

MSS50,000 Series

High Barrier Silicon Schottky Diodes



Description

The Aeroflex / Metelics MSS50,000 Series of Schottky diodes are fabricated on N-Type epitaxial substrates using proprietary processes that yield the highest FCOs in the industry. Optimum mixer performance is obtained with LO power of +2 dBm to +8 dBm per diode.

Features

- V_F , R_D and C_J matching options
- Chip, beam lead or packaged devices
- Hi-Rel screening per MIL-PRF-19500 and MIL-PRF-38534 available

Absolute Maximum Ratings

Parameters	Rating
Reverse Voltage	Rated V_{BR}
Forward Current	50 mA
Operation Temperature	-65 °C to +150 °C
Storage Temperature	-65 °C to +150 °C
Power Dissipation	100 mW per junction at $T_A = 25$ °C, derate linearly to zero at $T_A = +150$ °C
Soldering Temperature (Packaged)	+ 260 °C for 5 sec.
Beam Lead Pull Strength	4 grams minimum

Chip

Electrical Specifications, $T_A = 25$ °C

Model	Configuration	V_F TYP V	V_{BR} MIN V	C_J TYP / MAX pF	R_S TYP Ω	R_D MAX Ω	F_{CO} TYP GHz	Outline
MSS50,048-C15	Single Junction	0.5	4	0.12 / 0.15	7	15	190	C15
MSS50,062-C16	Single Junction	0.5	5	0.50 / 0.55	2	12	160	C16
Test Conditions		$I_F = 1$ mA	$I_R =$ 10 μ A	$V_R = 0$ V $F = 1$ MHz	$I_F = 5$ mA			



Beam Lead

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

Model	Configuration	V_F TYP V	V_{BR} MIN V	C_J TYP / MAX pF	R_S TYP Ω	R_D MAX Ω	F_{CO} TYP GHz	Outline
MSS50,146-B10B	Single Junction	0.52	5	0.07 / 0.12	9	18	253	B10B
MSS50,244-B20	Series Tee	0.52	4	0.15 / 0.20	7	16	183	B20
MSS50,448-B40	Ring Quad	0.52	10	0.20 / 0.25	6	14	133	B40
Test Conditions		$I_F = 1\text{ mA}$	$I_R = 10\text{ }\mu\text{A}$	$V_R = 0\text{ V}$ $F = 1\text{ MHz}$	$I_F = 5\text{ mA}$			

Packaged

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

Model	Configuration	V_F TYP V	V_{BR} MIN V	C_T TYP / MAX pF	R_S TYP Ω	R_D MAX Ω	F_{CO} TYP GHz	Outline
MSS50,048-P55	Single Junction	0.50	4	0.24 / 0.30	12	10	190	P55
MSS50,048-P86	Single Junction	0.50	4	0.27 / 0.33	12	10	190	P86
MSS50,146-E25	Single Junction	0.52	5	0.20 / 0.26	15	12	253	E25
MSS50,146-H20	Single Junction	0.52	5	0.28 / 0.34	15	12	253	H20
MSS50,244-E30	Series Tee	0.52	5	0.30 / 0.36	7	16	183	E30
MSS50,244-H30	Series Tee	0.52	5	0.36 / 0.42	7	16	183	H30
MSS50,448-E45	Ring Quad	0.52	5	0.30 / 0.36	10	10	133	E45
MSS50,448-H40	Ring Quad	0.52	5	0.36 / 0.42	10	10	133	H40
Test Conditions		$I_F = 1\text{ mA}$	$I_R = 10\text{ }\mu\text{A}$	$V_R = 0\text{ V}$ $F = 1\text{ MHz}$	$I_F = 5\text{ mA}$			

MSS50,000 Series High Barrier Silicon Schottky Diodes



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

Figure 1.

