

# MSS39,000 Series P-Type Silicon Schottky Diodes



## Description

The Aeroflex / Metelics MSS39,000 series of Schottky diodes is fabricated on P-Type epitaxial substrates for superior 1/f noise performance in microwave biased-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	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, derated linearly to zero at $T_A = +150$ °C
Soldering Temperature (Packaged)	+ 230 °C for 5 sec.
Beam Lead Pull Strength, Min	4 grams

## Chip

### Electrical Specifications, $T_A = 25$ °C

Model	$V_{BR}$ MIN V	$V_F$ TYP V	$C_J$ MAX pF	$T_{SS}$ TYP dBm	$\gamma$ TYP mV / mW	Frequency MAX GHz	Outline
MSS39,045-C15	5.0	0.40	0.10	-58	5,000	18	C15
MSS39,048-C15	5.0	0.39	0.15	-58	5,000	12	C15
Test Conditions	$I_R = 10 \mu A$	$I_F = 1 mA$	$V_R = 0 V$ F = 1 MHz	DC Bias = 10 $\mu A$ $R_L = 100 K\Omega$	F = 10 GHz Video BW = 2 MHz		



### Beam Lead

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

Model	$V_{BR}$ MIN V	$V_F$ TYP V	$C_J$ MAX pF	$T_{ss}$ TYP dBm	$\gamma$ TYP mV / mW	Frequency MAX GHz	Outline
MSS39,144-B10B	3.5	0.38	0.08	-58	5,000	40	B10B
MSS39,146-B10B	3.5	0.38	0.10	-58	5,000	26	B10B
MSS39,148-B10B	3.5	0.39	0.12	-58	5,000	18	B10B
MSS39,152-B10B	3.5	0.38	0.18	-58	5,000	12	B10B
Test Conditions	$I_R = 10\text{ }\mu\text{A}$	$I_F = 1\text{ mA}$	$V_R = 0\text{ V}$ $F = 1\text{ MHz}$	DC Bias = $10\text{ }\mu\text{A}$ $F = 10\text{ GHz}$ $R_L = 100\text{ K}\Omega$ Video BW = $2\text{ MHz}$			

### Packaged

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

Model	$V_{BR}$ MIN V	$V_F$ TYP V	$C_T$ MAX pF	$T_{ss}$ TYP dBm	$\gamma$ TYP mV / mW	Frequency MAX GHz	Outline
MSS39,045-P55	5.0	0.40	0.25	-58	5000	18	P55
MSS39,045-P86	5.0	0.40	0.27	-58	5000	18	P86
MSS39,048-P55	5.0	0.39	0.30	-58	5000	12	P55
MSS39,048-P86	5.0	0.39	0.32	-58	5000	12	P86
MSS39,148-E25	3.5	0.39	0.22	-58	5000	18	E25
MSS39,148-H20	3.5	0.39	0.30	-58	5000	12	H20
MSS39,152-E25	3.5	0.38	0.28	-58	5000	12	E25
MSS39,152-H20	3.5	0.38	0.36	-58	5000	18	H20
Test Conditions	$I_R = 10\text{ }\mu\text{A}$	$I_F = 1\text{ mA}$	$V_R = 0\text{ V}$ $F = 1\text{ MHz}$	DC Bias = $10\text{ }\mu\text{A}$ $F = 10\text{ GHz}$ $R_L = 100\text{ K}\Omega$ Video BW = $2\text{ MHz}$			

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



Figure 1.

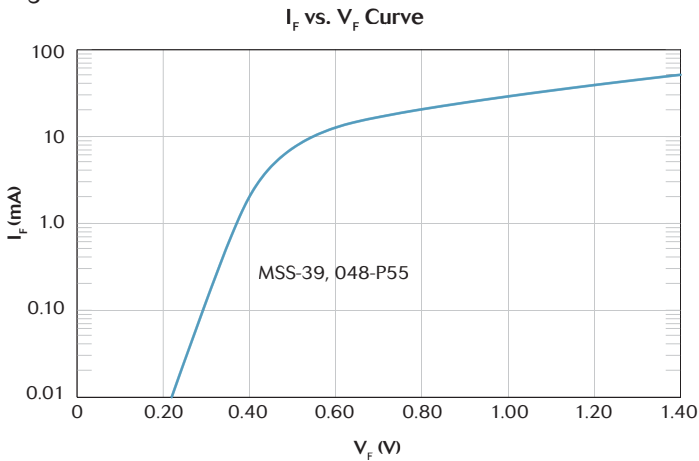


Figure 2.

