

Features

- $BV_{CEO} > 10V$
- Very-Low Saturation Voltage to Reduce On-State Losses and Reduce Thermal Management
- High h_{FE} Specified Up to 3A to Reduce Base Drive Requirements
- Small Dimension Package to Reduce PCB Area
- Sidewall Plating (SWP) to Allow Automated Optical Inspection
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DSS4310FJAWQ is suitable for automotive applications requiring specific change control; this part is AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**

<https://www.diodes.com/quality/product-definitions/>

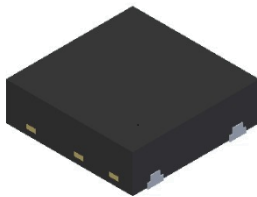
Mechanical Data

- Package: W-DFN2020-3
- Nominal Package Height: 0.62mm
- Package Material: Molded Plastic. "Green" Molding Compound. UL Flammability Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin, Solderable per MIL-STD-202, Method 208 
- Weight: 0.01 grams (Approximate)

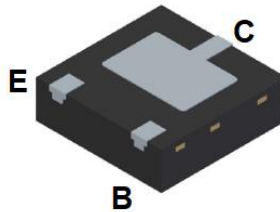
Applications

- DC-DC converters
- Charging circuits
- Low dropout regulators
- Load switches
- Motor control
- Power switches

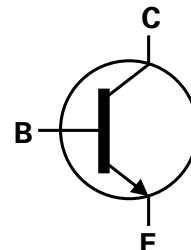
W-DFN2020-3/SWP (Type A)



Top View



Bottom View



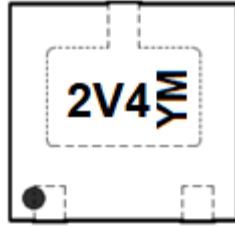
Device Symbol

Ordering Information (Note 4)

Orderable Part Number	Package	Marking	Reel Size (inches)	Tape Width (mm)	Packing	
					Qty.	Carrier
DSS4310FJAWQ-7	W-DFN2020-3/SWP (Type A)	2V4	7	8	3,000	Reel

- Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
 2. See <https://www.diodes.com/quality/lead-free/> for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
 3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
 4. For packaging details, go to our website at <https://www.diodes.com/design/support/packaging/diodes-packaging/>.

Marking Information



2V4 = Product Type Marking Code
 YM = Date Code Marking
 Y = Year (ex: M = 2025)
 M = Month (ex: 3 = March)

Date Code Key

Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036
Code	M	N	P	R	S	T	U	V	W	X	Y	Z

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Absolute Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CB0}	10	V
Collector-Emitter Voltage	V _{CEO}	10	
Emitter-Base Voltage	V _{EBO}	8	
Peak Pulse Current	I _{CM}	5	A
Continuous Collector Current	I _C	3	A
Base Current	I _B	500	mA

Thermal Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Power Dissipation	P _D	695	mW
		1.4	W
Thermal Resistance, Junction to Ambient	R _{θJA}	180	°C/W
		90	
Thermal Resistance, Junction to Case	R _{θJC}	39	°C
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

