

MSS20,000 Series Zero Bias Schottky Diodes



Description

The Aeroflex / Metelics MSS20,000 series of Schottky diodes is fabricated on P-Type epitaxial substrates for superior 1/f noise performance in microwave zero-bias detector applications up to 40 GHz.

Features

- Very low 1/f Noise
- Detector applications to 40 GHz
- Chip, beam lead or packaged devices

Absolute Maximum Ratings

Parameters	Rating
Reverse Voltage	1.0 Volts
Forward Current	35 mA
Operation Temperature	-65 °C to +150 °C
Storage Temperature	-65 °C to +150 °C
CW Power Dissipation	100 mW, derated linearly to zero at $T_A = +150$ °C
Soldering Temperature (Packaged)	+ 230 °C for 5 sec.

Chip

Electrical Specifications, $T_A = 25$ °C

Model	C_j MAX pF	T_{ss} TYP dBm	R_v MIN Ω	R_v MAX Ω	γ TYP mV / mW	Frequency MAX GHz	Outline
MSS20,046-C15	0.10	-58	1000	2000	5000	18	C15
MSS20,047-C15	0.10	-59	2000	6000	8000	18	C15
MSS20,050-C15	0.15	-58	1000	2000	5000	12	C15
MSS20,051-C15	0.15	-59	2000	6000	8000	12	C15
MSS20,054-C15	0.20	-58	1000	2000	5000	8	C15
MSS20,055-C15	0.20	-59	2000	6000	8000	8	C15
Test Conditions	f = 1 MHz $V_R = 0$ V	f = 10 GHz NF = 3dB	$P_{IN} = -30$ dBm Video BW = 500 KHz		$R_L = 1$ M Ω		



Beam Lead

Electrical Specifications, $T_A = 25\text{ }^\circ\text{C}$

Model	C_j MAX pF	T_{ss} TYP dBm	R_V MIN Ω	R_V MAX Ω	γ TYP mV / mW	Frequency MAX GHz	Outline
MSS20,140-B10D	0.08	-58	1000	2000	5000	40	B10D
MSS20,141-B10D	0.08	-59	2000	6000	8000	40	B10D
MSS20,142-B10D	0.10	-58	1000	2000	5000	26	B10D
MSS20,143-B10D	0.10	-59	2000	6000	8000	26	B10D
MSS20,145-B10D	0.12	-58	1000	2000	5000	18	B10D
MSS20,146-B10D	0.12	-59	2000	6000	8000	18	B10D
Test Conditions	f = 1 MHz $V_R = 0\text{ V}$	f = 10 GHz NF = 3dB	$P_{IN} = -30\text{ dBm}$ Video BW = 500 KHz		$R_L = 1\text{ M}\Omega$		

Packaged

Electrical Specifications, $T_A = 25\text{ }^\circ\text{C}$

Model	C_T MAX pF	T_{ss} TYP dBm	R_V MIN Ω	R_V MAX Ω	γ TYP mV / mW	Frequency MAX GHz	Outline
MSS20,046-H27	0.22	-58	1000	2000	5000	18	H27
MSS20,046-E25	0.18	-58	1000	2000	5000	18	E25
MSS20,046-T86	0.28	-58	1000	2000	5000	18	T86
MSS20,047-H27	0.22	-59	2000	6000	8000	18	H27
MSS20,047-E25	0.18	-59	2000	6000	8000	18	E25
MSS20,047-T86	0.28	-59	2000	6000	8000	18	T86
MSS20,050-H27	0.27	-58	1000	2000	5000	12	H27
MSS20,050-E25	0.23	-58	1000	2000	5000	12	E25
MSS20,050-T86	0.33	-58	1000	2000	5000	12	T86
MSS20,051-H27	0.27	-59	2000	6000	8000	12	H27
MSS20,051-E25	0.23	-59	2000	6000	8000	12	E25
MSS20,051-T86	0.33	-59	2000	6000	8000	12	T86
MSS20,054-H27	0.32	-58	1000	2000	5000	8	H27
MSS20,054-E25	0.28	-58	1000	2000	5000	8	E25
MSS20,054-T86	0.38	-58	1000	2000	5000	8	T86
MSS20,055-H27	0.32	-59	2000	6000	8000	8	H27
MSS20,055-E25	0.28	-59	2000	6000	8000	8	E25
MSS20,055-T86	0.38	-59	2000	6000	8000	8	T86
Test Conditions	f = 1 MHz $V_R = 0\text{ V}$	f = 10 GHz NF = 3dB	$P_{IN} = -30\text{ dBm}$ Video BW = 500 KHz		$R_L = 1\text{ M}\Omega$		

MSS20,000 Series Zero Bias Silicon Schottky Diodes



Typical Performance, $T_A = 25^\circ\text{C}$

Figure 1.

