MSS50-xxx-x Series

High Barrier Silicon Schottky Diodes

Rev. V2

Features

- V_F, R_D and C_J Matching Options
- Chip, Beam Lead and Packaged Devices
- Hi-Rel Screening per MIL-PRF-19500 and MIL-PRF-38534 Available



Description

The MSS50-xxx-x 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.

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 µA	V_R = 0 V F = 1 MHz	I = 5 mA			

Beam Lead

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
MSS50-146-B10B	Single Junction	0.52	5	0.07 / 0.12	9	18	253	B10B
MSS50-155-B10B	Single Junction	0.52	5	0.25 / 0.30	7	15	90	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 mA	I_R = 10 µA	V_R = 0 V F = 1 MHz	I = 5 mA			

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Packaged

Electrical Specifications: T_A = 25°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	0.25 / 0.31	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	0.14 / 0.24	15	12	253	E25
MSS50-146-H20	Single Junction	0.52	5	0.25 / 0.34	15	12	253	H20
MSS50-155-E25	Single Junction	0.52	5	0.32 / 0.41	7	15	90	E25
MSS50-155-H20	Single Junction	0.52	5	0.43 / 0.51	7	15	90	H20
MSS50-155-0402	Single Junction	0.52	5	0.30 / 0.38	7	15	90	0402
MSS50-155-0805-2	Single Junction	0.52	5	0.31 / 0.40	7	15	90	0805-2
MSS50-244-E35	Series Tee	0.52	5	0.22 / 0.31	7	16	183	E30
MSS50-244-H30	Series Tee	0.52	5	0.33 / 0.42	7	16	183	H30
MSS50-448-E45	Ring Quad	0.52	5	0.27 / 0.36	10	10	133	E45
MSS50-448-H40	Ring Quad	0.52	5	0.38 / 0.48	10	10	133	H40
Test Conditions		I_F = 1 mA	I_R = 10 µA	V_R = 0 V F = 1 MHz	I = 5 mA			

Absolute Maximum Ratings

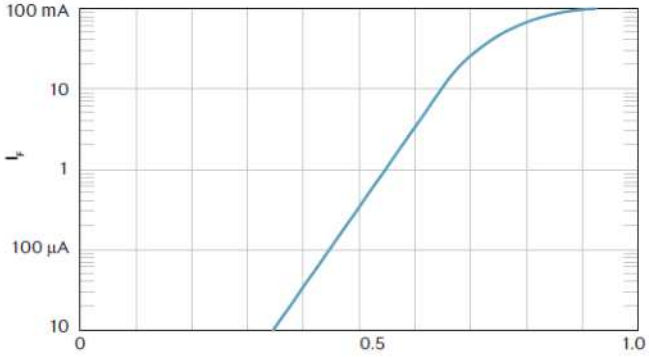
Parameters	Rating
Reverse Voltage	Rated V_{BR}
Forward Current	50 mA
Power Dissipation	100 mW, per junction @ T_A = 25°C, derate linearly to 0 @ T_A = +150°C
Operating Temperature	-65°C to +150°C
Storage Temperature	-65°C to +150°C
Soldering Temperature (packaged)	+230°C for 5 seconds
Beam Lead Pull Strength	4 G minimum

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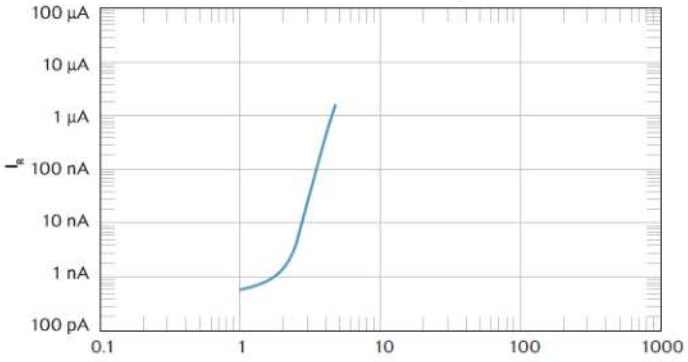
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Typical Performance Curves: T_A = 25°C

