

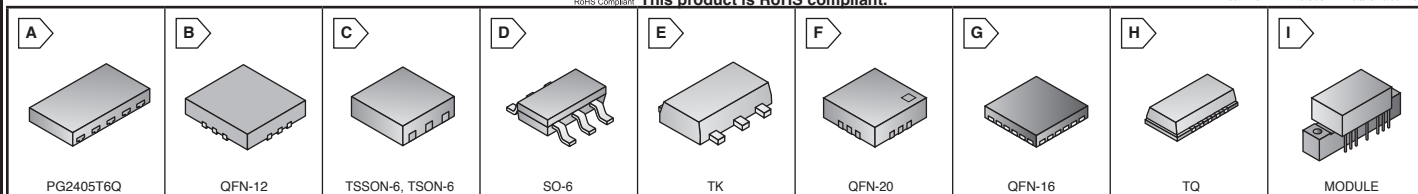
RENESAS/CEL Monolithic Microwave ICs



California Eastern Laboratories

This product is RoHS compliant.

Amplifier ICs



GAAS MONOLITHIC CIRCUITS

◆ Surface Mount

CEL offers a broad range of gallium arsenide (GaAs) IC switches for medium to high power applications. They have the same high reliability, low cost technology found in CEL's discrete FET devices.

Electrical Characteristics (TA=25°C)

Medium Power 1 W Compact SP3T Switch for WiFi + Bluetooth, NFC-RFID

The uPG2405T6Q is an SP3T GaAs FET switch which was developed for Bluetooth™, wireless LAN and NFC. This device can operate from 10 MHz to 2.5 GHz, with low insertion loss and high linearity.

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Control Voltages	Insertion Loss	Isolation	Input Power (dBm) @0.1dB compression point	Price Each			
							1	10	100	500
551-UPG2405T6Q-A	UPG2405T6Q-A	A	+2.8/0	0.60@2.5GHz	20@2.5GHz	+31dBm	1.71	1.51	1.21	1.08
Engineering Evaluation Board							130.68	-	-	-

Switches

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)		RLIN Min./Typ. (dB)	RLOUT (Through) Min. (dB)	P1dB (dBm)	Switching Speed (ns)	VCONT Control Voltage (V)	Price Each				
					@ 1 GHz	@ 2 GHz						1	10	100	500	
SP4T Switches																
551-UPD5904T7K-E2-A	UPD5904T7K-E2-A	B	0.05-6	0.4	35	30	15/25	15	38	150	0 to +1.3	2.58	2.15	1.72	1.55	
SPDT Dual Control Switches																
551-UPG2158T5K-A	UPG2158T5K-A	C	0.05 to 3.0	0.45	---	19	15/20	15	29.0	50	+6.0	1.16	1.00	.86	.73	
551-UPG2214TB-A	UPG2214TB-A	D	0.5 to 2.5	0.35	27	27	15/20	15	20.0	20	-6.0 to +6.0	.96	.837	.718	.62	
551-UPG2214TK-A	UPG2214TK-A	E	0.5 to 2.5	0.36	27	27	15/20	15	20.0	20	-6.0 to +6.0	1.28	1.09	.94	.81	
551-UPG2155TB-A	UPG2155TB-A	D	0.5 to 2.5	0.4	19	17	15/20	15	38.0	0.001	+6.0	1.55	1.39	1.24	1.08	
551-UPG2030TK-A	UPG2030TK-A	E	0.5 to 2.5	0.55	27	27	---/15	15	30.0	50	-6.0 to +6.0	1.32	1.18	1.02	.866	
551-UPG2009TB-A	UPG2009TB-A	D	100 to 2500	0.5	---	28	---/20	20	36.0	150	+2.5 to +5.3	1.86	1.60	1.38	1.17	
551-UPG2179TB-A	UPG2179TB-A	D	100 to 2500	0.3	---	27	15/20	15	32.0	50	+2.5 to +5.3	1.21	1.04	.897	.761	

