metelics
CORPORATION

MSS-30,000 Series Low Barrier Schottky Diode

Features

- Low R_S—5Ω
- Low NF
- Available in many configurations
- Tight batch matching available
- Hi-Rel available

Applications

- Mixers: single diode, image reject, image enhancement, ring quad
- Doublers
- Modulators

Low Barrier Specifications @ 25°C

Part Number Outline	V_F Typ. @ 1 mA (Volts)	V_{BR} Min. @ 10 μa (Volts)	C_J Typ. @ 0 V (pF)	C_T Typ. @ 0 V (pF)	NF_{SSB} ** (dB)	R_S Typ. (Ohms)	R_D Typ. @ 5 mA (Ohms)	F_{CO} Typ. *** (GHz)
MSS-30,046-C15 MSS-30,046-P55 MSS-30,046-P86	.29	2	.10	.10 .23 .27	6	10	15	160
MSS-30,050-C15 MSS-30,050-P55 MSS-30,050-P86	.27	2	.15	.15 .28 .32	6	6	11	175
MSS-30,142-B10 MSS-30,142-E20 MSS-30,142-H20	.29	2	.07	.10 .20 .25	6	13	18	175
MSS-30,148-B10 MSS-30,148-E20 MSS-30,148-H20	.27	2	.12	.15 .25 .30	6	7	12	190
MSS-30,154-B10 MSS-30,154-E20 MSS-30,154-H20	.25	2	.22	.25 .35 .40	6	3	8	240
MSS-30,242-B20 MSS-30,242-E35 MSS-30,242-H30	.29	2	.07	.10 .15 .25	6	13	18	175
MSS-30,248-B20 MSS-30,248-E30 MSS-30,248-H30	.27	2	.12	.15 .25 .30	6	7	12	190
MSS-30,254-B20 MSS-30,254-E30 MSS-30,254-H30	.25	2	.22	.25 .35 .40	6	3	8	240
MSS-30,442-B41 MSS-30,442-E45	.29 .29	2 2	.07* .07	.10* .15*	6 6	13 13	18 18	175 175
MSS-30,448-B41 MSS-30,448-E45	.27 .27	2 2	.12* .12*	.15* .20*	6 6	7 7	12 12	190 190
MSS-30,454-B40 MSS-30,454-E40 MSS-30,454-H40	.25	2	.22*	.25* .25* .25*	6	3	8	240

* Diagonal **See page 2 ***FCO = $1/(2*\pi*R_S*C_J)$; FCO = Hz, R_S = Ohms; C_T = Farads †See page 2 (C_{TO} Adjacent = $\frac{4}{3}*C_{TO}$ Diag)

Notes: Consult factory for special versions, configurations, packages, high reliability screening, or customer designs.

Low Barrier Schottky Description

The Metelics MSS-30,000 series silicon Schottky barrier diodes are constructed using advanced technology, materials and processes, resulting in a lower series resistance (R_S) than is produced with conventional methods. This N-type mixer diode is well-suited for applications where −6 dBm to +5 dBm per diode is available.

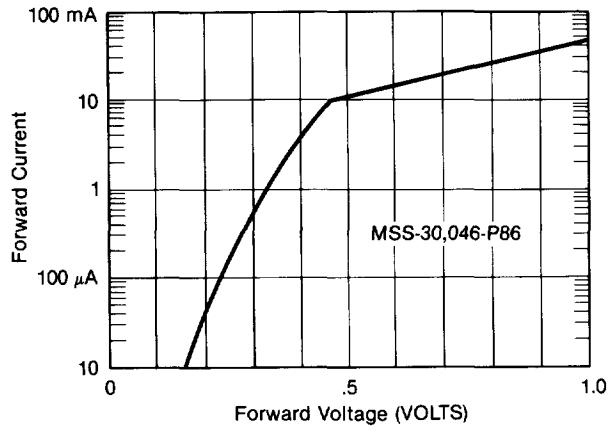
Maximum Ratings

Storage Temperature	−65 to +150°C
Operating Temperature	−65 to +150°C
Soldering Temperature—Chips	230°C for 30 sec.
Soldering Temperature—B.L.	230°C for 10 sec.
DC Power Dissipation	100 mW max. derate linearly to 0 mW at +150°C
Beam Lead Pull Strength	2 grams