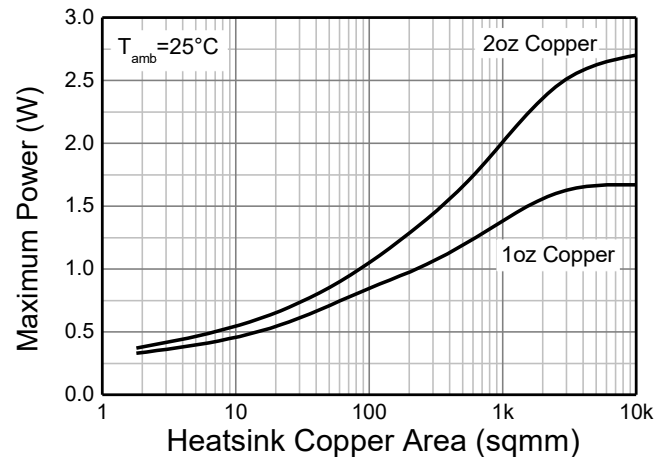
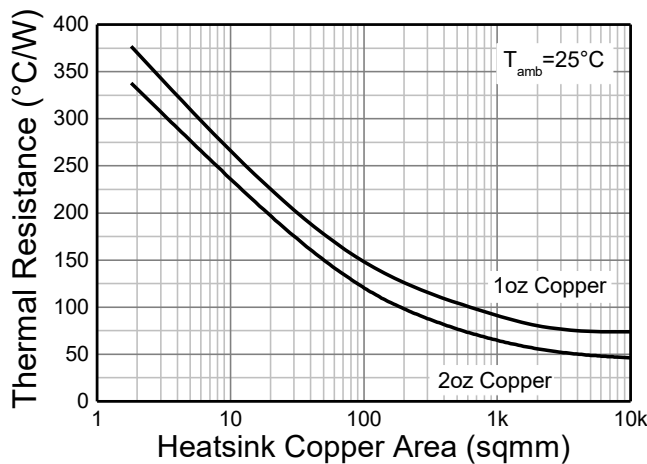
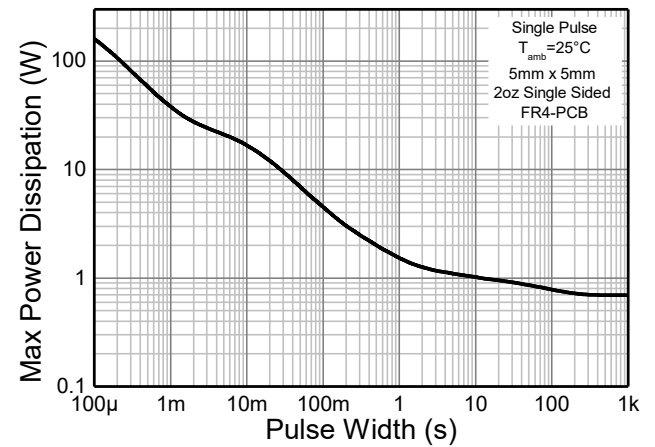
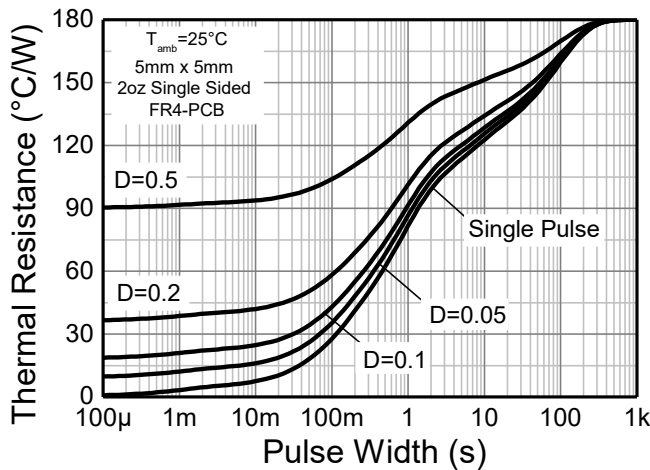
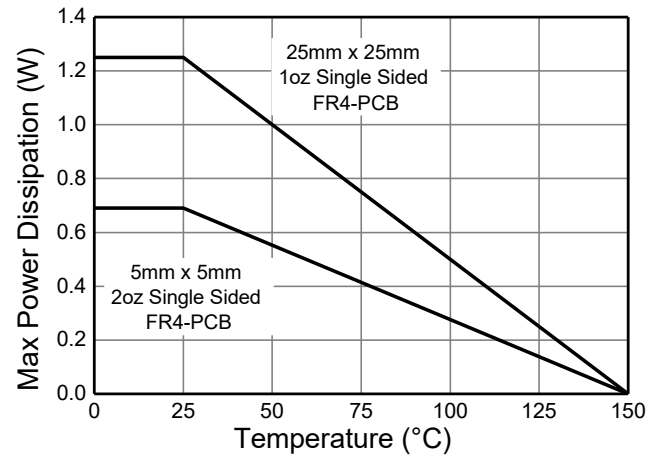
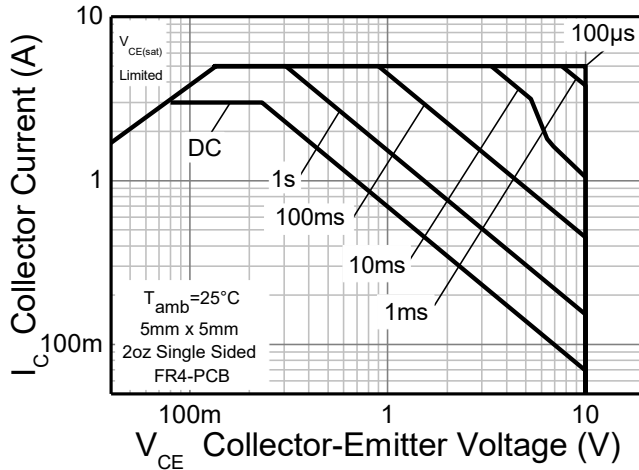
ESD Ratings (Note 7)

