF3D6.8MS						5.0	to 0.5	0.35	±12	3.0	
							5.0	0.5	-	±8	-	General Purpose/ Audio/ SIM Card
		DF3A6.8UFU					5.0	1.6	0.3	±8	-	
							5.0	2.5 (max)	-	±8	-	
							19	1.6	0.5	±8	-	
							1.5	45	0.2	±30	2.5	
							3.5	40	0.25	±30	2.5	
							5.0	32	0.3	±30	2.5	
							5.0	25	0.5	±30	2.5	
							6.5	20	0.8	±30	2.5	
							5.5	90	0.23	±30	10	Power Supply USB_V _{BUS}
							10	42	0.58	±30	7.5	
							12.6	40	0.50	±30	6	
							21	26	0.55	±30	5.5	
							5.5	600	0.08	±30	80	
							10	280	0.08	±30	60	
							12.6	270	0.08	±30	50	
							21	160	0.13	±30	14	

■ TVS Diodes (ESD Protection Diodes)

Package Dimensions (unit: mm)

Application	Absolute Maximum Ratings	Electrical Characteristics (Ta=25°C)			CST2 (SOD-882)	SOD-923	USC (SOD-323)
					Bottom View		
					1.0x0.6	1.0x0.6	2.5x1.25
	V _{ESD} IEC61000 -4-2 (kV)	V _Z min (V)	C _T typ. (pF)	Z _Z max (Ω)			
Uni-directional General-Purpose/ SIM Card/ Power-Supply	±30	4.8	45	70		DF2S5.1FS	
	±30	5.3	40	30	DF2S5.6CT	DF2S5.6FS	
	±30	5.8	32	30	DF2S6.2CT	DF2S6.2FS	
	±30	6.4	25	30	DF2S6.8CT	DF2S6.8FS	
	±30	7.7	20	30	DF2S8.2CT	DF2S8.2FS	
	±30	9.4	16	30		DF2S10FS	
	±20	11.4	15	10 (typ.)			DF2S12FU
	±20	11.4	15	25		DF2S12FS	
	±12	15.3	10	35	DF2S16CT	DF2S16FS	
	±12	18.8	9	to 55	DF2S20CT	DF2S20FS	
	±10	22.8	8.5	70		DF2S24FS	
	±8	28	7.2	75	DF2S30CT		
	±8	28	7	150		DF2S30FS	

Application	Absolute Maximum Ratings	Electrical Characteristics (Ta=25°C)			CST3 (SOT-883)	VESM (SOT-723)	USM (SOT-323)	S-Mini (SOT-346)	ESV (SOT-553)	USV (SOT-353)	SMV (SOT-25)	US6 (SOT-363)
					Bottom View							
					1.0x0.6	1.2x1.2	2.0x2.1	2.9x2.5	1.6x1.6	2.0x2.1	2.9x2.8	2.0x2.1
	V _{ESD} IEC61000 -4-2 (kV)	V _Z min (V)	C _T typ. (pF)	Z _Z max (Ω)								
Uni-directional General-Purpose/ SIM Card/ Power-Supply	±8	5.3	8	50			DF3A5.6LFU		DF5A5.6LJE	DF5A5.6LFU		
	±8	5.3	8	3 (typ.)		DF3A5.6LFV#						
	±8	5.9	6.5	50		DF3A6.2LFV#	DF3A6.2LFU		DF5A6.2LJE	DF5A6.2LFU		
	±8	6.5	to 6	50	DF3A6.8LCT	DF3A6.8LFV#	DF3A6.8LFU		DF5A6.8LJE	DF5A6.8LFU	DF5A6.8LF	
	±15	3.4	52	130					DF5A3.6CJE	DF5A3.6CFU		
	±30	5.3	29	40					DF5A5.6CJE	DF5A5.6CFU		
	±30	5.8	25	30					DF5A6.2CJE	DF5A6.2CFU		
	±25	6.4	23	25					DF5A6.8CJE	DF5A6.8CFU		
	±30	3.1	115	130	DF3A3.3CT	DF3A3.3FV#	DF3A3.3FU		DF5A3.3JE	DF5A3.3FU	DF5A3.3F	
	±30	3.4	110	130	DF3A3.6CT	DF3A3.6FV#	DF3A3.6FU		DF5A3.6JE	DF5A3.6FU	DF5A3.6F	
	±30	5.3	65	40	DF3A5.6CT	DF3A5.6FV#	DF3A5.6FU	DF3A5.6F	DF5A5.6JE	DF5A5.6FU	DF5A5.6F	
	±30	5.8	55	30	DF3A6.2CT	DF3A6.2FV#	DF3A6.2FU	DF3A6.2F	DF5A6.2JE	DF5A6.2FU	DF5A6.2F	
	±30	6.4	45	25	DF3A6.8CT	DF3A6.8FV#	DF3A6.8FU	DF3A6.8F	DF5A6.8JE	DF5A6.8FU	DF5A6.8F	DF6A6.8FU

AEC-Q101 qualified

■ Part Naming Conventions

Diode (JEITA Registration Products)

1 S S 181

Serial number : JEITA registration number.

The kind of diode

S: Diode of general-purpose use, detection use, frequency conversion use, and switching use
V: Variable capacitance and PIN diode

S stands for Semiconductor

The value that subtracted 1 from the total number of terminals

Schottky Barrier Diodes

New Naming Conventions

CU S 05 F 30 A

Revision or function category (A to Z)

Voltage rating

ex.) 30: 30V

Device type

ex.) S: Super Low forward voltage F: Low forward voltage, R: Low leakage current

Current rating

ex.) 05: 0.5A

Pin count

ex.) S: 2pin

Package

ex.) CU: USC, CE: ESC, CB: CST2B, CE: CL2E

Old Naming Conventions

DS F 07 S 30 A U

Package style : This letter shows the package style.

Revision

Voltage rating

ex.) 30: 30V, 15: 15V

Circuit configuration and number of pins

Current rating

ex.) 07: 0.7A, 10: 1A

Device feature : This letter shows the feature of a device.

F: Low forward voltage type.
R: Low leakage current type.

Schottky barrier diode.

TVS Diodes (ESD Protection Diodes)

DF 5 A 6.2 L FU

Package suffix

Series name

ex.) L: Ultra-high-speed

Clamp voltage (V_{BR})

Internal configuration

ex.) A: Common anode

Pin count

Note) The digit 7 denotes a 6-pin package

TVS Diodes (ESD Protection Diodes)

4. Linear ICs

Low Dropout Regulators (LDO)

Package Dimensions (unit: mm)

WCSP4E	WCSP4F	WCSP4	SDFN4	DFN4	DFN5B	ESV (SOT-553)	UFV (SOT-353F)	SMV (SOT-25)	WCSP6F
Bottom View	Bottom View	Bottom View	Bottom View	Bottom View	Bottom View				
0.645x0.645	0.645x0.645	0.79x0.79	0.8x0.8	1.0x1.0	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.8	1.2x0.8

CMOS LDO Regulators

Series Name / Part Number	Package	V _{OUT} (typ.) (V)	V _{IN} (V)	I _{OUT} (mA)	I _B (typ.) (μA)	Function								
						Over current protection	Auto discharge	Fast load transient response circuit	Thermal shutdown	Inrush current protection	Under voltage lockout	High PSRR	Soft start	Control pin connection
TCR2DGxxx	WCSP4	1.2 to 3.6	2.0 to 5.5	200	45	✓		✓	✓	✓		✓		Pull down
TCR2ENxxx	SDFN4	1.0 to 3.6	1.5 to 5.5	200	35	✓	✓	✓						Pull down
TCR2LNxxx		0.8 to 3.6	1.5 to 5.5	200	1	✓	✓							Pull down
TCR2EExxx	ESV	1.0 to 5.0	1.5 to 5.5	200	35	✓	✓	✓						Pull down
TCR2LExxx		0.8 to 3.6	1.5 to 5.5	200	1	✓	✓							Pull down
TCR2EFxxx	SMV	1.0 to 5.0	1.5 to 5.5	200	35	✓	✓	✓						Pull down
TCR2LFxxx		0.8 to 3.6	1.5 to 5.5	200	1	✓	✓							Pull down
TCR3DGxxx ☆	WCSP4E	1.0 to 4.5	1.75 to 5.5	300	65	✓	✓	✓	✓	✓				Pull down
TCR3DMxxx	DFN4	1.0 to 4.5	1.75 to 5.5	300	65	✓	✓	✓	✓	✓				Pull down
TCR3DFxxx	SMV	1.0 to 4.5	1.8 to 5.5	300	65	✓	✓	✓	✓	✓				Pull down
TCR3UGxxxA ☆	WCSP4F	0.8 to 5.0	1.5 to 5.5	300	0.34	✓	✓	✓	✓	✓			✓	Pull down
TCR3UGxxxB ☆			1.5 to 5.5	300	0.34	✓		✓	✓	✓			✓	Pull down
TCR3UMxxx ☆	DFN4	0.8 to 5.0	1.5 to 5.5	300	0.34	✓	✓	✓	✓	✓		✓	✓	Pull down
TCR4DGxxx ☆	WCSP4E	1.0 to 4.5	2.0 to 5.5	420	65	✓	✓	✓	✓	✓				Pull down
TCR5BMxxxA ☆	DFN5B	0.8 to 3.6	V _{OUT} +V _{DO} to V _{BIAS}	500	19	✓	✓	✓	✓	✓	✓	✓	✓	Pull down
TCR8BMxxxA ☆		0.8 to 3.6	V _{OUT} +V _{DO} to V _{BIAS}	800	20	✓	✓	✓	✓	✓	✓	✓	✓	Pull down
TCR13AGADJ ☆	WCSP6F	0.55 to 3.6 adjustable	V _{OUT} +0.1V to V _{BIAS}	1300	56	✓	✓	✓	✓	✓	✓	✓	✓	Pull down
TCR15AGxxx ☆	WCSP6F	0.65 to 3.6	V _{OUT} +V _{DO} to V _{BIAS}	1500	25	✓	✓	✓	✓	✓	✓	✓	✓	Pull down
TCR15AGADJ ☆	WCSP6F	0.6 to 3.6 adjustable	V _{OUT} +V _{DO} to V _{BIAS}	1500	25	✓	✓	✓	✓	✓	✓	✓	✓	Pull down

Bipolar LDO Regulators

Series Name	Package	V _{OUT} (typ.) (V)	V _{IN} (V)	I _{OUT} (mA)	I _B (typ.) (μA)	Function				
						Over current protection	Auto discharge	Fast load transient response circuit	Thermal shutdown	Control pin connection
TAR5SxxU	UFV	1.5 to 5.0	2.4 to 15	200	170	✓			✓	
TAR5Sxx	SMV	1.5 to 5.0	2.4 to 15	200	170	✓			✓	
TAR5SBxx						✓			✓	

