

P-Type Silicon Schottky Diodes

Rev. V1

Features

- Very Low 1/f Noise
- Detector Applications up to 40 GHz
- Chip Beam Lead and Packaged Devices

Description

The MSS39-xxx-x 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.



Chip

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

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

Beam Lead

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

Model	V_{BR} Min. V	V_F Typ. V	C_J Max. pF	T_{ss} Ttp. dBm	γ 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	$I_R = 10 \mu\text{A}$	$I_F = 1 \text{ mA}$	$V_R = 0 \text{ V},$ $F = 1 \text{ MHz}$	DC Bias = 10 mA, $F = 10 \text{ GHz}$ $R_L = 100 \text{ K}\Omega$ Video BW = 2 MHz			

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Packaged

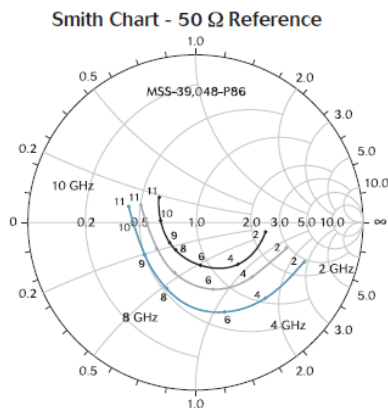
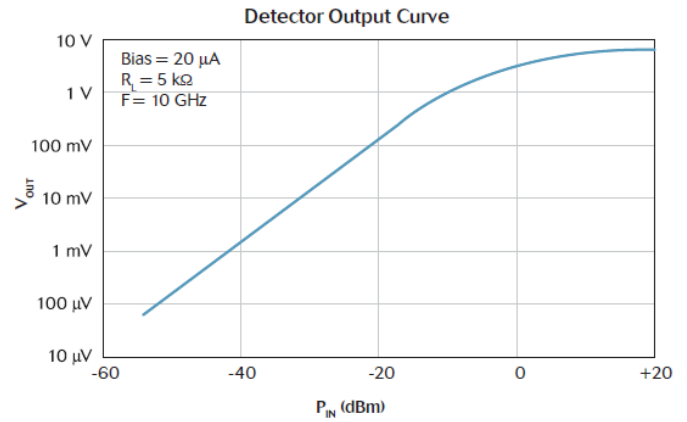
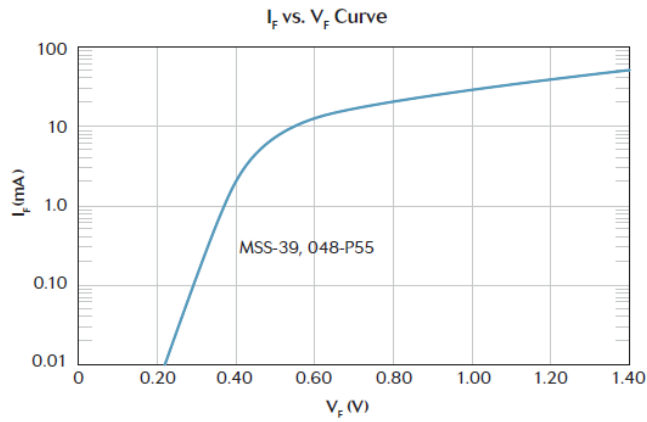
Electrical Specifications: $T_A = 25^\circ\text{C}$

Model	V_{BR} Min. V	V_F Typ. V	C_J Max. pF	T_{SS} Ttp. dBm	η 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	$I_R = 10 \mu\text{A}$	$I_F = 1 \text{ mA}$	$V_R = 0 \text{ V}$, $F = 1 \text{ MHz}$	DC Bias = 10 mA, $F = 10 \text{ GHz}$ $R_L = 100 \text{ K}\Omega$ Video BW = 2 MHz			