Characteristic	Symbol	Value	Unit	JEDEC Class
Electrostatic Discharge - Human Body Model	ESD HBM	4,000	V	3A
Electrostatic Discharge - Machine Model	ESD MM	400	V	C
Electrostatic Discharge - Charged Device Model	ESD CDM	1000	V	IV

Notes:

- For a device mounted on FR-4 substrate PC board, with exposed collector pad mounted on 5mm x 5mm; 2oz copper. Device is measured under still air conditions whilst operating in a steady state.
- Same as note (5) except the exposed collector pad is mounted on 25mm x 25mm 2oz copper.
- Refer to JEDEC specifications JESD22-A114, JESD22-A115 and JESD22-C101.

Thermal Characteristics and Derating Information



Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Collector-Base Breakdown Voltage	BV _{CB0}	10	82	—	V	I _C = 100μA
Collector-Emitter Breakdown Voltage (Note 8)	BV _{CEO}	10	19	—	V	I _C = 10mA
Emitter-Base Breakdown Voltage	BV _{EBO}	8	9.2	—	V	I _E = 100μA
Collector Emitter Cutoff Current	I _{CES}	—	1	100	nA	V _{CE} = 10V
Collector Cutoff Current	I _{CBO}	—	1	100	nA	V _{CB} = 10V
Emitter Cutoff Current	I _{EBO}	—	1	100	nA	V _{EB} = 6.4V
Static Forward Current Transfer Ratio (Note 8)	h _{FE}	325	575	—	—	I _C = 100mA, V _{CE} = 2V
		325	555	—		I _C = 500mA, V _{CE} = 2V
		300	535	—		I _C = 1A, V _{CE} = 2V
		275	490	—		I _C = 2A, V _{CE} = 2V
		250	455	—		I _C = 3A, V _{CE} = 2V
Collector-Emitter Saturation Voltage (Note 8)	V _{CE(sat)}	—	14	25	mV	I _C = 0.5A, I _B = 50mA
		—	27	35		I _C = 1A, I _B = 50mA
		—	42	55		I _C = 1A, I _B = 10mA
		—	66	85		I _C = 2A, I _B = 20mA
		—	72	90		I _C = 3A, I _B = 150mA
		—	91	110		I _C = 3A, I _B = 30mA
Base-Emitter Turn-On Voltage (Note 8)	V _{BE(on)}	—	760	845	mV	I _C = 2A, V _{CE} = 2V
Base-Emitter Saturation Voltage (Note 8)	V _{BE(sat)}	—	860	900	mV	I _C = 1A, I _B = 100mA
			0.96	1.2	V	I _C = 3A, I _B = 300mA
Input Capacitance	C _{ibo}	—	130	—	pF	V _{EB} = 0.5V, f = 1MHz
Output Capacitance	C _{obo}	—	57	—	pF	V _{CB} = 10V, f = 1MHz
Transition Frequency	f _T	—	100	—	MHz	V _{CE} = 5V, I _C = 100mA, f = 100MHz
Delay Time	t _d	—	19	—	ns	V _{CC} = 9V, I _C = 2A I _{B1} = -I _{B2} = 0.1A
Rise Time	t _r	—	61	—		
Turn-On Time	t _{on}	—	80	—		
Storage Time	t _s	—	180	—		
Fall Time	t _f	—	12	—		
Turn-Off Time	t _{off}	—	192	—		

Note: 8. Measured under pulsed conditions. Pulse width ≤ 300μs. Duty cycle ≤ 2%.

Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.)

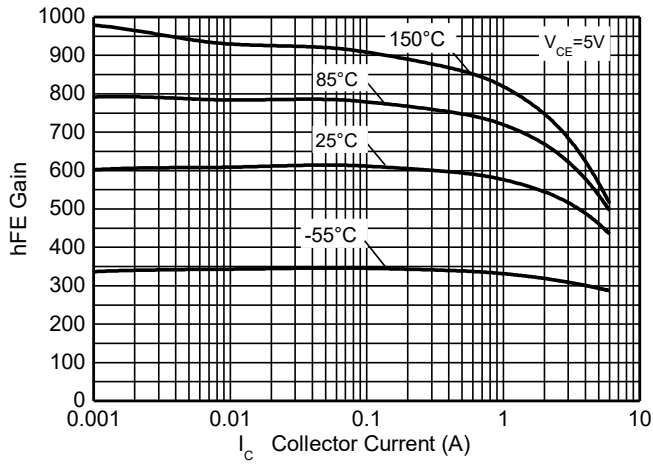


Fig. 7 $hFE \ v \ I_C$

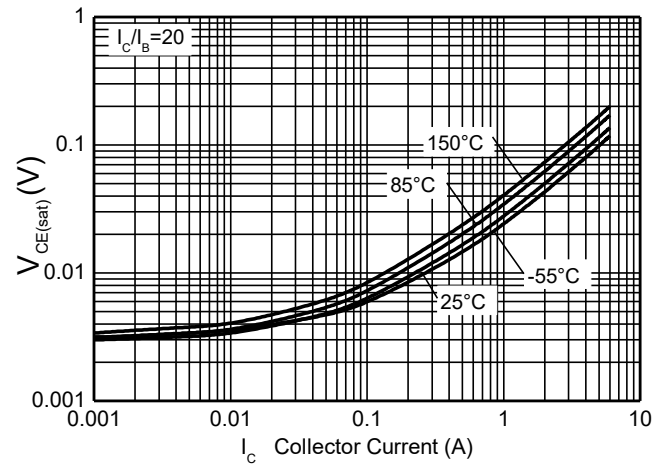


Fig. 8 $V_{CE(sat)} \ v \ I_C$

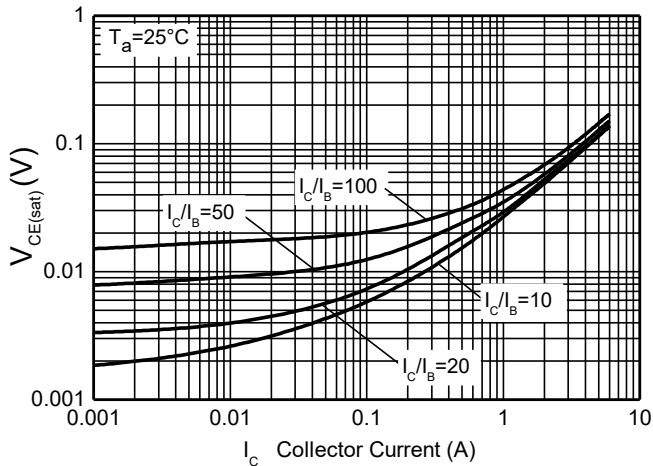


Fig. 9 $V_{CE(sat)} \ v \ I_C$