FET driver ICs with OVP function

Part Number	Package	Operating voltage range (V)	Input quiescent current (ON state)	Gate drive voltage (1)	Gate drive voltage (2)	Function					Note
						Inrush current reduction	Thermal shutdown	Over voltage protection	Auto discharge	Under voltage lockout	
TCK401G ☆	WCSP6E	2.3 to 28	121μA typ. @V _{IN} =5V	4.0V typ. @V _{IN} =3V	6.5V typ. @V _{IN} =5V	✓		✓ (Over 28V)	✓		Option (with external Back to Back MOSFET)
TCK402G ☆											Pull down (H) Pull down (L)

☆ New Products

Load Switch ICs

Package Dimensions (unit: mm)

WCSP4D	WCSP4C	SMV (SOT-25)	WCSP6C	WCSP6E	DFN4A
Bottom View 	Bottom View 		Bottom View 	Bottom View 	Bottom View 
0.79x0.79	0.9x0.9	2.9x2.8	1.5x1.0	1.2x0.8	1.2x1.2

Part Number	Package	Operating voltage range (V)	Output current (A)	R _{DS(on)} (1) typ. (mΩ)	R _{DS(on)} (2) typ. (mΩ)	Function							Note	
						Inrush current reduction (Slew Rate control)	Thermal shutdown	Over current protection	Auto discharge	Under voltage lockout	Reverse current block	Control pin connection (Active Level)		
TCK106AG	WCSP4D	1.1 to 5.5	1	176 @1.1V, -0.2A	34 @5.0V, -0.5A	✓						Pull down (H)		
TCK107AG				✓			✓			Pull down (H)				
TCK108AG				✓			✓			Open (L)				
TCK106AF ☆	SMV		1	223 @1.1V, -0.2A	63 @5.0V, -0.5A	✓						Pull down (H)		
TCK107AF ☆				✓			✓			Pull down (H)				
TCK108AF ☆				✓			✓			Open (L)				
TCK111G	WCSP6C		1.1 to 5.5	3	8.5 @1.1V, -1.5A	8.3 @5.0V, -1.5A	✓	✓				True Reverse Current Blocking	Pull down (H)	
TCK112G					✓	✓		✓			Pull down (H)			
TCK22921G ☆	WCSP6E	2		136 @1.1V, -0.5A	25 @5.0V, -0.5A	4.5μs			✓		✓	Pull down(H)		
TCK22922G ☆						666μs			✓		✓	Pull down(H)		
TCK22923G ☆						1364μs			✓		✓	Pull down(H)		
TCK22925G ☆						3380μs			✓		✓	Pull down(H)		
TCK22971G ☆						4.5μs					✓	Pull down(H)		
TCK22972G ☆						666μs					✓	Pull down(H)		
TCK22973G ☆			1364μs							✓	Pull down(H)			
TCK22974G ☆			3380μs							✓	Pull down(H)			
TCK22975G ☆					666μs					✓	Open(L)			
TCK22910G ☆	WCSP6E	1.1 to 5.5	2	179 @1.1V, -0.15A	31 @5.0V, -0.15A	1400μs	✓			✓	True Reverse Current Blocking	Open(L)		
TCK22911G ☆						1400μs	✓		✓	✓		Open(L)		
TCK22912G ☆						1400μs	✓			✓		Pull down(H)		
TCK22913G ☆						1400μs	✓		✓	✓		Pull down(H)		
TCK22946G ☆	WCSP6E	1.1 to 5.5	0.4	179 @1.1V, -0.15A	31 @5.0V, -0.15A	50μs	✓	400mA	✓	✓	True Reverse Current Blocking	Pull down (H)		
TCK22951G ☆			0.74			50μs	✓	740mA	✓	✓		Pull down (H)		
TCK2065G ☆		1.4 to 5.5	1.11			50μs	✓	1110mA	✓	✓		Pull down (H)		
TCK1024G ☆			1.54			50μs	✓	1540mA	✓	✓		Pull down (H)		
TCK22891G ☆			0.4			50μs	✓	400mA	✓	✓		Pull down (H)		
TCK22892G ☆			0.74			50μs	✓	740mA	✓	✓		Pull down (H)		
TCK22893G ☆			1.11			50μs	✓	1110mA	✓	✓		Pull down (H)		
TCK22894G ☆			1.54			50μs	✓	1540mA	✓	✓		Pull down (H)		
TCK206G	WCSP4C	0.75 to 3.6	2	18.4 @0.75V, -1.5A	18.1 @3.3V, -1.5A	✓					✓	Pull down (H)		
TCK207G				✓			✓		✓	Pull down (H)				
TCK208G				✓			✓		✓	Open (L)				
TCK207AN ★	DFN4A				21.5 @0.75V, -1.5A	21.5 @3.3V, -1.5A	✓				✓		Pull down (H)	

☆ New Products, ★ Under Development (The specification is subject to change without notice.)

① MOSFETs

② Tr./BRts

③ Diodes

④ Linear ICs

⑤ Logics

⑥ Bus Switches

⑦ RF Devices

⑧ Packages

Power Multiplexer ICs

Package Dimensions (unit: mm)

WCSP9	WCSP16C
Bottom View	Bottom View
	
1.5x1.5	1.9x1.9

Part Number	Package	Operating voltage range (V)	Output current (A)	R _{DS(on)} (1) typ. (mΩ) @Ta=25°C	R _{DS(on)} (2) max (mΩ) @Ta=-40 to 85°C	Function						Note
						Inrush current reduction	Thermal shutdown	Over voltage lockout	Auto discharge	Under voltage lockout	Reverse current block	
TCK301G	WCSP9	2.3 to 28	3	73 @4.5V, -1.0A	140 @4.5V, -1.0A	✓	✓	6.6V		✓	Pull up (H)	Single input Single output
TCK302G						✓	✓	10.5V		✓		
TCK303G						✓	✓	15.5V		✓	Pull down (L)	
TCK304G						✓	✓	6.6V	✓	✓		
TCK305G						✓	✓	10.5V	✓	✓		
TCK321G	WCSP16C	2.3 to 36	2	98 @4.5V, -1.0A	170 @4.5V, -1.0A	✓	✓	V _{INA} =V _{INB} =12V		✓	Pull down	Dual input Single output
TCK322G						✓	✓	V _{INA} =V _{INB} =15V		✓		
TCK323G						✓	✓	V _{INA} =V _{INB} =15V		✓		

eFuse ICs

WSN10B
Bottom View

3.0x3.0

Part Number	Package	Operating voltage range (V)	Output current (A)	R _{DS(on)} typ. (mΩ) @Ta=25°C	R _{DS(on)} max (mΩ) @Ta=-40 to 85°C	Function						Note	
						Inrush current reduction	Thermal shutdown	Over voltage Clamp	Auto discharge	Under voltage lockout	Reverse current blocking support		Fault Response
TCKE805NA ★	WSN10B	4.4 to 18	5	28 @5V, -1.5A	38 @5V, -1.5A	Slew rate control by External Capacitance	✓	6.04V typ.		✓	✓	Auto-retry	Adjustable over current protection
TCKE805NL ★							✓	6.04V typ.		✓	✓	Latched	
TCKE812NA ★							✓	15.1V typ.		✓	✓	Auto-retry	
TCKE812NL ★							✓	15.1V typ.		✓	✓	Latched	
TCKE800NA ★							✓	None		✓	✓	Auto-retry	
TCKE800NL ★							✓	None		✓	✓	Latched	

★ Under Development (The specification is subject to change without notice.)

Operational Amplifiers, Comparators and Magnetic Sensors

Package Dimensions (unit: mm)

MP6C	USV (SOT-353)	UFV (SOT-353F)	SMV (SOT-25)	US8 (SOT-765)	SM8 (SOT-505)
Bottom View					
1.45x1.0	2.0x2.1	2.0x2.1	2.9x2.8	2.0x3.1	2.9x4.0

Operational Amplifiers

	Package	Type	Bipolar	
			Standard	Low Noise Wide Band
Single		SMV	TA75S01F	TA75S558F
Dual		SM8	TA75W01FU	TA75W558FU
Maximum Rating		$V_{CC}, V_{EE}/V_{DD}, V_{SS}$	±6 or 12V	±18V
Electrical Characteristics		I_{CC}/I_{DD} (max)	0.8mA@Single 1.2mA@Dual	4.0mA@Single 6.0mA@Dual
		V_{IO} (max)	7mV	6mV
		I_{sink} (typ.)	20mA	40mA
		I_{source} (typ.)	40mA	40mA
		G_V (typ.)	100dB	100dB
		V_{NI} (typ.)		2.5μVrms
		SR (typ.)		1.0V/μs
		f_r (typ.)	0.3MHz	3.0MHz

	Package	Type	CMOS					
			Low Voltage Operation	Standard	Low I_{DD}	Ultra Low I_{DD} Low input offset voltage	Low Noise	Ultra Low Noise
Single		USV	TC75S51FU	TC75S54FU	TC75S55FU			
		UFV				TC75S102TU ★	TC75S63TU	TC75S67TU ☆
		SMV	TC75S51F	TC75S54F	TC75S55F	TC75S102F ★		
Dual		US8	TC75W51FK	TC75W54FK	TC75W55FK			
		SM8	TC75W51FU	TC75W54FU	TC75W55FU			
Maximum Rating		$V_{CC}, V_{EE}/V_{DD}, V_{SS}$	7.0V	7.0V	7.0V	6V	6.0V	6.0V
Electrical Characteristics		I_{CC}/I_{DD} (max)	150μA@Single 400μA@Dual	200μA@Single 400μA@Dual	20μA@Single 40μA@Dual	0.5μA	650μA	700μA
		V_{IO} (max)	10mV	10mV	10mV	1.3mV	7mV	3mV
		I_{sink} (typ.)		700μA	450μA	0.4mA	1.5mA (min)	2.0mA
		I_{source} (typ.)		200μA	20μA	0.6mA	1.5mA (min)	2.0mA
		G_V (typ.)	70dB	70dB	70dB	130dB	100dB	100dB
		V_{NI} (typ.)				TBD	7.8nV/√Hz	6.0nV/√Hz
		SR (typ.)	0.5V/μs	0.7V/μs	0.08V/μs	0.35V/ms	1.0V/μs	1.0V/μs
		f_r (typ.)	0.6MHz	0.9MHz	0.16MHz	0.6kHz	3.5MHz	3.5MHz

Comparators

	Package	Type	Bipolar	CMOS				
		Standard	Push pull			Open drain		
			Full-range input/output	Low I _{DD}	High speed	Low I _{DD}	High speed	
Single		MP6C		TC75S70L6X				
		USV			TC75S56FU	TC75S57FU	TC75S58FU	TC75S59FU
		SMV	TA75S393F		TC75S56F	TC75S57F	TC75S58F	TC75S59F
Dual		US8			TC75W56FK	TC75W57FK	TC75W58FK	TC75W59FK
		SM8	TA75W393FU		TC75W56FU	TC75W57FU	TC75W58FU	TC75W59FU
Maximum Rating	V _{CC} ,V _{EE} / V _{DD} , V _{SS}	±18 or 36V	±3 or 6V	±3.5 or 7V	±3.5 or 7V	±3.5 or 7V	±3.5 or 7V	±3.5 or 7V
Electrical Characteristics	I _{CC} / I _{DD} (max)	0.8mA@Single 2mA@Dual	35μA	22μA@Single 44μA@Dual	220μA@Single 440μA@Dual	22μA@Single 44μA@Dual	220μA@Single 440μA@Dual	
	I _{sink} (typ.)	16mA	18mA	25mA	25mA	25mA	25mA	
	I _{source} (typ.)		15mA	21mA	21mA			
	G _V (typ.)	200V/mV		94dB	94dB	94dB	94dB	
	t _{rip} , t _{PLH} (typ.)	1.3μs	400ns	680ns	140ns	800ns	200ns	

☆ New Products, ★ Under Development (The specification is subject to change without notice.)