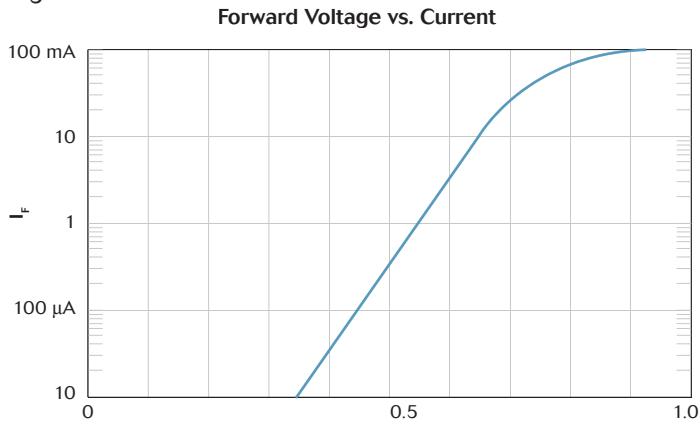


Figure 2.

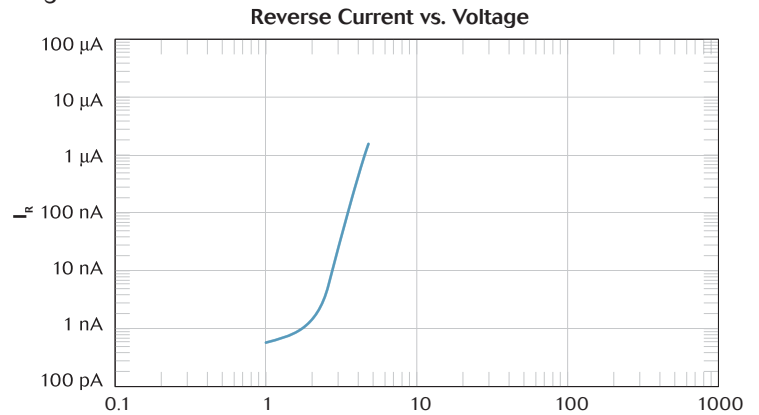


Figure 3.

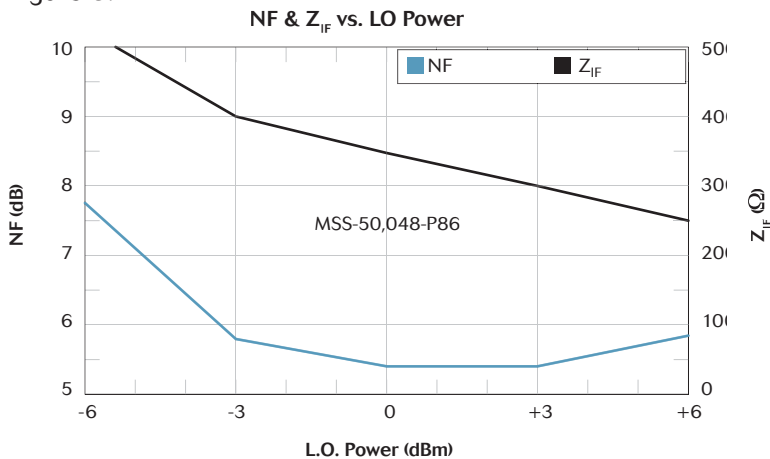
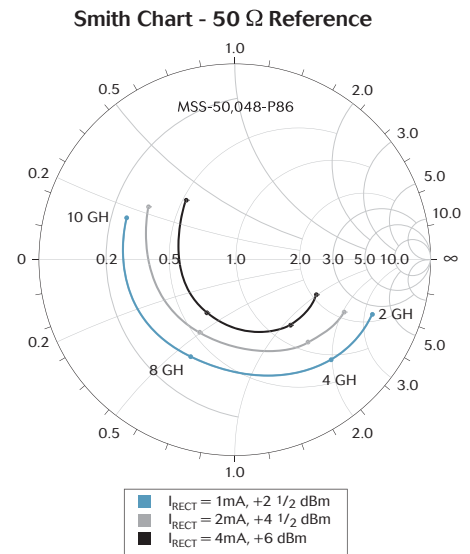
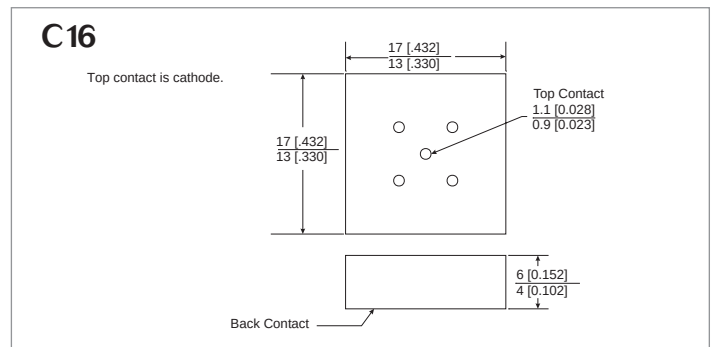
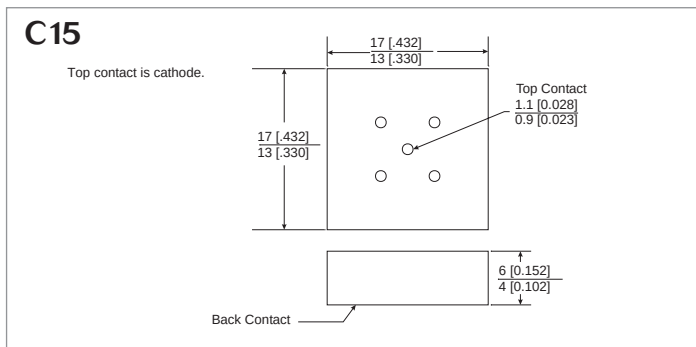