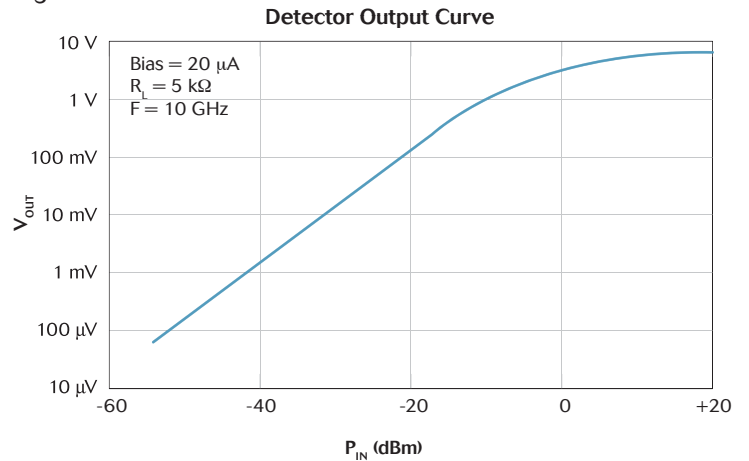
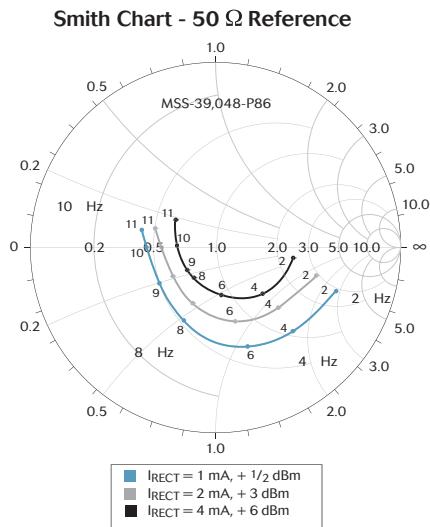
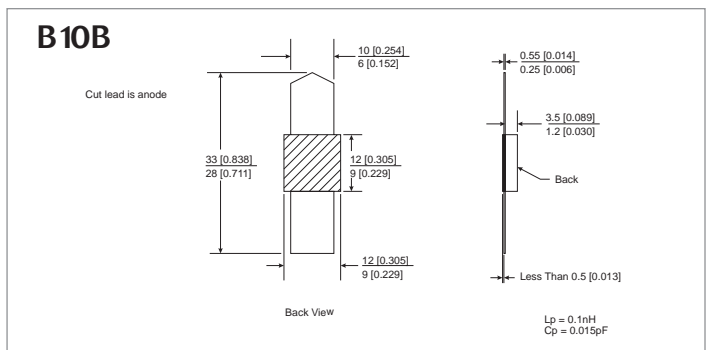
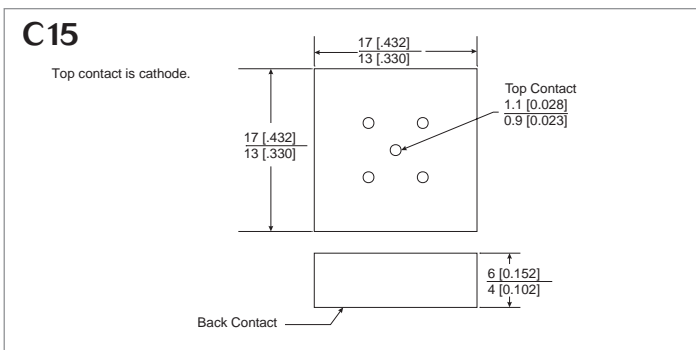