1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

UFV (SOT-353F)	SOT-23F
	
2.0x2.1	2.9x2.4

Magnetic Sensors

			TCS40DPR	TCS40DLR	TCS30DPU ☆	TCS30DLU ☆	TCS30SPU ☆	TCS30NPU ☆
			Push pull	Open drain	Push pull	Open drain	Push pull	
Package			SOT-23F		UFV			
Detective Polarity			S&N		S&N		S	N
Electrical Characteristics	Supply Voltage		2.3 to 5.5 V		2.3 to 3.6 V			
	Magnetic Flux Density	Operating Point (V _{CC} = 2.3to3.6 V)	B _{ON} = 3.4 mT (typ.)		B _{ON} = 1.8 mT (typ.)			
		Releasing Point (V _{CC} = 2.3to3.6 V)	B _{OFF} = 2.0 mT (typ.)		B _{OFF} = 0.8 mT (typ.)			
		Hysteresis (V _{CC} = 2.3to5.0 V)	B _H = 1.4 mT (typ.)		B _H = 1.0 mT (typ.)			
	Supply Current *	Average Current (V _{CC} = 2.3V)	7.3 μA (typ.)		8.5 μA (typ.)			
	Operating Frequency (V _{CC} = 2.3to5.0 V)		25Hz(typ.)		25Hz(typ.)			

* Supply current is pulsed periodically by internal circuit.
☆ New Products

5. Logic Devices

One-Gate Logic (L-MOS)

Package Dimensions (unit: mm)

VHS Series

General Specification	
Supply voltage range	: 2.0V to 5.5V
Output current	: $\pm 8\text{mA}$ (@ $V_{CC}=4.5\text{V}$)
Propagation delay time	: 3.7nsec typ. (@ $V_{CC}=5.0\text{V}$)
Quiescent supply current	: 2 μA max (@ $V_{CC}=5.5\text{V}$, $T_a=25^\circ\text{C}$)

USV (SOT-353)	SMV (SOT-25)	US8 (SOT-765)	SM8 (SOT-505)
			
2.0x2.1	2.9x2.8	2.0x3.1	2.9x4.0

Function		Part Number					
		USV		SMV		US8	SM8
		-	TTL Input	-	TTL Input		
Gates/ Buffers	NAND	TC7SH00FU †	TC7SET00FU †	TC7SH00F †	TC7SET00F †	TC7WH00FK † Dual-gate	TC7WH00FU Dual-gate
	AND	TC7SH08FU †	TC7SET08FU †	TC7SH08F †	TC7SET08F †	TC7WH08FK † Dual-gate	TC7WH08FU Dual-gate
		Open-drain TC7SH09FU †		TC7SH09F †			
	NOR	TC7SH02FU †	TC7SET02FU †	TC7SH02F †	TC7SET02F †	TC7WH02FK † Dual-gate	TC7WH02FU Dual-gate
	OR	TC7SH32FU †	TC7SET32FU †	TC7SH32F †	TC7SET32F †	TC7WH32FK † Dual-gate	TC7WH32FU Dual-gate
	Exclusive-OR	TC7SH86FU †		TC7SH86F †			
	Inverter	TC7SH04FU †	TC7SET04FU †	TC7SH04F †	TC7SET04F †	TC7WH04FK † Triple-gate	TC7WH04FU Triple-gate
		Unbuffered TC7SHU04FU †		TC7SHU04F †		TC7WHU04FK † Triple-gate	TC7WHU04FU Triple-gate
		Schmitt TC7SH14FU †	TC7SET14FU †	TC7SH14F †	TC7SET14F †	TC7WH14FK † Triple-gate	TC7WH14FU Triple-gate
	Buffers	Schmitt TC7SH17FU †	TC7SET17FU †	TC7SH17F †	TC7SET17F †	TC7WH17FK † Triple-gate	TC7WH17FU Triple-gate
	Non-Inverter		TC7SH34FU †	TC7SET34FU †	TC7SH34F †	TC7WH34FK † Triple-gate	TC7WH34FU Triple-gate
	3-state Buffers	TC7SH125FU †	TC7SET125FU †	TC7SH125F †	TC7SET125F †	TC7WH125FK † Dual-gate	TC7WH125FU Dual-gate
		TC7SH126FU †	TC7SET126FU †	TC7SH126F †	TC7SET126F †	TC7WH126FK † Dual-gate	TC7WH126FU Dual-gate
D-Type Flip-Flop	Preset and Clear					TC7WH74FK †	TC7WH74FU
Multiplexers	Digital					TC7WH157FK †	TC7WH157FU

† This device is compliant with the reliability requirements of AEC-Q100

SHS Series

General Specification	
Supply voltage range	: 1.65V to 5.5V 1.8V to 5.5V
Output current	: $\pm 24\text{mA}$ (@ $V_{CC}=3.0\text{V}$)
Propagation delay time	: $\pm 2.4\text{nsec typ.}$ (@ $V_{CC}=3.3\text{V}$)
Quiescent supply current	: $1\mu\text{A max}$ (@ $V_{CC}=5.5\text{V}$, $T_a=25^\circ\text{C}$)

fSV (SOT-953)	ESV (SOT-553)	USV (SOT-353)	SMV (SOT-25)	US6 (SOT-363)	US8 (SOT-765)	SM8 (SOT-505)
						
1.0x1.0	1.6x1.6	2.0x2.1	2.9x2.8	2.0x2.1	2.0x3.1	2.9x4.0

Function			Part Number							
Package			fSV	ESV	USV	SMV	US6	US8	SM8	
Gates/ Buffers	NAND		TC7SZ00AFS	TC7SZ00FE †	TC7SZ00FU †	TC7SZ00F †		TC7WZ00FK † Dual-gate	TC7WZ00FU Dual-gate	
	AND		TC7SZ08AFS	TC7SZ08FE †	TC7SZ08FU †	TC7SZ08F †		TC7WZ08FK † Dual-gate	TC7WZ08FU Dual-gate	
	NOR		TC7SZ02AFS	TC7SZ02FE †	TC7SZ02FU †	TC7SZ02F †		TC7WZ02FK † Dual-gate	TC7WZ02FU Dual-gate	
	OR		TC7SZ32AFS	TC7SZ32FE †	TC7SZ32FU †	TC7SZ32F †		TC7WZ32FK † Dual-gate	TC7WZ32FU Dual-gate	
	Exclusive-OR		TC7SZ86AFS	TC7SZ86FE †	TC7SZ86FU †	TC7SZ86F †		TC7WZ86FK † Dual-gate	TC7WZ86FU Dual-gate	
	Inverter		TC7SZ04AFS	TC7SZ04FE †	TC7SZ04FU †	TC7SZ04F †	TC7PZ04FU † Dual-gate	TC7WZ04FK † Triple-gate	TC7WZ04FU Triple-gate	
	Unbuffered		TC7SZU04AFS	TC7SZU04FE †	TC7SZU04FU †	TC7SZU04F †		TC7WZU04FK † Triple-gate	TC7WZU04FU Triple-gate	
	Open-drain		TC7SZ05AFS	TC7SZ05FE †	TC7SZ05FU †	TC7SZ05F †	TC7PZ05FU † Dual-gate	TC7WZ05FK † Triple-gate	TC7WZ05FU Triple-gate	
	Schmitt		TC7SZ14AFS	TC7SZ14FE †	TC7SZ14FU †	TC7SZ14F †	TC7PZ14FU † Dual-gate	TC7WZ14FK † Triple-gate	TC7WZ14FU Triple-gate	
	Buffers		Open-drain	TC7SZ07AFS	TC7SZ07FE †	TC7SZ07FU †	TC7SZ07F †	TC7PZ07FU † Dual-gate	TC7WZ07FK † Triple-gate	TC7WZ07FU Triple-gate
Schmitt		TC7SZ17AFS	TC7SZ17FE †	TC7SZ17FU †	TC7SZ17F †	TC7PZ17FU † Dual-gate	TC7WZ17FK † Triple-gate	TC7WZ17FU Triple-gate		
Non-Inverter			TC7SZ34AFS	TC7SZ34FE †	TC7SZ34FU †	TC7SZ34F †	TC7PZ34FU † Dual-gate	TC7WZ34FK † Triple-gate	TC7WZ34FU Triple-gate	
3-state		Buffers	TC7SZ125AFS	TC7SZ125FE †	TC7SZ125FU †	TC7SZ125F †		TC7WZ125FK † Dual-gate	TC7WZ125FU Dual-gate	
			TC7SZ126AFS	TC7SZ126FE †	TC7SZ126FU †	TC7SZ126F †		TC7WZ126FK † Dual-gate	TC7WZ126FU Dual-gate	
D-Type Flip-Flop	Preset and Clear							TC7WZ74FK †	TC7WZ74FU	

† This device is compliant with the reliability requirements of AEC-Q100

7UL1Gxx Series

General Specification	
Supply voltage range	: 0.9V to 3.6V
Output current	: $\pm 8\text{mA}$ (@ $V_{CC}=3.0\text{V}$)
Propagation delay time	: 2.5nsec typ. (@ $V_{CC}=3.3\text{V}$)
Quiescent supply current	: $1\mu\text{A}$ max (@ $V_{CC}=3.6\text{V}$, $T_a=25^\circ\text{C}$)

fsv (SOT-953)	USV (SOT-353)	US8 (SOT-765)
		
1.0x1.0	2.0x2.1	2.0x3.1

	Function	Part Number		
	Package	fsv	USV	US8
Gates/ Buffers	NOR Gate	7UL1G02FS ☆	7UL1G02FU ☆	
	Inverter	7UL1G04FS ☆	7UL1G04FU ☆	
	AND Gate	7UL1G08FS ☆	7UL1G08FU ☆	
	Schmitt Buffer	7UL1G17FS ☆		
	OR Gate	7UL1G32FS ☆	7UL1G32FU ☆	
	Buffer	7UL1G34FS ☆	7UL1G34FU ☆	
	Exclusive-OR		7UL1G86FU ☆	
	3-State Buffer(/G)		7UL1G125FU ☆	7UL2G125FU ★
	3-State Buffer(G)	7UL1G126FS ☆	7UL1G126FU ☆	7UL2G126FU ★

7UL1Txx Series

General Specification	
Supply voltage range	: 2.3V to 3.6V
Output level up to supply V_{CC} CMOS level	: 1.65V to 3.6V ($V_{CC} = 3.6\text{V}$)
Output level down to supply V_{CC} CMOS level	: 3.6V to 2.3V ($V_{CC} = 2.3\text{V}$)
Quiescent supply current	: $1\mu\text{A}$ max (@ $V_{CC}=3.6\text{V}$, $T_a=25^\circ\text{C}$)

USV (SOT-353)	US8 (SOT-765)
	
2.0x2.1	2.0x3.1

	Function	Part Number	
	Package	USV	US8
Gates/ Buffers	NOR Gate	7UL1T02FU ☆	
	AND Gate	7UL1T08FU ☆	
	OR Gate	7UL1T32FU ☆	
	Buffer	7UL1T34FU ☆	
	3-State Buffer(/G)	7UL1T125FU ★	7UL2T125FU ★
	3-State Buffer(G)	7UL1T126FU ★	7UL2T126FU ★

☆ New Products
★ Under Development (The specification is subject to change without notice.)

