Microsemi
RF PRODUCTS DIVISION

SD1012-03

RF & MICROWAVE TRANSISTORS

PRODUCT PREVIEW

DESCRIPTION

The SD1012-03 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for VHF communications in the 36 – 175 MHz frequency range. Emitter ballasting is employed to achieve excellent ruggedness under severe load mismatch conditions.

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

KEY FEATURES

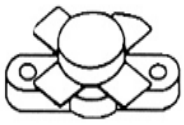
- 175 MHz
- 12.5 Volts
- Efficiency 50%
- Common Emitter
- P_{OUT} = 6 W Min.
- G_P = 9 dB Gain

APPLICATIONS/BENEFITS

- VHF Mobile Applications

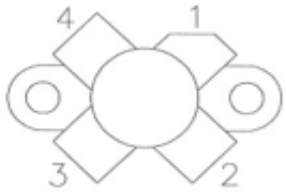
ABSOLUTE MAXIMUM RATINGS (T_{CASE} = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	1.8	A
P_{DISS}	Power Dissipation (+25°C)	20	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C



.380 4LFL (M113)
epoxy sealed

PIN CONNECTION



1. Collector
2. Emitter
3. Base
4. Emitter

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	8.75	°C/W

SD1012-03

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STATIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

Symbol	Test Conditions	SD1012-03			Units
		Min.	Typ.	Max.	
BV_{CES}	I_C = 5 mA	36	—	—	V
BV_{CEO}	I_C = 10 mA	18	—	—	V
BV_{EBO}	I_E = 1 mA	4.0	—	—	V
I_{CES}	V_{CB} =15 V	—	—	1.0	mA
h_{FE}	V_{CE} = 5 V I_C = 250 mA	5	—	—	—

DYMANIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

Symbol	Test Conditions	SD1012-03			Units
		Min.	Typ.	Max.	
P_{OUT}	f = 175 MHz P_{IN} = 0.75 W V_{CC} = 12.5 V	6.0	—	—	W
η_C	f = 175 MHz P_{IN} = 0.75 W V_{CC} = 12.5 V	50	—	—	%
G_P	f = 175 MHz P_{IN} = 0.75 W V_{CC} = 12.5 V	9.0	—	—	dB
C_{OB}	f = 1 MHz V_{CB} = 15 V	—	—	20	pF

IMPEDANCE DATA

Freq.	Z_{IN} (Ω)	Z_{CL} (Ω)
150 MHz	4.90 + j 3.46	11.4 + j 4.56
175 MHz	4.32 + j 3.04	13.0 + j 7.81

V_{CC} = 12.5 V
P_{IN} = 1 W

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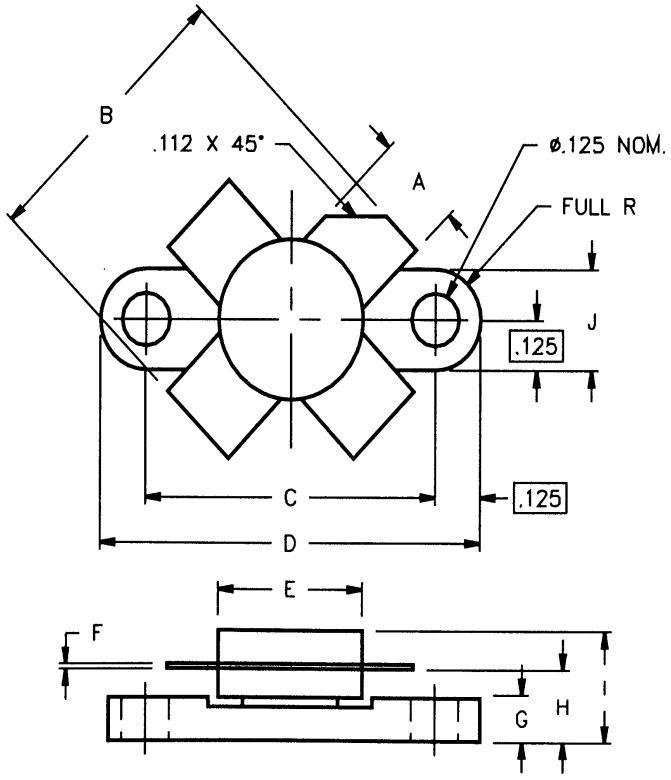
PACKAGE STYLE M 113



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I		.260/7,11
B	.785/19,94		J	.240/6,10	.255/6,48
C	.720/18,29	.730/18,54			
D	.970/24,64	.980/24,89			
E		.385/9,78			
F	.004/0,10	.006/0,15			
G	.085/2,16	.105/2,67			
H	.160/4,06	.180/4,57			

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NOTES

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