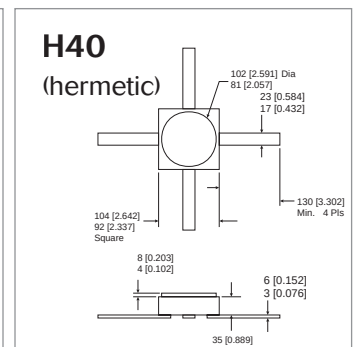
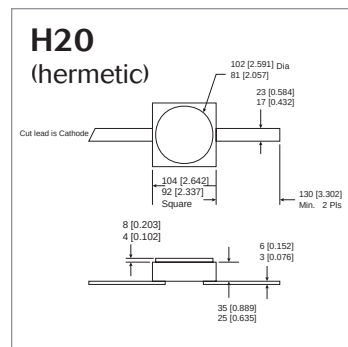
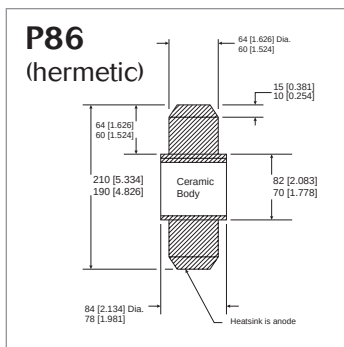
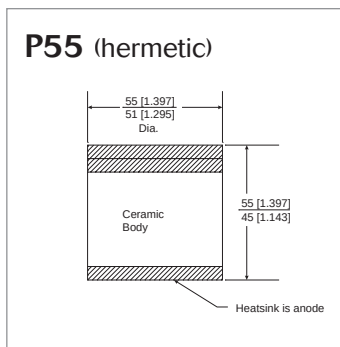
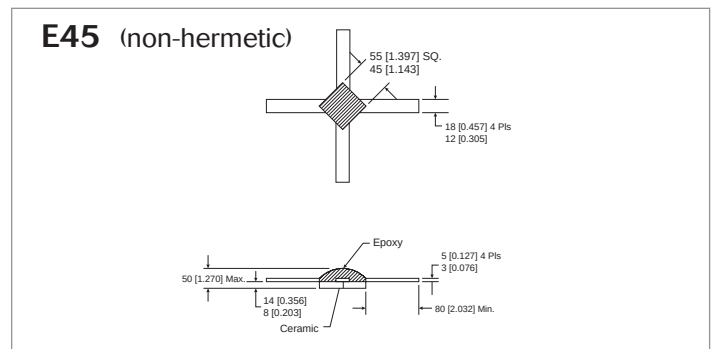
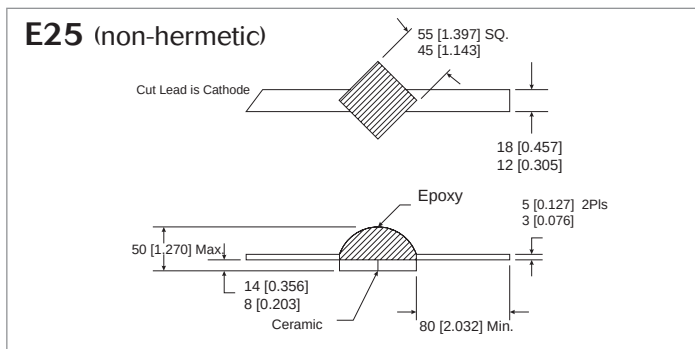
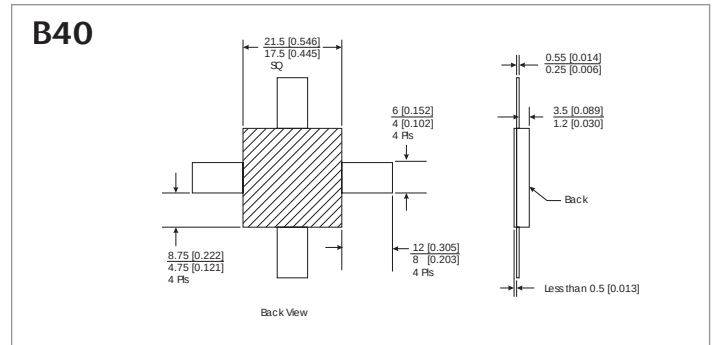
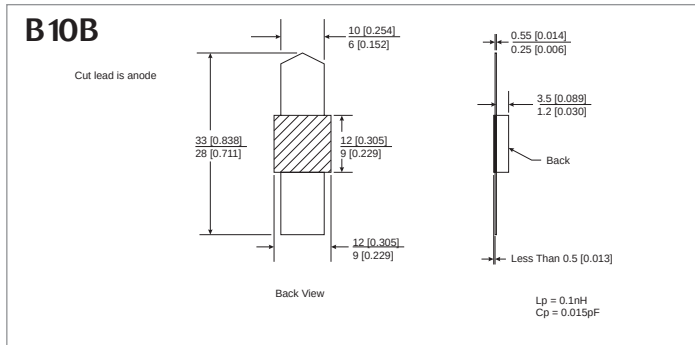
Figure 4.



Outline Drawings



Outline Drawings



Aeroflex / Metelics

Aeroflex Microelectronic Solutions
975 Stewart Drive, Sunnyvale, CA 94085
TEL: 408-737-8181
Fax: 408-733-7645

www.aeroflex-metelics.com

sales@eroflex-metelics.com

Aeroflex / Metelics, Inc. reserves the right to make changes to any products and services herein at any time without notice. Consult Aeroflex or an authorized sales representative to verify that the information in this data sheet is current before using this product. Aeroflex does not assume any responsibility or liability arising out of the application or use of any product or service described herein, except as expressly agreed to in writing by Aeroflex; nor does the purchase, lease, or use of a product or service from Aeroflex convey a license under any patent rights, copyrights, trademark rights, or any other of the intellectual rights of Aeroflex or of third parties. Copyright 2003 Aeroflex / Metelics. All rights reserved.



Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.