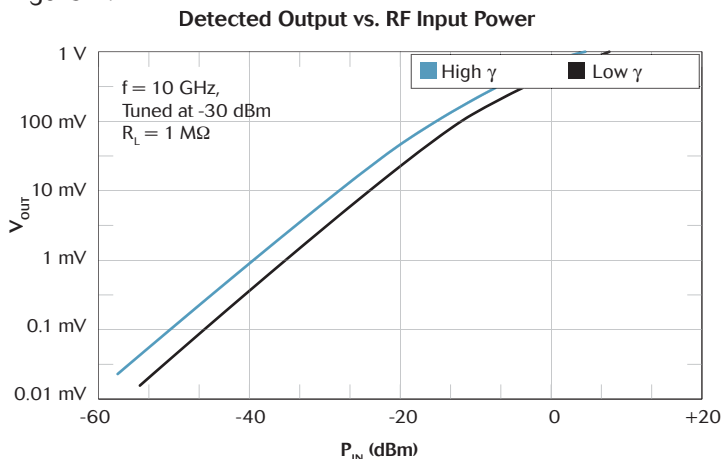


Figure 2.

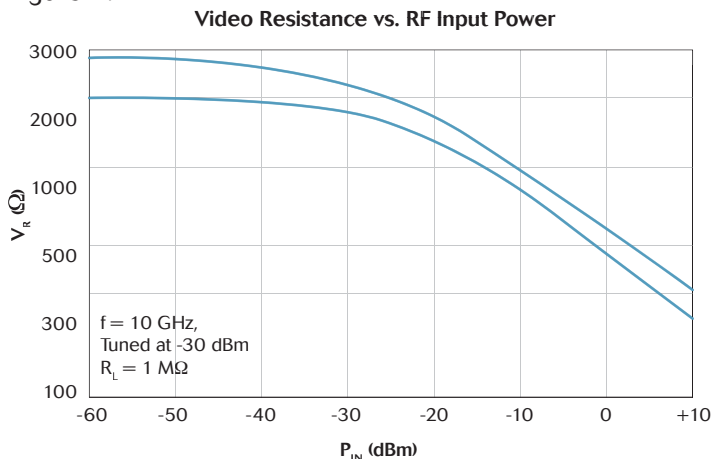
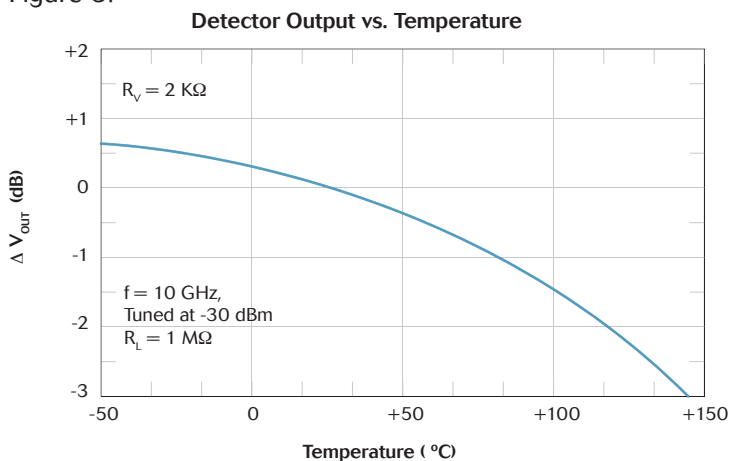
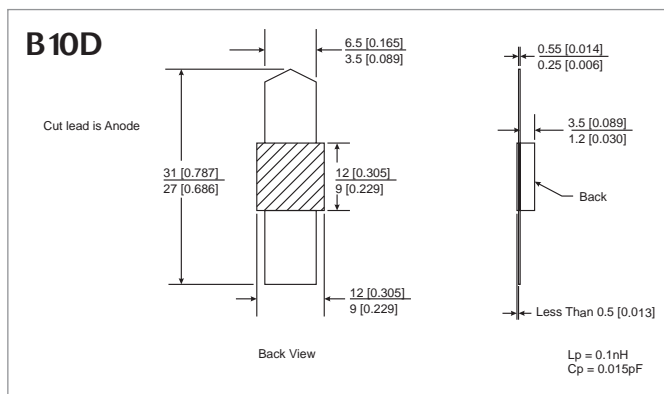
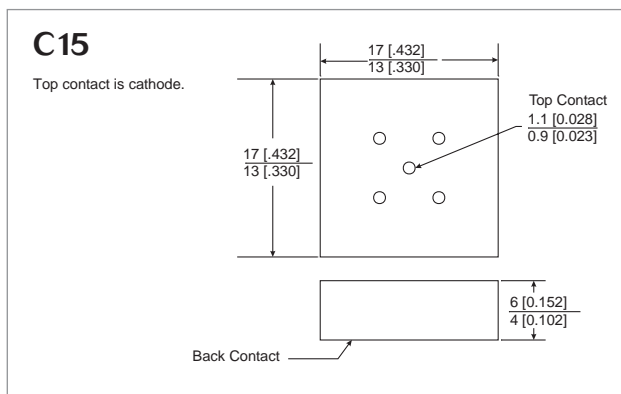