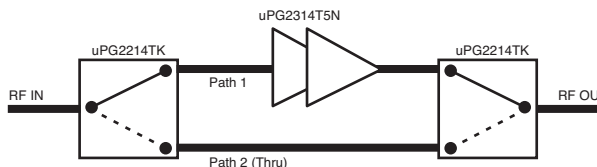
RF Switching ICs

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Frequency Range (GHz)	Insertion Loss (dB)	Isolation (dB)		RLIN Min./Typ. (dB)	RLOUT (Through) Min. (dB)	P1dB (dBm)	Switching Speed (ns)	VCONT Control Voltage (V)	Price Each				
					@ 1 GHz	@ 2 GHz						1	10	100	500	
SPDT Single Control Switch																
551-UPD5713TK-A	UPG5713TK-A	F	0.05 to 2.5	0.8	25	22.5	13/17	13	+21	30	-0.5 to +4.6	.49	.46	.412	.374	
551-UPG2015TB-A	UPG2015TB-A	D	0.5 to 2.5	0.3	28	25	---/20	20	+30	300	+6.0	1.35	1.16	1.00	.85	
551-UPG2012TB-A	UPG2012TB-A	F	0.1 to 2.5	0.3	-	28	---/15	15	+24	300	+6.0	1.25	1.12	1.00	.875	
551-UPG2012TK-A	UPG2012TK-A	D	0.1 to 2.5	0.3	-	28	---/15	15	+24	300	+6.0	1.44	1.24	1.07	.91	
551-UPG2010TB-A	UPG2010TB-A	D	0.1 to 2.5	0.35	28	25	---/15	15	+33	1000	+6.0	2.16	1.87	1.60	1.36	
Broadband Switches																
551-UPG2162T5N-A	UPG2162T5N-A	C	2.4 to 2.5 4.9 to 6.0	0.6/0.85	-	30/27	---/15	15 (Typ)	31/29	150	3.0/0.0	1.84	1.58	1.35	1.16	
551-UPG2163T5N-A	UPG2163T5N-A	C	4.9 to 6.0	0.4/0.5	-	35/30	---/15	15	31/29	50	-6.0 to +6.0	1.33	1.15	1.00	.855	
551-UPG2164T5N-A	UPG2164T5N-A	C	2.4 to 2.5 4.9 to 6.0	0.5/0.7	-	25/17	---/15	15 (Typ)	31/29	50	-6.0 to +6.0	1.37	1.23	1.10	.962	

RANGE EXTENDING GAAS MONOLITHIC CIRCUITS

These devices (the UPG2314T5N medium power amplifier and two UPG2214TK RF switches) can be used for a "range extension" application at 2.4GHz (such as for Bluetooth or ZigBee applications). With a 3V power supply and 0dBm of input power, this range extender will deliver 19dBm of output power (including the insertion loss of the switches and PCB), for a current draw of approximately 65mA. The "thru" path has approx. 1.4dB of loss (insertion loss of both switches + loss in the PCB). Please see the CEL RF IC Evaluation Boards page for evaluation boards (UPG2301TQ-ZBT-EV-A, UPG2314T5N-ZBT-EV-A and UPG2250T5N-EVAL-A) that are available for use in this type of application.



RoHS Compliant

RF Front-End IC for 2.4 GHz Bluetooth™, ZigBee, ISM Band

The UPG2353T6S is a RF front-end integrated circuit (FEIC) for Bluetooth Class 1, ZigBee, and ISM Band and includes TX/Bypass switches, a power amplifier, and a low-pass filter. This device does not require any RF matching parts. The UPG2253T6S operates with 3.0V supply and provides high efficiency and low harmonics.

◆ Surface Mount

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Frequency Range (MHz)	Output Power (dBm)	Power Added Efficiency (%)	Package Style	Price Each			
							1	10	100	500
551-UPG2253T6S-A	UPG2253T6S-A	G	2400 to 2500	+19 TYP / -1.5TYP	28 TYP	QFN-16	3.63	3.07	2.65	2.47

Engineering Evaluation Board

MOUSER STOCK NO.	CEL Part No.	Description	Price Each
551-UPG2253T6S-EVALA	UPG2253T6S-EVAL-A	Engineering Evaluation Board	124.60

Power Amplifiers for Bluetooth Class1 and ZigBee

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Operating Frequency (MHz)	Supply Voltage (V)	Total Current (mA)	Input Power (dBm)	Power Gain (dB)	AGC Control Current	AGC Control Voltage (V)	Variable Gain Range (dB)		Total Power Dissipation (mW)	Price Each			
										Min.	Max.		1	10	100	500
551-UPG2250T5N-A	UPG2250T5N-A	C	2400 to 2500	1.8	250	+5.0	60.0	3.0mA	2.4	-	-	400	4.11	3.23	3.04	2.59
551-UPG2314T5N-A	UPG2314T5N-A	B	2400 to 2500	3.0	-	+10.0	23.0	0.5mA	3.6	17.0	23.0	700	4.11	3.23	3.04	2.59

Power Amplifier for UHF to S-Band

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Operating Frequency (MHz)	Supply Voltage (V)	Ref. Voltage Max (V)	Input Power Max (dBm)	Reference Current Max (mA)	Output Power Min (dBm)	Power Added Efficiency Min (%)	Total Power Dissipation (mW)	Price Each			
											1	10	100	500
551-UPG2118K-A	UPG2118K-A	H	800 to 2500	3.2	5.0	15.0	10.0	31.5	42	4	10.50	8.92	8.04	7.14

Power Doubler Amplifiers

For quantities greater than listed, call for quote.

MOUSER STOCK NO.	CEL Part No.	Fig.	Frequency Range (MHz)	Power Gain		Composite Triple Beat		Composite 2nd Order Beat		Cross Mod (dBc)		Operating Current Max. (mA)	Price Each			
				Min (dB)	Max. dB	Typ.	Max.	Typ.	Max.	Typ.	Max.		1	10	100	500
551-MC7893-AZ	MC7893-AZ	I	40 - 1000	22.5	24.0	-	-63	-	-65	-	60	385	100.33	83.60	74.32	63.17