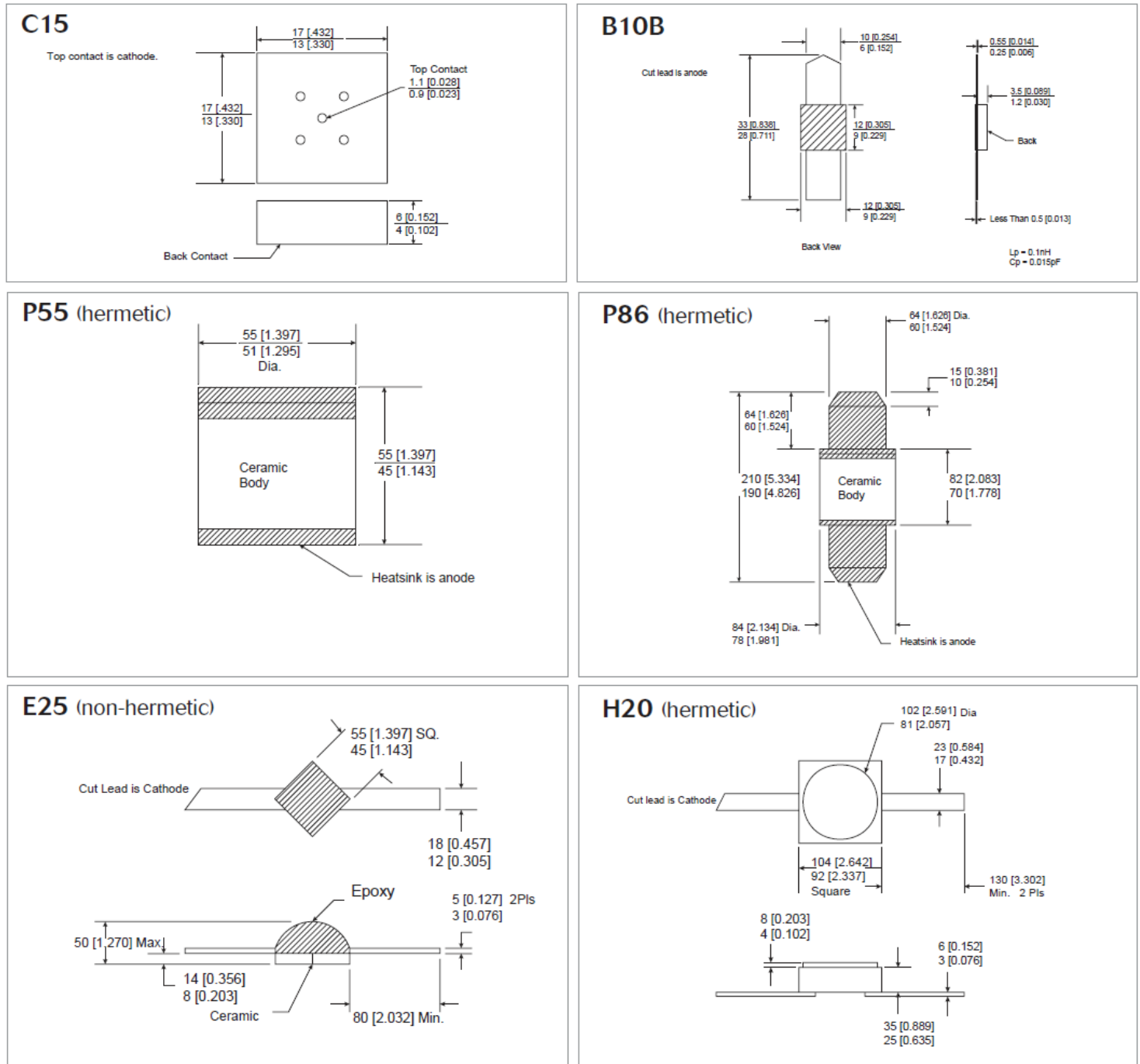
Absolute Maximum Ratings

Parameters	Rating
Reverse Voltage	1 V
Forward Current	50 mA
CW Power Dissipation	100 mW, derated linearly to 0 @ $T_A = +150^\circ\text{C}$
Operating Temperature	-65°C to $+150^\circ\text{C}$
Storage Temperature	-65°C to $+150^\circ\text{C}$
Soldering Temperature (packaged)	$+230^\circ\text{C}$ for 5 seconds

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



Outline Drawings



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