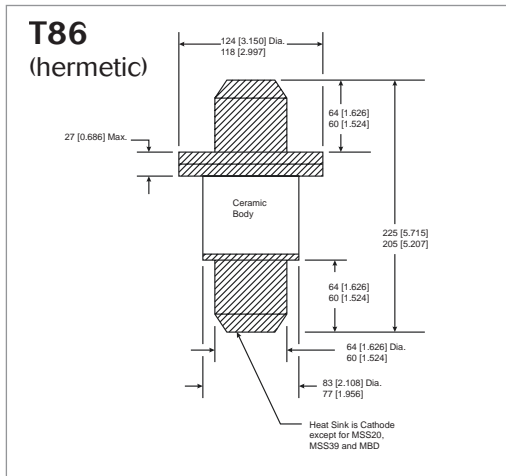
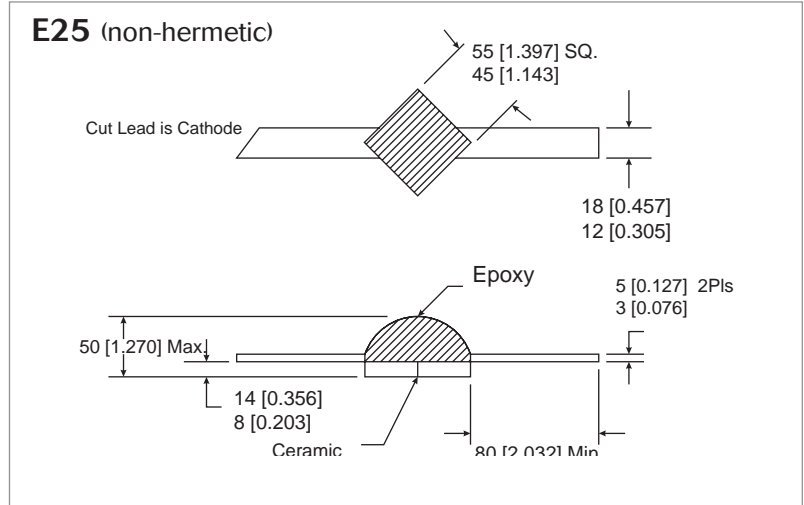
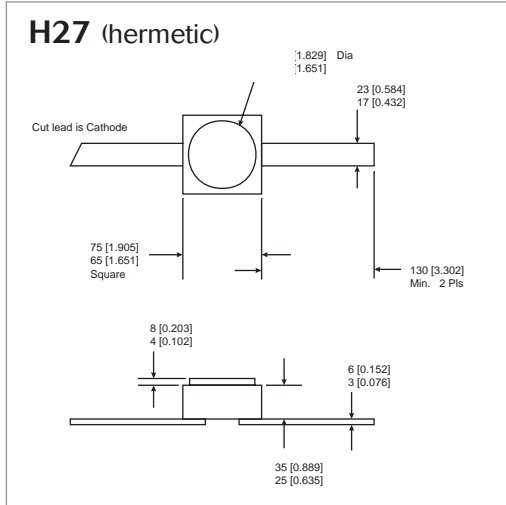
Figure 3.



Outline Drawings



Outline Drawings



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