■ Standard Logic 74VHC Series, 74LCX Series (TSSOP14B/16B/20B Package Products)

Package Dimensions (unit: mm)

TSSOP14B	TSSOP16B	TSSOP20B
		
5.0x6.4	5.0x6.4	6.5x6.4

Features

- Compliant with the reliability requirements of AEC-Q100 Operating temperature: Available -40 to 125°C products (‡ Operation temperature of this device is -40 to 85°C.)
- Compatible standard TSSOP package

Series name				VHC	VHCT (TTL Input)	VHCV (Schmitt Input)	VHC9 (Schmitt Input)	LCX		
Characteristics and Features		Supply voltage range		2.0 to 5.5V	4.5 to 5.5V	1.8 to 5.5V	2.0 to 5.5V 4.5 to 5.5V (VHCT9)	1.65V to 3.6V to 5.5V (05 and 07)		
		Output current @V _{CC} =4.5V		±8mA		±16mA	±8mA	±24mA		
		Power down protection on inputs		Yes					Yes	
		Power down protection on outputs		No	Yes				Yes	
Function			Pin	-	-	-	-	-		
Gate/ Buffer	NAND	Quad		14	74VHC00FT †	74VHCT00AFT †			74LCX00FT †	
			Dual 4-input	14	74VHC20FT †					
			Open-drain	14	74VHC03FT †					
			Schmitt	14	74VHC132FT †					
	AND	Quad		14	74VHC08FT †	74VHCT08AFT †			74LCX08FT †	
			Dual 4-input	14	74VHC21FT †					
	NOR	Quad		14	74VHC02FT †				74LCX02FT †	
			Dual 4-input	14	74VHC27FT †					
	OR	Quad		14	74VHC32FT †	74VHCT32AFT †			74LCX32FT †	
	Exclusive-OR Inverter	Quad		14	74VHC86FT †				74LCX86FT †	
			Hex	14	74VHC04FT †	74VHCT04AFT †			74LCX04FT †	
				14	74VHC05FT †		74VHCV05FT †		74LCX05FT †	
			Open-drain Schmitt	14	74VHC14FT †	74VHCT14AFT †	74VHCV14FT †		74LCX14FT †	
	Buffer	Hex		20				74VHC9152FT †		
				14			74VHCV17FT †			
			Open-drain	14			74VHCV07FT †		74LCX07FT †	
				20				74VHC9151FT †		
	3-state	Quad	Non-inverted	14	74VHC125FT †	74VHCT125AFT †			74LCX125FT †	
				14	74VHC126FT †	74VHCT126AFT †			74LCX126FT †	
		5-Bit Universal Schmitt Buffer		14				74VHC9125FT † 74VHCT9125AFT †		
				14				74VHC9126FT † 74VHCT9126AFT †		
		Octal	Inverted	20	74VHC240FT †	74VHCT240AFT †	74VHCV240FT †		74LCX240FT †	
				20	74VHC540FT †	74VHCT540AFT †	74VHCV540FT †		74LCX540FT †	
			Non-inverted	20	74VHC244FT †	74VHCT244AFT †	74VHCV244FT †		74LCX244FT †	
				20	74VHC541FT †	74VHCT541AFT †	74VHCV541FT †		74LCX541FT †	
Universal Schmitt Buffer		20				74VHC9541FT † 74VHCT9541AFT †				
Flip-Flop	Transceiver	Octal		20	74VHC245FT †	74VHCT245AFT †	74VHCV245FT †		74LCX245FT †	
				14	74VHC74FT †				74LCX74FT †	
			Hex	16	74VHC174FT †					
			Octal	20	74VHC273FT †			74VHC9273FT † 74VHCT9273FT †	74LCX273FT †	
	3-state	Octal		20	74VHC374FT †		74VHCV374FT †		74LCX374FT †	
				20	74VHC574FT †	74VHCT574AFT †	74VHCV574FT †		74LCX574FT †	
Latch	3-state	Octal		20	74VHC373FT †		74VHCV373FT †		74LCX373FT †	
				20	74VHC573FT †	74VHCT573AFT †	74VHCV573FT †		74LCX573FT †	
Multi- vibrator	Decoder	Dual		16	74VHC123AFT †					
				16	74VHC221AFT †					
		3 to 8 line	Single		16	74VHC138FT †	74VHCT138AFT †			74LCX138FT †
					16	74VHC238FT †				
Shift Register	2 to 4 line	Dual		16	74VHC139FT †					
				16	74VHC164FT †					
			8bit	S-in/P-out	14	74VHC164FT †				
				S-in/P-out, P-in/S-out	16				74VHC9164FT †	
		P-in/S-out	16	74VHC165FT †						
		3-state	16	74VHC595FT †				74VHC9595FT †		
Counter	Binary	Single 4bit with	Async. Clear	16	74VHC161FT †					
			Sync. Clear	16	74VHC163FT †					
		Dual	4bit	14	74VHC393FT †					
			Single	14-stage	16	74VHC4020FT †				
			12-stage	16	74VHC4040FT †					
					16	74VHC153FT †				
Multi- plexer	Digital	Dual-4ch.		16	74VHC157FT †				74LCX157FT †	
		Quad-2ch.		20					74LCX257FT †	
		Quad-2ch.		20						
	Analog	Single-8ch.		16	74VHC4051AFT †					
		Dual-4ch.		16	74VHC4052AFT †					
		Triple-2ch.		16	74VHC4053AFT †					
				16	74VHC4053AFT †					
				14	74VHC4066AFT †					
Other	Analog switch	Quad		14	74VHC4066AFT †					

† This device is compliant with the reliability requirements of AEC-Q100

‡ Operation temperature is -40 to 85°C

Standard Logic 74VHC Series, 74LCX Series (US14/16/20 Package Products)

Package Dimensions (unit: mm)

US14			US16			US20			Features	
									• Small mounting area and thin package	
4.0x4.0			4.0x4.0			5.0x4.0				

Series name					VHC	VHCT (TTL Input)	VHCV (Schmitt Input)	VHC9 (Schmitt Input)	LCX	
Characteristics and Features		Supply voltage range			2.0 to 5.5V	4.5 to 5.5V	1.8 to 5.5V	2.0 to 5.5V 4.5 to 5.5V (VHCT9)	1.65V to 3.6V to 5.5V (05 and 07)	
		Output current @V _{CC} =4.5V			±8mA		±16mA		±24mA	
		Power down protection on inputs			Yes					Yes
		Power down protection on outputs			No	Yes				Yes
Function				Pin	-	-	-	-	-	
Gate/ Buffer	NAND	Quad		14	TC74VHC00FK	TC74VHCT00AFK			TC74LCX00FK	
			Dual 4-input	14	TC74VHC20FK					
			Open-drain	14	TC74VHC03FK					
			Schmitt	14	TC74VHC132FK					
	AND	Quad		14	TC74VHC08FK	TC74VHCT08AFK			TC74LCX08FK	
			Dual 4-input	14	TC74VHC21FK					
	NOR	Quad		14	TC74VHC02FK				TC74LCX02FK	
			Dual 4-input	14	TC74VHC27FK					
	OR	Quad		14	TC74VHC32FK	TC74VHCT32AFK			TC74LCX32FK	
	Exclusive-OR	Quad		14	TC74VHC86FK				TC74LCX86FK	
	Inverter	Hex		14	TC74VHC04FK	TC74VHCT04AFK			TC74LCX04FK	
			Open-drain	14	TC74VHC05FK	TC74VHCV05FK			TC74LCX05FK	
			Schmitt	14	TC74VHC14FK	TC74VHCT14AFK	TC74VHCV14FK		TC74LCX14FK	
			9-bit	20				TC74VHC9152FK		
	Buffer	Hex		14			TC74VHCV17FK			
			Open-drain	14			TC74VHCV07FK		TC74LCX07FK	
	3-state	Quad	Non-inverted		20				TC74VHC9151FK	
					14	TC74VHC125FK	TC74VHCT125AFK			TC74LCX125FK
				14	TC74VHC126FK	TC74VHCT126AFK			TC74LCX126FK	
			5-Bit Universal Schmitt Buffer		14				TC74VHC9125FK TC74VHCT9125AFK	
							TC74VHC9126FK TC74VHCT9126AFK			
		Octal		Inverted	20	TC74VHC240FK	TC74VHCT240AFK	TC74VHCV240FK		TC74LCX240FK
					20	TC74VHC540FK	TC74VHCT540AFK	TC74VHCV540FK		TC74LCX540FK
		Non-inverted		20	TC74VHC244FK	TC74VHCT244AFK	TC74VHCV244FK		TC74LCX244FK	
				20	TC74VHC541FK	TC74VHCT541AFK	TC74VHCV541FK		TC74LCX541FK	
		Universal Schmitt Buffer		20				TC74VHC9541FK TC74VHCT9541AFK		
		Transceiver	Octal		20	TC74VHC245FK	TC74VHCT245AFK	TC74VHCV245FK		TC74LCX245FK
				Dual	14	TC74VHC74FK				TC74LCX74FK
			Hex		16	TC74VHC174FK				
	Octal			20	TC74VHC273FK			TC74VHC9273FK TC74VHCT9273FK	TC74LCX273FK	
	3-state		Octal		20	TC74VHC374FK		TC74VHCV374FK		TC74LCX374FK
					20	TC74VHC574FK	TC74VHCT574AFK	TC74VHCV574FK		TC74LCX574FK
	Latch	3-state	Octal		20	TC74VHC373FK		TC74VHCV373FK	TC74LCX373FK	
	Multi-vibrator	Dual		20	TC74VHC573FK	TC74VHCT573AFK	TC74VHCV573FK		TC74LCX573FK	
				16	TC74VHC123AFK					
Decoder	3 to 8 line	Single		16	TC74VHC138FK	TC74VHCT138AFK			TC74LCX138FK	
				16	TC74VHC238FK					
Shift Register	8bit	Dual		16	TC74VHC139FK					
		S-in/P-out	14	TC74VHC164FK						
		S-in/P-out,P-in/S-out	16				TC74VHC9164FK			
		P-in/S-out	16	TC74VHC165FK						
		3-state	16	TC74VHC595FK			TC74VHC9595FK			
			16	TC74VHC161FK						
Counter	Binary	Single 4bit with	Async. Clear	16	TC74VHC163FK					
			Sync. Clear	14	TC74VHC393FK					
		Dual 4bit		16	TC74VHC4020FK					
			Single	14-stage	16	TC74VHC4040FK				
				12-stage	16	TC74VHC153FK				
					16	TC74VHC157FK				
Multi-plexer	Digital	Dual-4ch.		16	TC74VHC4051AFK				TC74LCX157FK	
		Quad-2ch.		16	TC74VHC4052AFK				TC74LCX257FK	
	Analog	Single-8ch.		16	TC74VHC4053AFK					
			Dual-4ch.		16	TC74VHC4066AFK				
			Triple-2ch.		16					
					16					
Other	Analog switch	Quad		14						