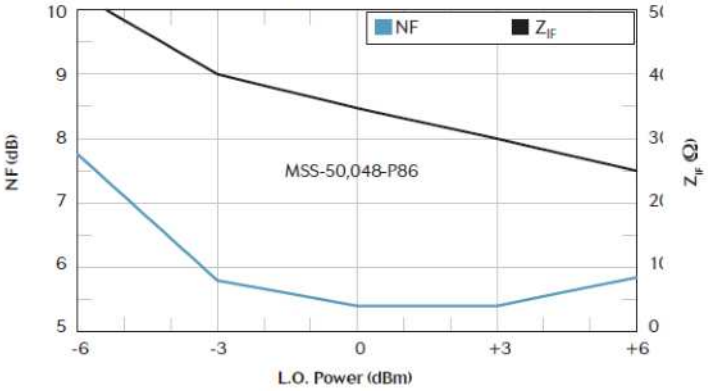
Forward Voltage vs. Current



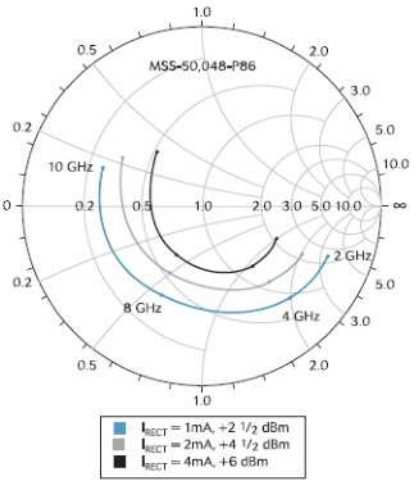
Reverse Current vs. Voltage



NF & Z_{IF} vs. LO Power



Smith Chart - 50 Ω Reference



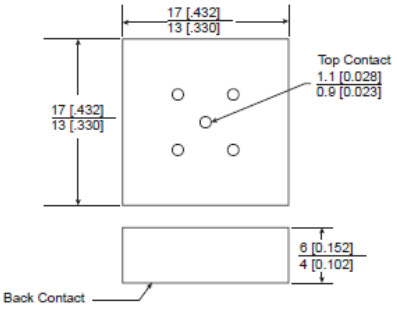
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Outline Drawings

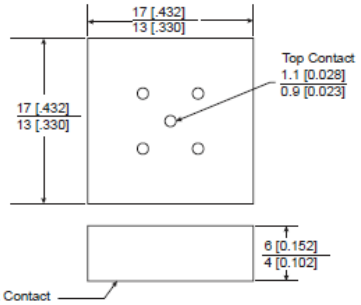
C15

Top contact is cathode.



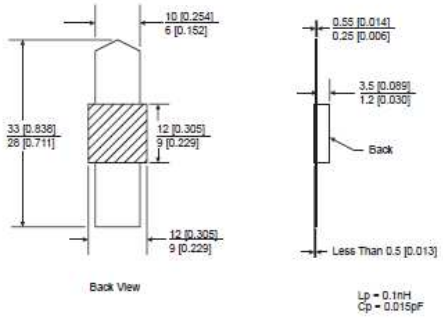
C16

Top contact is cathode.

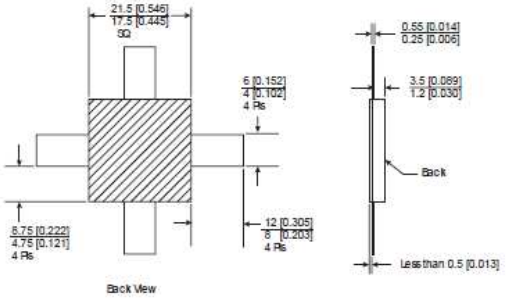


B10B

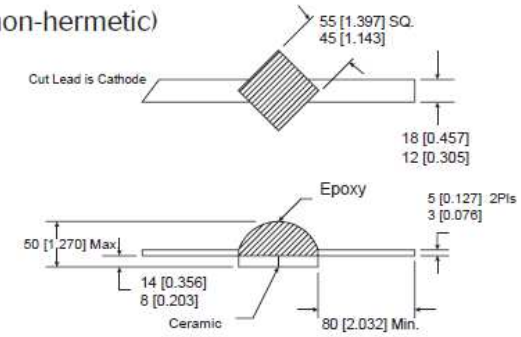
Cut lead is anode



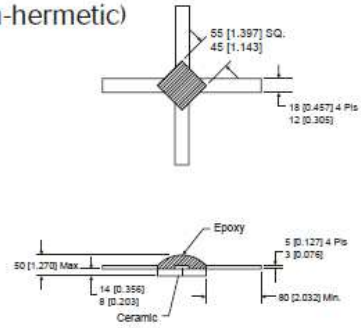
B40



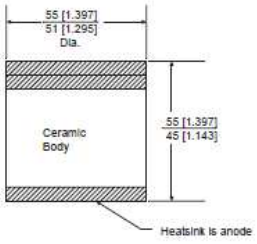
E25 (non-hermetic)



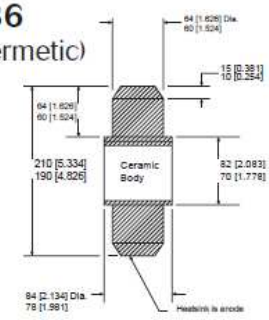
E45 (non-hermetic)



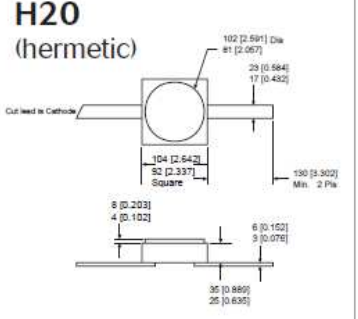
P55 (hermetic)



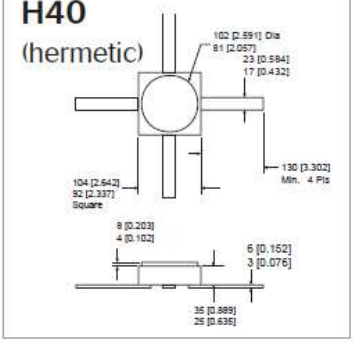
P86 (hermetic)



H20 (hermetic)



H40 (hermetic)



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