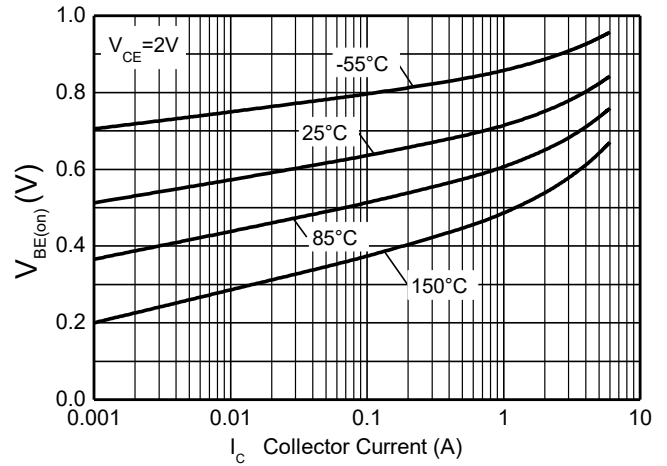


Fig. 10 $V_{BE(on)} \ v \ I_C$

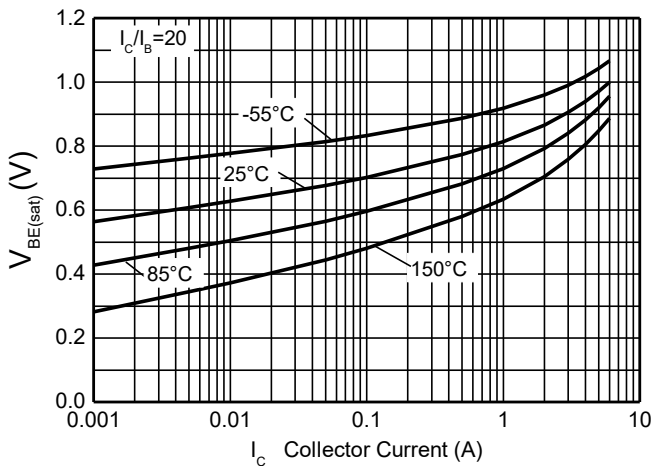


Fig. 11 $V_{BE(sat)} \ v \ I_C$

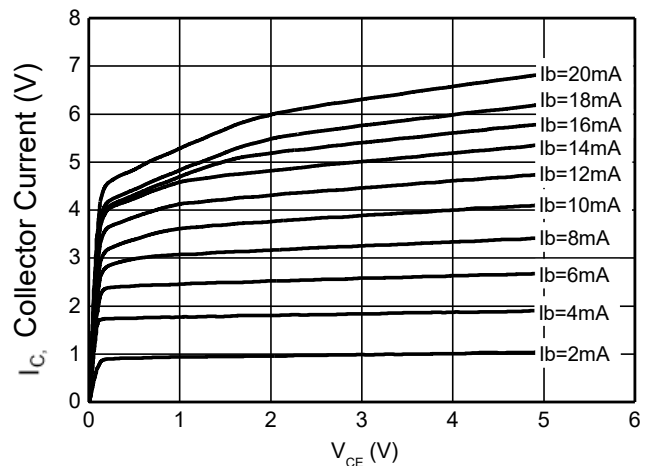
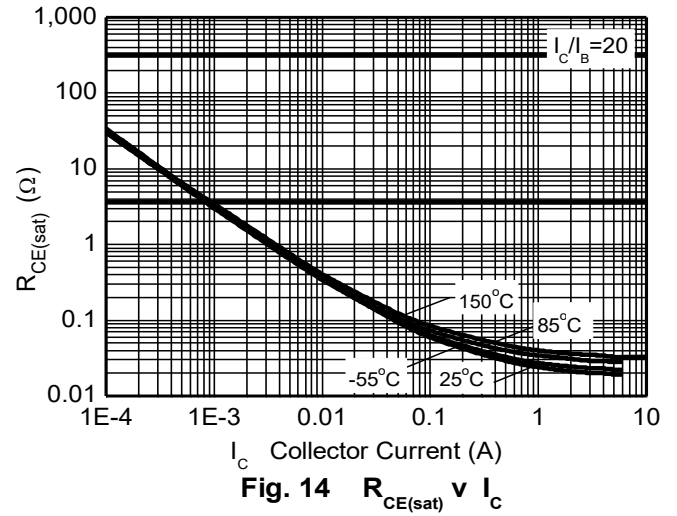
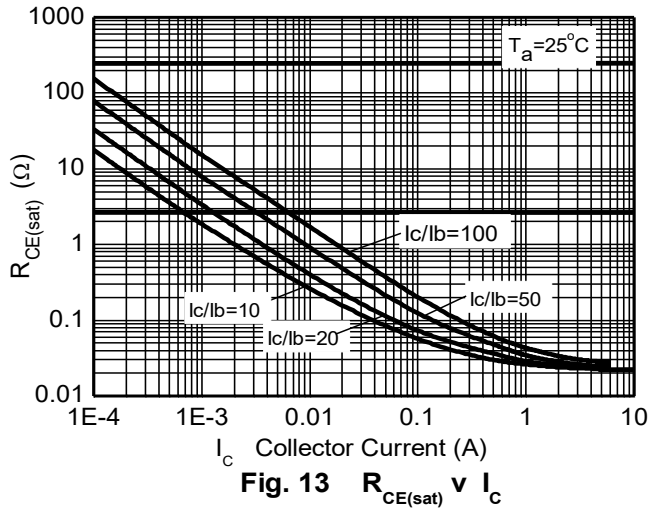