1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

■ Standard Logic 74HC Series, TC4000B Series (SOIC14/16/20, SOP14/16/20 Package Products)

Package Dimensions (unit: mm)

SOIC14	SOIC16	SOIC20	SOP14	SOP16	SOP20
					
8.65x6.0	9.9x6.0	12.8x10.3	10.3x7.8	10.3x7.8	12.8x7.8

Series name				SOIC Package		SOP Package				
				HC	HCT (TTL Input)	HC	HCT (TTL Input)	Standard series		
Characteristics and Features	Supply voltage range			2.0 to 6.0V	4.5 to 5.5V	2.0 to 6.0V	4.5 to 5.5V	3V to 18V		
	Output current @V _{cc} =4.5V			±4 or ±6mA	±4 or ±6mA	±4 or ±6mA	±4 or ±6mA	±0.51mA (@V _{cc} =5V)		
	Power down protection on inputs			No		No		No		
	Power down protection on outputs			No		No		No		
Function			Pin	-	-	-	-	-		
Gate/ Buffer	NAND	Quad	Dual 4-input	14	74HC00D	74HCT00D	TC74HC00AF		TC4011BF	
			Open-drain	14	74HC03D		TC74HC20AF			
			Schmitt	14	74HC132D		TC74HC132AF			TC4093BF
				14	74HC08D	74HCT08D	TC74HC08AF			TC4081BF
	AND	Quad	Dual 4-input	14	74HC21D		TC74HC21AF			
				14	74HC02D	74HCT02D	TC74HC02AF		TC4001BF	
	OR	Quad		14	74HC32D	74HCT32D	TC74HC32AF		TC4071BF	
				14	74HC86D				TC4030BF	
	Exclusive-OR Inverter	Quad		14	74HC04D	74HCT04D	TC74HC04AF	TC74HCT04AF	TC4069UBF	
			Unbuffer	16	74HC4049D		TC74HC4049AF			TC4049BF
			Open-drain	14	74HCU04D		TC74HCU04AF			
			Schmitt	14	74HC05D		TC74HC05AF			
	Buffer	Hex		14	74HC14D	74HCT14D	TC74HC14AF		TC4584BF	
				16	74HC4050D		TC74HC4050AF		TC4050BF	
			Open-drain	14			TC74HC07AF			
			Non-inverted	14	74HC125D		TC74HC125AF			
	3-state	Hex	Universal		14	74HC126D		TC74HC126AF		
					14			TC74HC365AF		
					14			TC74HC366AF		
					20					
		Octal	Inverted		20	74HC240D	74HCT240D	TC74HC240AF	TC74HCT240AF	TC74HCT700TAF
					20	74HC540D	74HCT540D	TC74HC540AF	TC74HCT540AF	
			Non-inverted		20			TC74HC7240AF		
					20	74HC244D	74HCT244D	TC74HC241AF	TC74HC244AF	TC74HCT244AF
	Transceiver	Octal	Inverted		20	74HC541D	74HCT541D	TC74HC7244AF	TC74HCT541AF	
					20	74HC245D	74HCT245D	TC74HC541AF		
					20			TC74HC640AF		
					20			TC74HC245AF		
3-state		Octal		20	74HC74D		TC74HC74AF		TC4013BF	
				16	74HC174D					
				16	74HC175D		TC74HC175AF			
				20	74HC273D		TC74HC273AF			
Flip-Flop	3-state	Octal	20	74HC374D		TC74HC374AF				
			20	74HC574D		TC74HC574AF				
Latch	8-Bit Addressable Latch	Dual	16	74HC259D						
		Octal	20	74HC373D		TC74HC373AF				
Multi-vibrator	Dual Monostable		16	74HC573D		TC74HC573AF				
		Retriggerable	16	74HC123D		TC74HC123AF				
Decoder	3 to 8 line	Single		16	74HC4538D		TC74HC423AF		TC4538BF	
				16	74HC4538AF		TC74HC424AF			
Shift Register	8bit	BCD-to-Seven Segment Latch/Decoder/Driver		16	74HC138D		TC74HC138AF			
				16	74HC238D					
				16	74HC237D					
				16	74HC139D					
			S-in/P-out	14	74HC164D				TC4511BF	
			P-in/S-out	16	74HC165D		TC74HC165AF		TC4021BF	
			P-in/S-out with Clear	16	74HC166D					
			With Output Register	16	74HC594D					
Counter	Binary	Single	Latch (3-state)	16	74HC595D		TC74HC595AF			
			8-Stage Shift-and-Store	16					TC4094BF	
			Dual	4bit	14	74HC393D				
			14-stage	16			TC74HC4020AF		TC4020BF	
			12-stage	16			TC74HC4040AF		TC4040BF	
			Single 14-Stage/Oscillator	16			TC74HC4060AF			
			Single Decade Counter/Divider	16					TC4017BF	
			Dual Binary Up Counter	16					TC4520BF	
Multi-plexer	Digital	Programmable Divider/Timer		16			TC74HC7292AF			
			Single-8ch.	16	74HC151D		TC74HC151AF			
			Single-8ch. 13-state	16			TC74HC251AF			
			Dual-4ch.	16	74HC153D		TC74HC153AF			
			Quad-2ch.	16	74HC157D		TC74HC253AF			
				16			TC74HC157AF			
	Analog		Single-8ch.	16	74HC4051D	74HCT4051D	TC74HC4051AF		TC4051BF	
			Dual-4ch.	16	74HC4052D	74HCT4052D	TC74HC4052AF		TC4052BF	
			Triple-2ch.	16	74HC4053D	74HCT4053D	TC74HC4053AF	TC74HCT4053AF	TC4053BF	
				14	74HC4066D		TC74HC4066AF		TC4066BF	
				16						
				16						
Other	Analog switch	Quad	14	74HC4066D		TC74HC4066AF		TC4066BF		

Part Naming Conventions

Standard Logic

74 VHC T 244 A FT

Package suffix

FT: TSSOP package

Revision code or standardized product

Standardized product function number

Circuit configuration or performance class

ex.) T: TTL-level input, U: Unbuffered

Product family (group) name

VHC: Very-high-speed series

LCX: Low-voltage series

One-Gate Logic

TC 7 S Z 00 FS

Package suffix

ex.) FS: fSV package

Revision code or standardized product

Standardized product function number

Product family (group) name

H: VHS series, ET: VHS TTL input series

Z: SHS series

Package pin count

S : 5pin, P : 6pin, W : 8pin

CMOS Logic

7UL 1 G 00 FS

Package suffix

ex.) FS: fSV package

Revision code or standardized product

Standardized product function number

Product family (group) name

G: LVP series

T: LVP series(with signal level translation)

Number of gate

1 : Single, 2 : Dual, 3 : Triple

CMOS Logic

6. Bus Switches

■ High-Speed Transmission Type

Package Dimensions (unit: mm)

High-Speed Transmission Type

WCSP20	TQFN20
Bottom View  1.6x2.0	Bottom View  4.5x2.5

Recommended application	Part Number	Package	Number of lane	Specification			Pin Assignment	Switch function
				Supply Voltage Range	Band width @-3dB (typ.)	Quiescent Supply Current (max)		
PCI-ex 3.0, USB3.0 and others	TC7PCI3212MT	TQFN20	1lane	3.0 to 3.6V	11.5 GHz @V _{cc} =3.3V	500 uA @V _{cc} =3.6V		SPDT
	TC7PCI3215MT							
	TC7USB3212WBG	WCSP20	1lane	1.65 to 1.95V	8 GHz @V _{cc} =1.8V	200 uA @V _{cc} =1.95V		

for USB2.0 and others

UQFN10	TSSOP14
Bottom View  1.8x1.4	 5.0x6.4

Recommended application	Part Number	Package	Number of circuit	Specification			Pin Assignment	Switch function
				Supply Voltage Range	Band width @-3dB (typ.)	Quiescent Supply Current (max)		
USB2.0, MHL and others	TC7USB40MU	UQFN10	2	2.3 to 4.3V	1.5 GHz @V _{cc} =3.3V	1 uA @V _{cc} =4.3V		SPDT
	TC7USB42MU							
	TC7USB40FT	TSSOP14						
	TC7USB42FT							

General Purpose Bus Switches

Package Dimensions (unit: mm)

USV (SOT-353)	MP6D	US6 (SOT-363)	US8 (SOT-765)	TSSOP14	TSSOP16	TSSOP20
 2.0x2.1	Bottom View  1.45x1.0	 2.0x2.1	 2.0x3.1	 5.0x6.4	 5.0x6.4	 6.5x6.4

5V Bus Switch

Switch function	Part Number	Package	Number of circuit	Switch type	Specification			
					Supply Voltage Range	Switch I/O Capacitance @ Switch OFF (typ.)	Switch ON Resistance @V _{cc} =4.5V, V _{is} =0V (typ.)	Quiescent Supply Current (max)
SPST	TC7SB66CFU	USV	1	Pch+Nch	1.65 to 5.5V	5 pF @V _{cc} =5V	4 Ω @I _{is} =30mA	10 uA @V _{cc} =5.5V
	TC7SB67CFU							
	TC7WB66CFK	US8	2					
	TC7WB67CFK							
SPDT	TC7SB3157CFU	US6	1	Pch+Nch	1.65 to 5.5V	5 pF @V _{cc} =5V	4 Ω @I _{is} =30mA	10 uA @V _{cc} =5.5V
	TC7SB3157DL6X	MP6D						

