

DESCRIPTION

The SD1224 is an epitaxial silicon NPN planar transistor designed primarily for 28 V FM Class C RF amplifiers utilized in ground station transmitters. This device utilizes ballasted emitter resistors and improved metallization systems to achieve optimum load mismatch capability.

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

KEY FEATURES

- 175 MHz
- 28 Volts
- Class C
- Common Emitter
- Efficiency 60% Min.
- $P_{OUT} = 40$ W Min.
- $G_P = 7.6$ dB Gain

APPLICATIONS/BENEFITS

- VHF FM Applications

ABSOLUTE MAXIMUM RATINGS ($T_{CASE} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	65	V
V_{CEO}	Collector-Emitter Voltage	35	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	5.0	A
P_{DISS}	Power Dissipation	60	W
T_J	Junction Temperature	+200	$^{\circ}C$
T_{STG}	Storage Temperature	-65 to +150	$^{\circ}C$

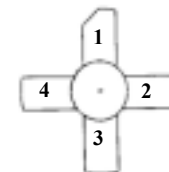


.380 4LSTUD (M135)
epoxy sealed

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.9	$^{\circ}C/W$
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PIN CONNECTION



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

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

Symbol	Test Conditions	SD1224			Units
		Min.	Typ.	Max.	
BV_{CBO}	I_C = 10 mA I_B = 0 mA	65	—	—	V
BV_{CES}	I_C = 200 mA V_{BE} = 0 V	65	—	—	V
BV_{CEO}	I_C = 200 mA I_B = 0 mA	35	—	—	V
BV_{EBO}	I_E = 10 mA I_C = 0 mA	4.0	—	—	V
I_{CES}	V_{CE} = 30 V I_E = 0 mA	—	—	10	mA
I_{CBO}	V_{CB} = 30 V I_E = 0 mA	—	—	1	mA
h_{FE}	V_{CE} = 5 V I_C = 500 mA	5	—	200	—

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

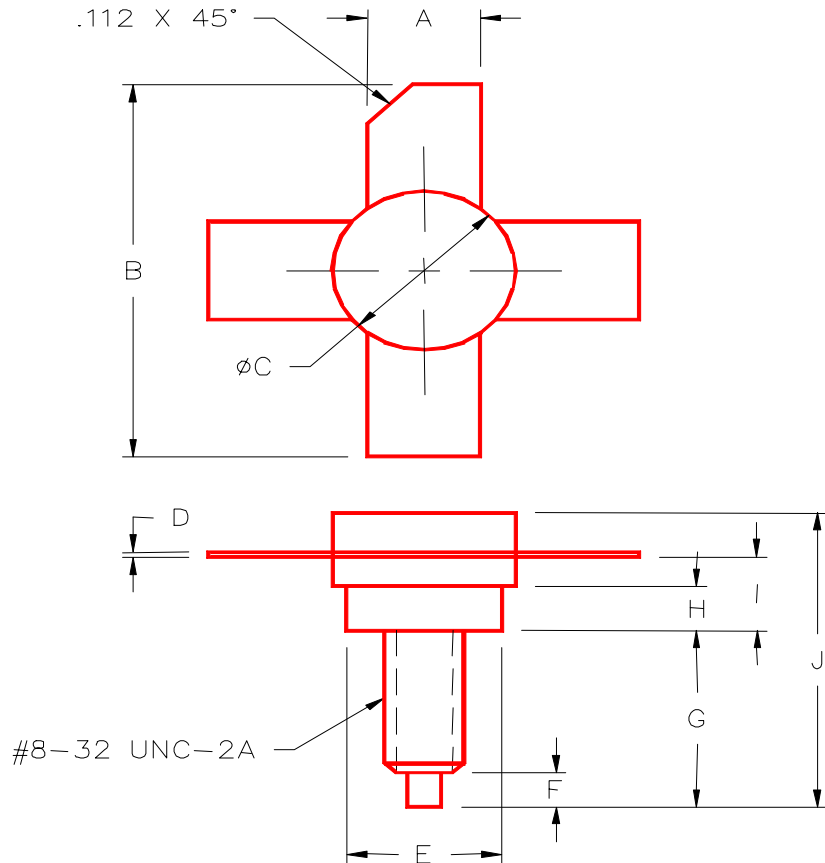
Symbol	Test Conditions	SD1224			Units
		Min.	Typ.	Max.	
P_{OUT}	f = 175 MHz P_{IN} = 7.0 W V_{CE} = 28 V	40	—	—	W
G_p	f = 175 MHz P_{IN} = 7.0 W V_{CE} = 28 V	7.6	—	—	dB
η_C	f = 175 MHz P_{IN} = 7.0 W V_{CE} = 28 V	60	—	—	%
C_{OB}	f = 1 MHz V_{CB} = 30 V	—	—	65	pF

IMPEDANCE DATA

P_{IN} (W)	P_{OUT} (W)	Z_{IN} (Ω)	Z_{CL} (Ω)
2.0	28.5	0.85 + j 1.20	3.25 + j 7.05
4.0	43.0	1.05 + j 1.32	4.45 + j 5.40
6.0	53.0	1.01 + j 1.42	5.25 + j 4.42
8.0	60.5	1.05 + j 1.35	5.45 + j 4.12

Test Conditions: V_{CE} = 28 V
 f = 175 MHz

PACKAGE STYLE M135



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.155/3,94	.175/4,45
B	.980/24,89		J		.750/19,05
C	.370/9,40	.385/9,78			
D	.004/0,10	.007/0,18			
E	.320/8,13	.330/8,38			
F	.100/2,54	.130/3,30			
G	.450/11,43	.490/12,45			
H	.090/2,29	.100/2,54			



SD1224

RF & MICROWAVE TRANSISTORS

PRODUCT PREVIEW

www.Microsemi.com

NOTES