Fig. 12 $I_C \ v \ V_{CE}$

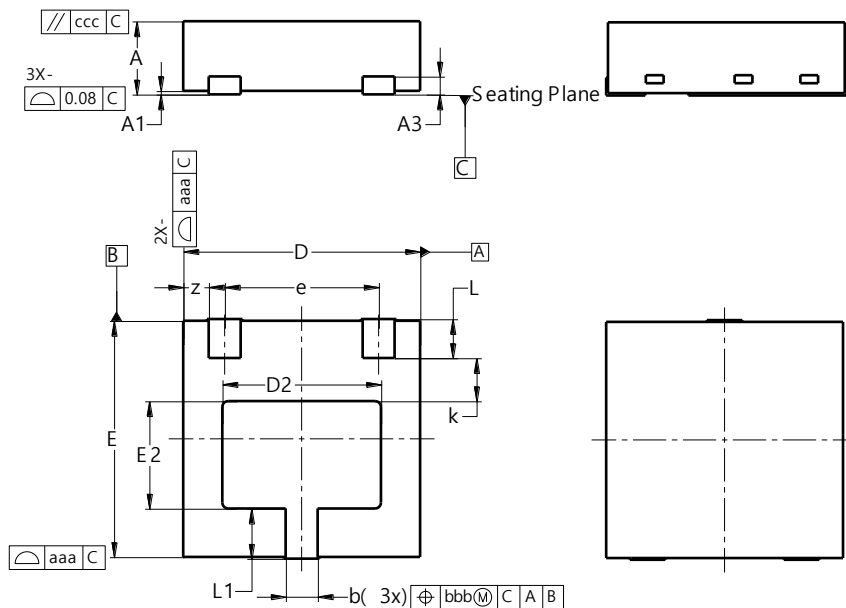
Typical Electrical Characteristics (@ $T_A = +25^\circ\text{C}$, unless otherwise specified.) (continued)



Package Outline Dimensions

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

W-DFN2020-3/SWP (Type A)

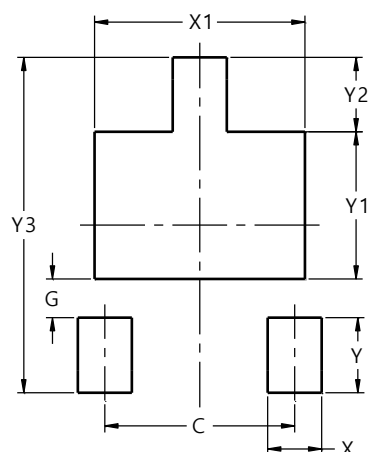


W-DFN2020-3/SWP (Type A)			
Dim	Min	Max	Typ
A	0.57	0.67	0.62
A1	0.00	0.05	0.03
A3	0.100	--	0.152
b	0.22	0.32	0.27
D	1.95	2.05	2.00
D2	1.24	1.44	1.34
E	1.95	2.05	2.00
E2	0.81	1.01	0.91
e	--	--	1.30
k	--	--	0.365
L	0.28	0.38	0.33
L1	0.375	0.475	0.425
z	--	--	0.215
aaa	0.25		
bbb	0.10		
ccc	0.10		
All Dimensions in mm			

Suggested Pad Layout

Please see <http://www.diodes.com/package-outlines.html> for the latest version.

W-DFN2020-3/SWP (Type A)



Dimensions	Value (in mm)
C	1.300
G	0.265
X	0.370
X1	1.440
Y	0.515
Y1	1.010
Y2	0.510
Y3	2.300

Note: 9. Side wall tin plated package for wettable flanks in AOI.

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