Low-Voltage Bus Switch

Switch function	Part Number	Package	Number of circuit	Switch type	Specification			
					Supply Voltage Range	Switch I/O Capacitance	Switch ON Resistance @V _{cc} =3V, V _{is} =0V (typ.)	Quiescent Supply Current
SPST	TC7SBL66CFU	USV	1	Pch+Nch	1.65 to 3.6V	3.5 pF @V _{cc} =3V	5.5 Ω @I _{is} =30mA	10 uA @V _{cc} =3.6V
	TC7SBL384CFU						6 Ω @I _{is} =30mA	
	TC7WBL3305CFK	US8	2				6 Ω @I _{is} =30mA	
	TC7WBL3306CFK						6.5 Ω @I _{is} =30mA	
	TC7MBL3125CFT	TSSOP14	4					
	TC7MBL3126CFT	TSSOP14	4					
	TC7MBL3245CFT	TSSOP20	8					
SPDT	TC7MBL3257CFT	TSSOP16	4	Pch+Nch	1.65 to 3.6V	5 pF @V _{cc} =3V, A-port	8.5 Ω @I _{is} =30mA	10 uA @V _{cc} =3.6V
SP4T	TC7MBL3253CFT	TSSOP16	2	Pch+Nch	1.65 to 3.6V	9 pF @V _{cc} =3V, A-port	9 Ω @I _{is} =30mA	10 uA @V _{cc} =3.6V

Level Translation Function Type

UF6 (SOT-363F)	US8 (SOT-765)	TSSOP14	TSSOP20
 2.0x2.1	 2.0x3.1	 5.0x6.4	 6.5x6.4

Switch Function	Part Number	Package	Bit Count	Specification			
				Supply Voltage Range		Switch I/O Capacitance @ Switch OFF (Typ.)	Switch ON Resistance @V _{CCA} =3V, V _{CCB} =4.5V, V _{IS} =0V (max)
				V _{CC} A	V _{CC} B		
SPST	TC7SPB9306TU	UF6	1	1.65 to 5.0V	2.3 to 5.5V	7 pF @V _{CCA/B} =3.3V	8 mΩ @I _{IS} =30mA
	TC7SPB9307TU						
	TC7WPB9306FK	US8	2				
	TC7WPB9307FK						
	TC7QPB9306FT	TSSOP14	4				
	TC7QPB9307FT						
SPDT	TC7MPB9307FT	TSSOP20	8				
	TC7MPB9326FT	TSSOP14	2				
	TC7MPB9327FT						

1 MOSFETS

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

7. Radio-Frequency Devices

RF Diodes

Package Dimensions (unit: mm)

fSC	ESC (SOD-523)	USC (SOD-323)	S-Mini (SOT-346)
			
1.0x0.6	1.6x0.8	2.5x1.25	2.9x2.5

Variable Capacitance Diodes

Application	Part Number	Structure	Package	Absolute Maximum Ratings	Electrical Characteristics(Ta=25°C)						
					V _R (V)	C _T upper (pF)	@V _R (V)	C _T lower (pF)	@V _R (V)	C _T upper/ C _T lower	r _s typ. (Ω)
VCO	JDV2S10FS	Single	fSC	10	7.3 to 8.4	0.5	2.75 to 3.4	2.5	2.55	0.35	1
	1SV314	Single	ESC	10	7.3 to 8.4	0.5	2.75 to 3.4	2.5	2.5	0.35	1
	JDV2S07FS	Single	fSC	10	4.5	1	2	4	2.3	0.42	1
	1SV285	Single	ESC	10	4.5	1	2	4	2.3	0.42	1
	1SV277	Single	USC	10	4.5	1	2	4	2.3	0.42	1
	JDV2S09FS	Single	fSC	10	9.7 to 11.1	1	4.45 to 5.45	4	2.1	0.33	1
	1SV311	Single	ESC	10	9.7 to 11.1	1	4.45 to 5.45	4	2.1	0.28	1
	1SV310	Single	USC	10	9.7 to 11.1	1	4.45 to 5.45	4	2.1	0.28	1
	1SV281	Single	ESC	10	16	1	8	4	2.0	0.28	1
	1SV270	Single	USC	10	16	1	8	4	2.0	0.28	1
	1SV305	Single	ESC	10	18.3	1	6.1	4	3.0	0.27	1
	1SV304	Single	USC	10	18.3	1	6.1	4	3.0	0.27	1
	1SV323	Single	ESC	10	26.5 to 29.5	1	6 to 7.1	4	4.3	0.4	4
	1SV322	Single	USC	10	26.5 to 29.5	1	6 to 7.1	4	4.3	0.4	4
	1SV325	Single	ESC	10	44 to 49.5	1	9.2 to 12	4	4.3	0.4	4
	1SV324	Single	USC	10	44 to 49.5	1	9.2 to 12	4	4.3	0.4	4
	JDV2S36E	Single	ESC	10	44 to 49.5	1	5.4 to 7.3	6	7.5	0.4	4
	1SV280	Single	ESC	15	3.8 to 4.7	2	1.5 to 2.0	10	2.4	0.44	1
	1SV239	Single	USC	15	4.25	2	1.75	10	2.4	0.44	1
	JDV2S41FS	Single	fSC	15	14 to 16	2	5.5 to 6.5	10	2.5	0.2	5
	1SV279	Single	ESC	15	14 to 16	2	5.5 to 6.5	10	2.5	0.2	5
	1SV229	Single	USC	15	14 to 16	2	5.5 to 6.5	10	2.5	0.2	5
TV, CATV Tuner	1SV282	Single	ESC	34	35.5	2	2.85	25	12.5	0.6	5
	1SV262	Single	USC	34	35.5	2	2.85	25	12.5	0.6	5
FM Tuner	1SV228	Cathode com.	S-Mini	15	30.5	3	12.7	8	2.1 to 2.6	0.3	3

RF Diodes

Package Dimensions (unit: mm)

SL2 (SOD-962)	fSC	CST2 (SOD-882)	ESC (SOD-523)	USC (SOD-323)	S-FLAT	VESM (SOT-723)	SSM (SOT-416)	USM (SOT-323)	S-Mini (SOT-346)
Bottom View									
0.62x0.32	1.0x0.6	1.0x0.6	1.6x0.8	2.5x1.25	1.6x3.5	1.2x1.2	1.6x1.6	2.0x2.1	2.9x2.5

Schottky Barrier Diodes

Feature	Part Number	Structure	Package	Absolute Maximum Ratings		Electrical Characteristics(Ta=25°C)					
				V _R (V)	I _F (mA)	V _F typ. (V)	@I _F (mA)	I _R max (μA)	@V _R (V)	C _T typ. (pF)	@V _R (V)
Low VF	JDH2S02SL	Single	SL2	10	10	0.24	1	25	0.5	0.25	0.2
	JDH2S02FS	Single	fSC	10	10	0.24	1	25	0.5	0.3	0.2
	JDH2S01FS	Single	fSC	4	25	0.25	2	25	0.5	0.6	0.2
Standard	1SS315	Single	USC	5	30	0.25	2	25	0.5	0.6	0.2
	1SS154	Single	S-Mini	6	30	0.5	10	0.5	5	0.8	0
	JDH3D01FV	Series	VESM	4	25	0.25	2	25	0.5	0.6	0.2
	JDH3D01S	Series	SSM	4	25	0.25	2	25	0.5	0.6	0.2
	1SS295	Series	S-Mini	4	30	0.25	2	25	0.5	0.6	0.2
	1SS271	Series	S-Mini	6	30	0.5	10	0.5	5	0.8	0

Switching Diodes

Feature	Part Number	Structure	Package	Absolute Maximum Ratings		Electrical Characteristics (Ta=25°C)					
				V _R (V)	I _F (mA)	V _F typ. (V)	@I _F (mA)	C _T typ. (pF)	@V _R (V)	r _S typ. (Ω)	@I _F (mA)
Standard PIN diode	JDP2S02AFS	Single	fSC	30	50	0.9	50	0.3	1	1	10
	JDP2S02ACT	Single	CST2	30	50	0.9	50	0.3	1	1	10
	1SV308	Single	ESC	30	50	0.95	50	0.3	1	1	10
	1SV307	Single	USC	30	50	0.95	50	0.3	1	1	10
	JDP3C02AU	Cathode com.	USM	30	50	0.89	50	0.28	1	1	10
	JDP2S04E	Single	ESC	50	50	0.95	50	0.25	50	3	10
	1SV271	Single	USC	50	50	0.93	50	0.25	50	3	10
	1SV128	Single	S-Mini	50	50	0.95	50	0.25	50	3	10
	1SV172	Series	S-Mini	50	50	0.95	50	0.25	50	3	10
High power PIN	JDP2S12CR	Single	S-FLAT	180	1,000	0.8	50	1	40	0.4	10
RF switching diode	1SS381	Single	ESC	30	100	0.85 (max)	2	0.7	6	0.6	2
	1SS314	Single	USC	30	100	0.85 (max)	2	0.7	6	0.5	2
	1SS364	Cathode com.	SSM	30	50	0.85 (max)	2	0.85	6	0.6	2
	1SS312	Cathode com.	USM	30	50	0.85 (max)	2	0.8	6	0.6	2
	1SS313	Anode com.	USM	30	50	0.85 (max)	2	0.8	6	0.6	2
	1SS268	Cathode com.	S-Mini	30	50	0.85 (max)	2	0.8	6	0.6	2
	1SS269	Anode com.	S-Mini	30	50	0.85 (max)	2	0.8	6	0.6	2

1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

RF MOSFETs

Package Dimensions (unit: mm)