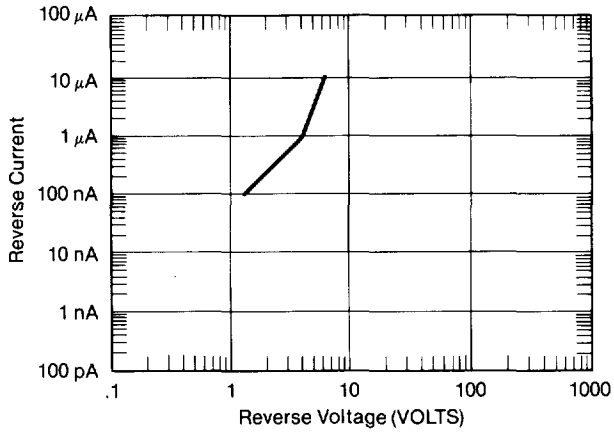
CAUTION: Static Sensitive Device

Typical Data

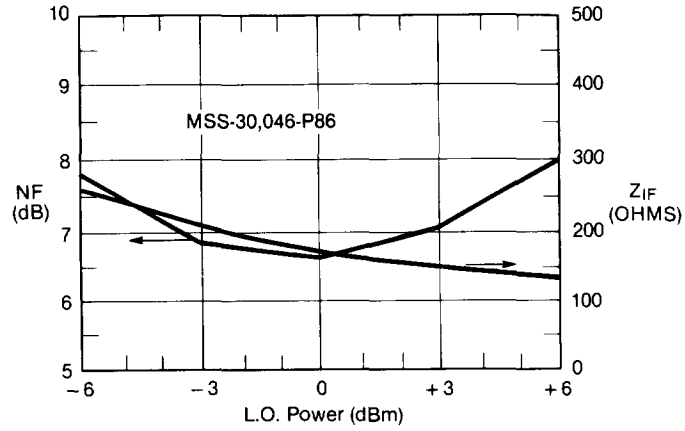
I-V Forward Curve



I-V Reverse Curve



NF & ZIF VS LO Power



Note**

NF measured at 9.375 (3 GHzt)
50Ω source impedance
50Ω load at 30 MHz, 1.5 dB NF amplifier
< 1Ω load at DC
Z_{IF} measured using a 10 kHz signal in same set-up
$NF_{ssb} = NF_{dsb} + 3$ dB

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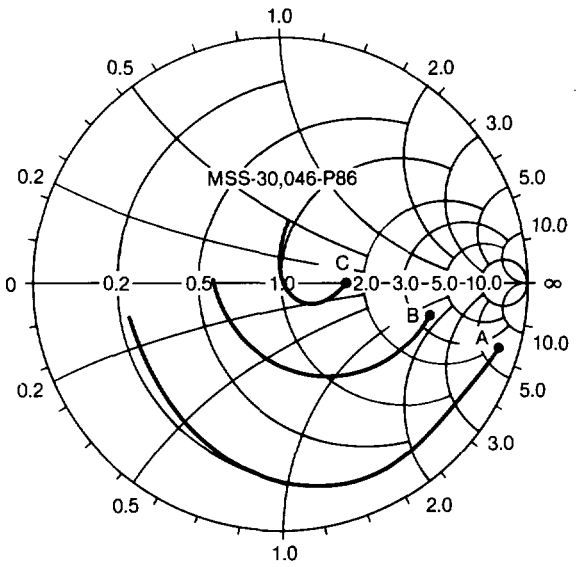
FSCM & CAGE 59365

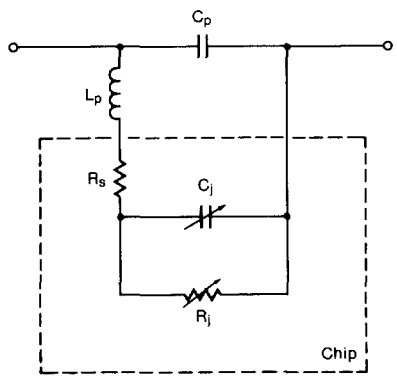
Smith Chart
50Ω Reference



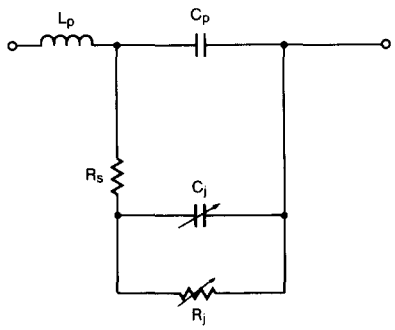
A = 100 μA, −6 dBm
B = 1½ mA, 0 dBm
C = 5 mA, +6 dBm

Equivalent Circuits

Packaged



Beam Lead



Notes: Consult factory for special versions, configurations, packages, high reliability screening, or custom designs.