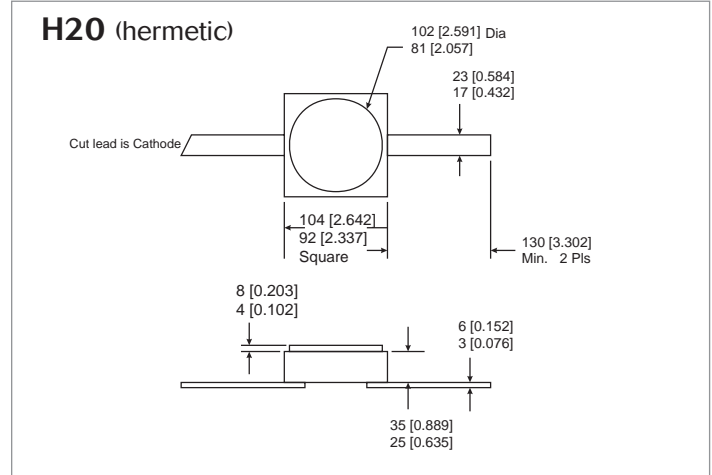
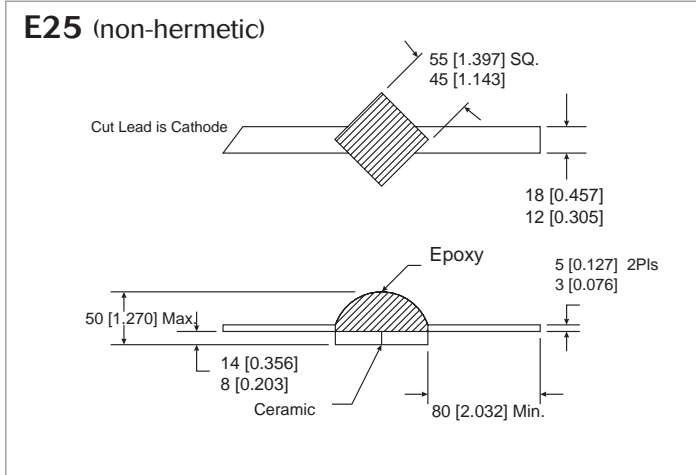
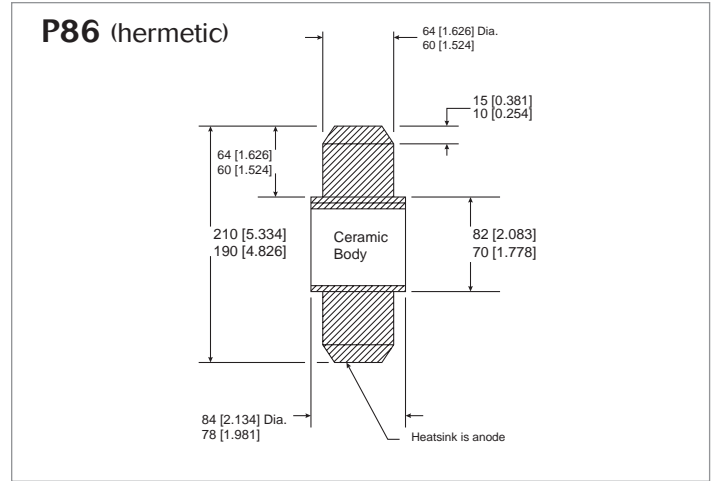
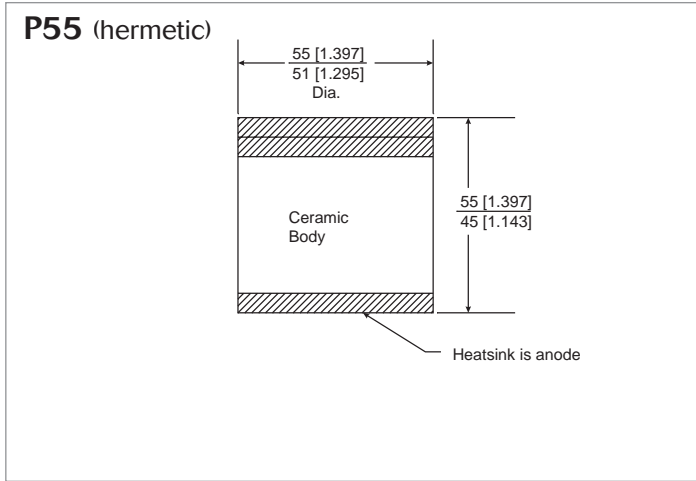
Figure 4.



## 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](http://www.aeroflex-metelics.com)    [sales@eroflex-metelics.com](mailto:sales@eroflex-metelics.com)

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