USQ (SOT-343)	SMQ (SOT-24)	PW-Mini	PW-X
			
2.0x2.1	2.9x2.9	4.6x4.2	6.1x6.3

Power MOSFETs

Application	Part Number	Package	Absolute Maximum Ratings			Electrical Characteristics(Ta=25°C)			
			V _{DSS} (V)	I _D (A)	P _D (W)	P _o min (W)	Test Condition		
							V _{DS} (V)	f (MHz)	P _i (W)
UHF/VHF Professional radio Amateur radio	RFM08U9X	PW-X	36	5	20	7.5	9.6	520	0.5
	2SK3075	PW-X	30	5	20	7.5	9.6	520	0.5
	2SK3074	PW-Mini	30	1	3	0.63	9.6	520	0.02
	RFM12U7X	PW-X	20	4	20	11.5	7.2	520	1
	RFM07U7X	PW-X	16	3	20	7	7.2	520	0.5
	2SK3476	PW-X	20	3	20	7	7.2	520	0.5
	RFM01U7P	PW-Mini	20	1	3	1	7.2	520	0.1
	2SK3475	PW-Mini	20	1	3	0.63	7.2	520	0.02
	2SK2854	PW-Mini	10	0.5	0.5	0.2	6	849	0.02
FRS/GMRS	RFM06U3X ☆	PW-X	16	5	20	5	3.6	520	0.5
	RFM04U6P	PW-Mini	16	2	7	3.5	6.0	470	0.2
	2SK4037	PW-X	12	3	20	3.55	6.0	470	0.3
	2SK3078	PW-Mini	10	0.5	3	0.5	4.8	915	0.03
	2SK3079A	PW-X	10	3	20	2.24	4.5	470	0.1
	2SK3078A	PW-Mini	10	0.5	3	0.63	4.5	470	0.1
	2SK3756	PW-Mini	7.5	1	3	1.26	4.5	470	0.1
Driver amplifier	RFM03U3P	PW-Mini	16	2.5	7	2.3	3.6	470	0.1
	RFM00U7U	USQ	20	0.1	0.25	0.1	7.2	520	0.01
	2SK3077	USQ	10	0.1	0.25	0.032	4.8	915	0.001

Small signal MOSFETs

Application	Part Number	Package	Absolute Maximum Ratings		Electrical Characteristics(Ta=25°C)					
			V _{DS} (V)	I _D (mA)	G _{PS} typ. (dB)	NF typ. (dB)	Test Condition			
							V _{DS} (V)	I _D (mA)	V _{G2S} (V)	f (MHz)
VHF RF, MIX	3SK292	SMQ	12.5	30	26	1.4	6	10	4.5	500
	3SK294	USQ	12.5	30	26	1.4	6	10	4.5	500
UHF RF, MIX	3SK291	SMQ	12.5	30	22.5	1.5	6	10	4.5	800
	3SK293	USQ	12.5	30	22.5	1.5	6	10	4.5	800

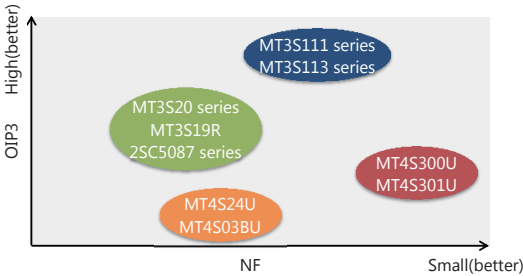
☆ New Products

RF Transistors

Package Dimensions (unit: mm)

SSM (SOT-416)	USM (SOT-323)	UFM (SOT-323F)	S-Mini (SOT-346)	SOT-23F	PW-Mini	USQ (SOT-343)	SMQ (SOT-24)
							
1.6x1.6	2.0x2.1	2.0x2.1	2.9x2.5	2.9x2.4	4.6x4.2	2.0x2.1	2.9x2.9

Application	Part Number	Package	Absolute Maximum Ratings		Electrical Characteristics(Ta=25°C)										
			V _{CEO} (V)	I _C (mA)	f _r typ. (GHz)	Test Condition		S ₂₁ ² typ. (dB)	Test Condition			NF typ. (dB)	Test Condition		
						V _{CE} (V)	I _C (mA)		V _{CC} (V)	I _C (mA)	f (GHz)		V _{CC} (V)	I _C (mA)	f (GHz)
FM band Amplifier	2SC2714	S-Mini	30	20	0.55	6	1	23	6	1	0.1	2.5	6	1	0.1
	2SC4215	USM	30	20	0.55	6	1	23	6	1	0.1	2.0	6	1	0.1
	2SC4915	SSM	30	20	0.55	6	1	23	6	1	0.1	2.3	6	1	0.1
UHF band Amplifier and oscillator	MT3S16U	USM	5	60	4	3	10	5.5	3	30	1	2.4	2	5	1
	2SC5107	USM	10	30	6	5	5	11	5	5	1	-	-	-	-
	2SC5108	SSM	10	30	6	5	5	11	5	5	1	-	-	-	-
VHF/UHF band low noise amplifier	2SC5064	S-Mini	12	30	7	5	10	12	5	10	1	1.1	5	3	1
	2SC5065	USM	12	30	7	5	10	12	5	10	1	1.1	5	3	1
	2SC5066	SSM	12	30	7	5	10	12	5	10	1	1.1	5	3	1
	2SC5084	S-Mini	12	80	7	10	20	11	10	20	1	1.1	10	5	1
	2SC5085	USM	12	80	7	10	20	11	10	20	1	1.1	10	5	1
	2SC5086	SSM	12	80	7	10	20	11	10	20	1	1.1	10	5	1
	2SC5087	SMQ	12	80	7	10	20	13	10	20	1	1.1	10	5	1
	2SC5095	USM	10	15	10	6	7	13	6	7	1	1.4	6	3	1
LNA for GPS, Satellite radio and DAB Sys.	MT4S300U	USQ	4	50	26.5	3	20	16.9	3	20	2	0.55	3	10	2
	MT4S301U	USQ	4	35	27.5	3	15	18.1	3	15	2	0.57	3	7	2
LNA for TV tuner, Automotive TV tuner, FM tuner, DAB system and Low distortion application.	MT4S03BU	USQ	5	40	12	3	30	9	3	30	2	1.6	3	10	2
	MT4S24U	USQ	5	50	14.5	3	20	11.5	3	20	2	1.55	3	7	2
	2SC5087R	SMQ	12	80	8	10	30	13.5	10	30	1	1.1	10	7	1
	MT3S20TU	UFM	12	80	7	5	30	12	5	50	1	1.45	5	20	1
	MT3S20P	PW-Mini	12	80	7	5	30	11	5	50	1	1.45	5	20	1
	MT3S19R	SOT-23F	6	80	13.5	5	50	13	5	50	1	1.5	5	20	1
	MT3S111TU	UFM	6	100	10	5	30	12.5	5	30	1	0.85	5	30	1
	MT3S111	S-Mini	6	100	11.5	5	30	12	5	30	1	0.9	5	30	1
	MT3S111P	PW-Mini	6	100	8	5	30	10.5	5	30	1	0.95	5	30	1
	MT3S113TU	UFM	5.3	100	11.2	5	50	12.5	5	50	1	1.15	5	50	1
	MT3S113	S-Mini	5.3	100	12.5	5	50	11.8	5	50	1	1.15	5	50	1
MT3S113P	PW-Mini	5.3	100	7.7	5	50	10.5	5	50	1	1.15	5	50	1	



1 MOSFETs

2 Tr./BRTs

3 Diodes

4 Linear ICs

5 Logics

6 Bus Switches

7 RF Devices

8 Packages

Part Naming Conventions

Radio-Frequency Diode (EIAJ registration products)

Ex) 1 S S 181

① ② ③ ④

- ① The value that subtracted 1 from the total number of terminals
- ② S stands for Semiconductor
- ③ The kind of diode

This section shows the kind of the diode being used.

(It is omitted in certain cases.)

S: diode of general-purpose use, detection use,
frequency conversion use, and switching use
V: variable capacitance diode, PIN diode
Z: zener diode

- ④ Serial number

Radio-Frequency Diode (EIAJ un-registration products)

Ex) JD P 2 2 01 I

① ② ③ ④ ⑤ ⑥

- ① JD means High-frequency diode

- ② The kind of devices

This section shows the kind of the devices being used.

It is classified into H, P, S, and V by the devices being loaded.

H: schottky barrier diode
P: PIN diode
S: band switching diode
V: variable capacitance diode

- ③ The number of terminals

- ④ Internal connection

This section shows the kind of the internal connection of a product.

S: single
C: cathode common
P: parallel

- ⑤ Serial number

- ⑥ Package type

(No mark)	S-MINI
U	USC, USQ
T	TESC, TESQ
E	ESC
S	sESC
FS	fsc
CT	CST3, CST4
SC	SC2
FV	VESM

Radio-Frequency Transistor (Microwave transistor)

Ex) MT 3 S 03 A I

① ② ③ ④ ⑤ ⑥

- ① Microwave transistor
- ② The number of terminals
- ③ Internal connection

This section shows the kind of the internal connection of a product.

S: Single
C: Cascade arrangement
P: Parallel arrangement
L: Lateral arrangement

- ④ Serial number

- ⑤ Changes

The additional symbol which shows some changes

- ⑥ Package type

(No mark)	S-MINI, SMQ
U	USM, USQ, US6
S	SSM, sES6
T	TESM, TU6, TESQ
E	ES6
FS	fSM, fS6
CT	CST3

Radio-Frequency Power Transistor (EIAJ registration products)

Ex) 2 S C 2230 A

① ② ③ ④ ⑤

- ① The value that subtracted 1 from the total number of terminals

- ② S stands for Semiconductor

- ③ The kind of circuit

This section shows the kind of the circuit of a product.

It is classified into from A to K by the circuit being used.

A: a transistor of high-frequency and PNP structure
B: a transistor of low-frequency and PNP structure
C: a transistor of high-frequency and NPN structure
D: a transistor of low-frequency and NPN structure
J: a P-ch field effective transistor (FET)
K: an N-ch field effective transistor (FET)

- ④ Serial number

EIAJ registration numbers

- ⑤ Changes

The additional symbol which shows some changes.

Radio-Frequency Transistor (EIAJ registration products)

Ex) 2 S C 3547 B

① ② ③ ④ ⑤

- ① The value that subtracted 1 from the total number of terminals
- ② S stands for Semiconductor
- ③ The kind of circuit

This section shows the kind of the circuit of a product.

It is classified into form A to K by the circuit of a product.

A: a transistor of high-frequency and PNP structure
B: a transistor of low-frequency and PNP structure
C: a transistor of high-frequency and NPN structure
D: a transistor of low-frequency and NPN structure
J: a transistor of effective transistor (FET)
K: an Nch field effective transistor (FET)

- ④ Serial number

EIAJ registration numbers.

- ⑤ Changes

The additional symbol which shows some changes.

Radio-Frequency Power Transistor (RF-MOSFET)

Ex) RFM 07 U Z X

① ② ③ ④ ⑤

- ① RF-MOSFET.

- ② This section shows the output power(W) of a product.

00: 0.1W

07: 7.0W

12: 11.5W

- ③ This section shows the operating frequency(MHz) of a product.

U: 400 to 520MHz

- ④ This section shows the operating voltage(V) of a product.