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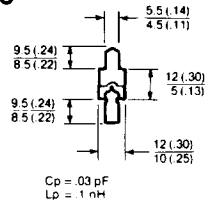
POLARITY:

CATHODE	ANODE
DOT	CAP
CUT LEAD	PAD
POINTED BEAM	

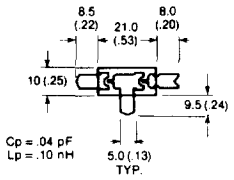
Package Outlines

Dimensions are in Mils (mm).

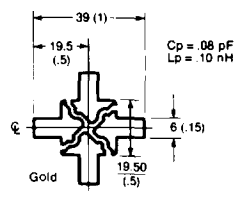
B10



B20



B40



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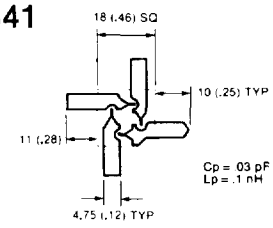
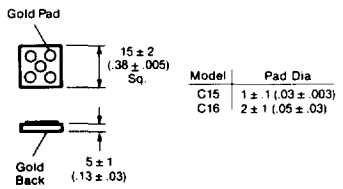
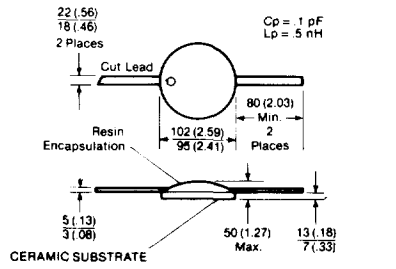


C15,C16



E20



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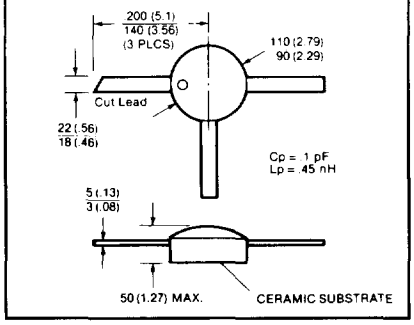

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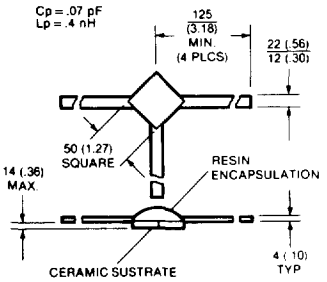

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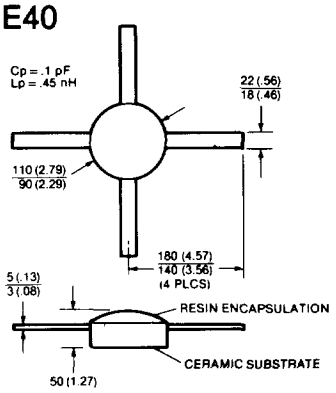

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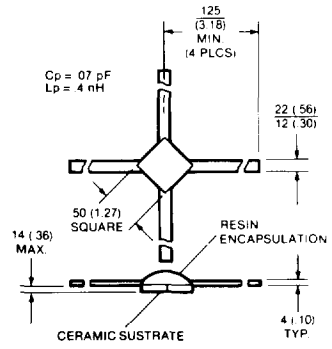
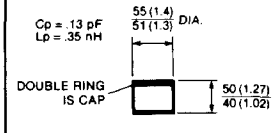


P55



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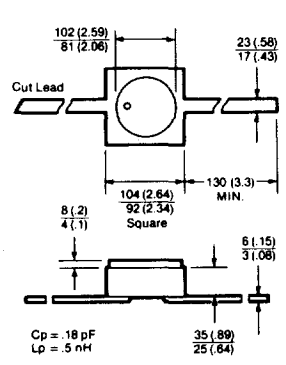

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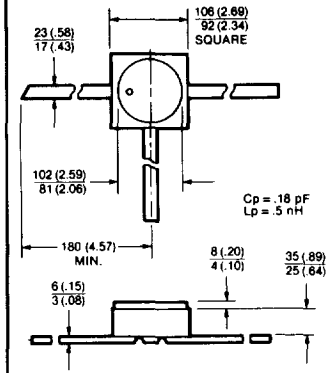

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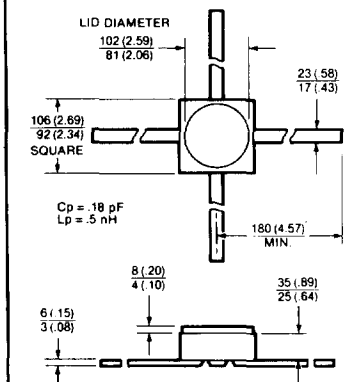

P86