3: 3.6V

7: 7.2V

- ⑤ Package type

U: USQ

P: PW-MINI

X: PW-X

8. Device Packages

2 Pin packages

SL2 (SOD-962) (0.62x0.32)	CL2E (1.0x0.6)	SOD-923 (1.0x0.6)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm
fSC (SOD-923) (1.0x0.6)	CST2 (SOD-882) (1.0x0.6)	CST2B (1.2x0.8)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm
CST2C (SOD-963) (1.6x0.8)	ESC (SOD-523) (1.6x0.8)	USC (SOD-323) (2.5x1.25)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

2 Pin packages

US2H (SOD-323HE) (2.5x1.4)	
Package dimension	unit : mm
Land pattern example	unit : mm

CST3 (SOT-883) (1.0x0.6)	
Package dimension	unit : mm
Land pattern example	unit : mm

SSM (SOT-416) (1.6x1.6)	
Package dimension	unit : mm
Land pattern example	unit : mm

3 Pin packages

S-FLAT™ (1.6x3.5)	
Package dimension	unit : mm
Land pattern example	unit : mm

CST3B (1.2x0.8)	
Package dimension	unit : mm
Land pattern example	unit : mm

USM (SOT-323) (2.0x2.1)	
Package dimension	unit : mm
Land pattern example	unit : mm

CST3C (0.8x0.6)	
Package dimension	unit : mm
Land pattern example	unit : mm

VESM (SOT-723) (1.2x1.2)	
Package dimension	unit : mm
Land pattern example	unit : mm

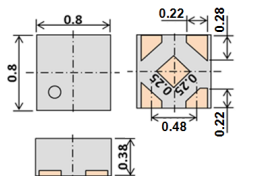
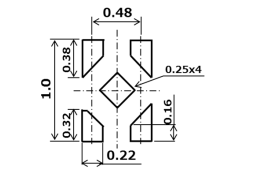
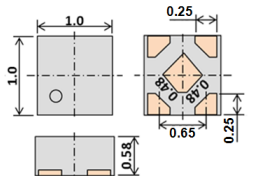
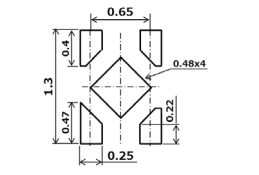
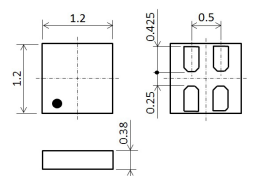
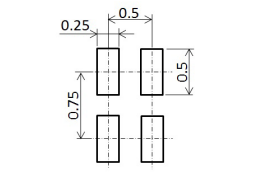
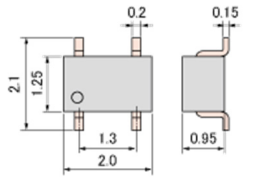
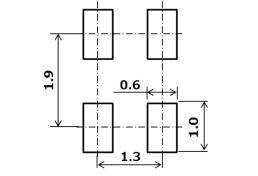
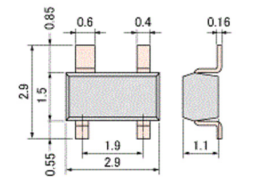
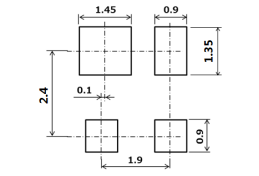
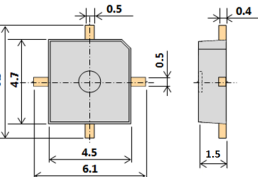
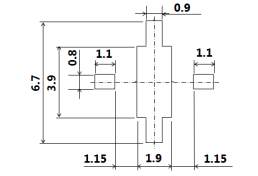
UFM (SOT-323F) (2.0x2.1)	
Package dimension	unit : mm
Land pattern example	unit : mm

S-Mini (SOT-346) (2.9x2.5)	SOT23 (SOT-23) (2.9x2.4)	SOT-23F (2.9x2.4)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

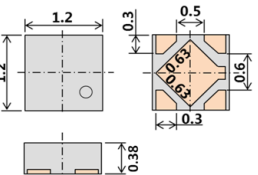
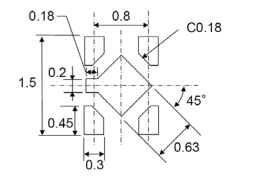
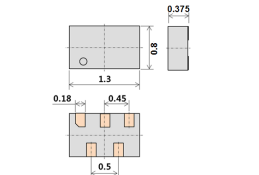
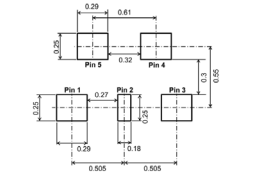
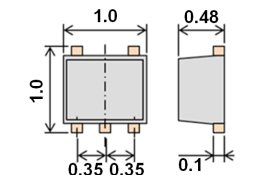
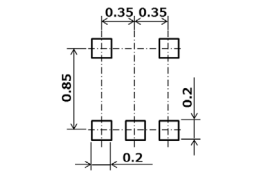
4 Pin packages

PW-Mini (4.6x4.2)	WCSP4E (0.645x0.645)	WCSP4F (0.645x0.645)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm
WCSP4D (0.79x0.79)	WCSP4 (0.79x0.79)	WCSP4C (0.9x0.9)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

4 Pin packages

SDFN4 (0.8x0.8) Package dimension unit : mm  Land pattern example unit : mm 	DFN4 (1.0x1.0) Package dimension unit : mm  Land pattern example unit : mm 	DFN4A (1.2x1.2) Package dimension unit : mm  Land pattern example unit : mm 
USQ (SOT-343) (2.0x2.1) Package dimension unit : mm  Land pattern example unit : mm 	SMQ (SOT-24) (2.9x2.9) Package dimension unit : mm  Land pattern example unit : mm 	PW-X (6.1x6.3) Package dimension unit : mm  Land pattern example unit : mm 

5 Pin packages

DFN5B (1.2x1.2) Package dimension unit : mm  Land pattern example unit : mm 	DFN5 (1.3x0.8) Package dimension unit : mm  Land pattern example unit : mm 	fSV (SOT-953) (1.0x1.0) Package dimension unit : mm  Land pattern example unit : mm 
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ESV (SOT-553) (1.6x1.6)	UFV (SOT-353F) (2.0x2.1)	USV (SOT-353) (2.0x2.1)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm

6 Pin packages

SMV (SOT-25) (2.9x2.8)	WCSP6E (1.2x0.8)	WCSP6F (1.2x0.8)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm

DFN6 (1.25x1.0)	MP6C (1.45x1.0)	MP6D (1.45x1.0)
Package dimension unit: mm 	Package dimension unit: mm 	Package dimension unit: mm
Land pattern example unit: mm 	Land pattern example unit: mm 	Land pattern example unit: mm

6 Pin packages

WCSP6C (1.5x1.0)	UDFN6 (SOT-1118) (2.0x2.0)	UDFN6B (SOT-1220) (2.0x2.0)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm
ES6 (SOT-563) (1.6x1.6)	UF6 (SOT-363F) (2.0x2.1)	US6 (SOT-363) (2.0x2.1)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

8 Pin packages

SM6 (SOT-26) (2.9x2.8)	TSOP6F (SOT-26F) (2.9x2.8)	US8 (SOT-765) (2.0x3.1)
Package dimension unit : mm	Package dimension unit : mm	Package dimension unit : mm
Land pattern example unit : mm	Land pattern example unit : mm	Land pattern example unit : mm

9 Pin packages

10 Pin packages

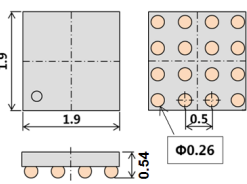
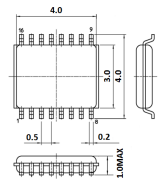
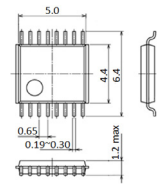
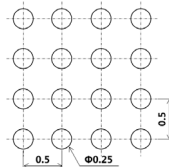
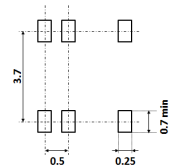
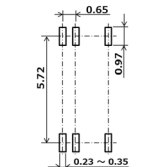
SM8 (SOT-505) (2.9x4.0)	WCSP9 (1.5x1.5)	DFN10 (2.5x1.0)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

14 Pin packages

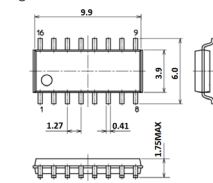
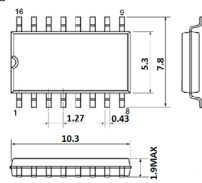
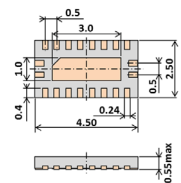
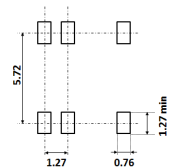
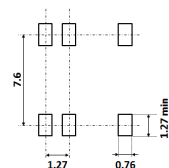
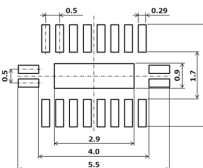
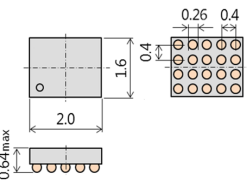
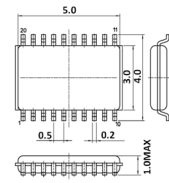
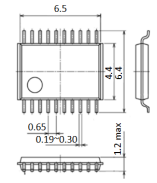
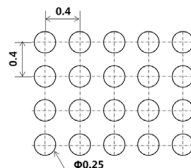
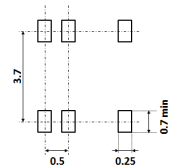
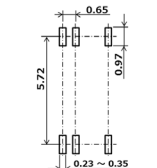
UQFN10 (1.8x1.4)	WSN10B (3.0x3.0)	US14 (4.0x4.0)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

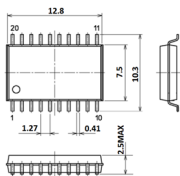
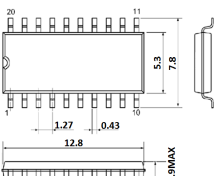
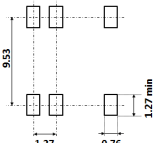
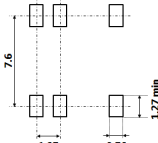
TSSOP14B (5.0x6.4)	SOIC14 (8.65x6.0)	SOP14 (10.3x7.8)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm

16 Pin packages

WCSP16C (1.9x1.9)	US16 (4.0x4.0)	TSSOP16B (5.0x6.4)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

20 Pin packages

SOIC16 (9.9x6.0)	SOP16 (10.3x7.8)	TQFN20 (4.5x2.5)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 
WCSP20 (1.6x2.0)	US20 (5.0x4.0)	TSSOP20B (6.5x6.4)
Package dimension unit : mm 	Package dimension unit : mm 	Package dimension unit : mm 
Land pattern example unit : mm 	Land pattern example unit : mm 	Land pattern example unit : mm 

SOIC20 (12.8x10.3)		SOP20 (12.8x7.8)	
Package dimension	unit : mm	Package dimension	unit : mm
			
Land pattern example	unit : mm	Land pattern example	unit : mm
			

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