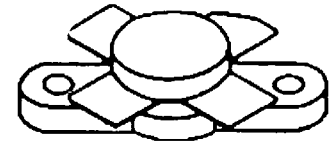




## RF AND MICROWAVE TRANSISTORS VHF FM APPLICATIONS

### Features

- 175 MHz
- 28 VOLTS
- CLASS C
- COMMON EMITTER
- EFFICIENCY 60% MIN.
- $P_{OUT} = 40 \text{ W MIN.}$
- $G_P = 7.6 \text{ dB GAIN}$

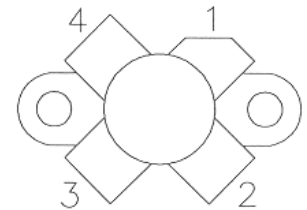


**.380 4LFL (M113)**  
epoxy sealed

### DESCRIPTION:

The SD1224-02 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.

#### PIN CONNECTION



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

### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}\text{C}$ )

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	65	V
$V_{CEO}$	Collector-Emitter Voltage	35	V
$V_{CES}$	Collector-Emitter Voltage	65	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	$^{\circ}\text{C}$
$T_{STG}$	Storage Temperature	-65 to +150	$^{\circ}\text{C}$

### Thermal Data

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	2.9	$^{\circ}\text{C/W}$
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**ELECTRICAL SPECIFICATIONS (T<sub>case</sub> = 25°C)**
**STATIC**

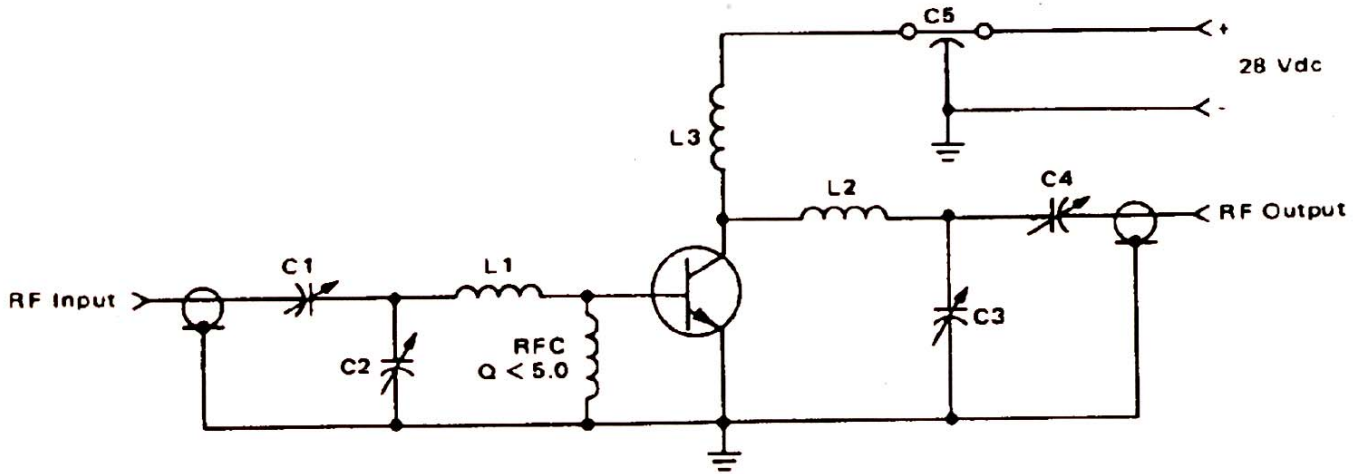
Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>BV<sub>CBO</sub></b>	<b>I<sub>C</sub> = 200 mA    I<sub>B</sub> = 0 mA</b>	<b>65</b>			<b>V</b>
<b>BV<sub>CES</sub></b>	<b>I<sub>C</sub> = 200 mA    V<sub>BE</sub> = 0 V</b>	<b>65</b>			<b>V</b>
<b>BV<sub>CEO</sub></b>	<b>I<sub>C</sub> = 100 mA    I<sub>B</sub> = 0 mA</b>	<b>35</b>			<b>V</b>
<b>BV<sub>EBO</sub></b>	<b>I<sub>E</sub> = 10 mA    I<sub>C</sub> = 0 mA</b>	<b>4.0</b>			<b>V</b>
<b>I<sub>CBO</sub></b>	<b>V<sub>CB</sub> = 30 V    I<sub>E</sub> = 0 mA</b>			<b>1</b>	<b>mA</b>
<b>h<sub>FE</sub></b>	<b>V<sub>CE</sub> = 5 V    I<sub>C</sub> = 500 mA</b>	<b>20</b>	<b>200</b>		

**DYNAMIC**

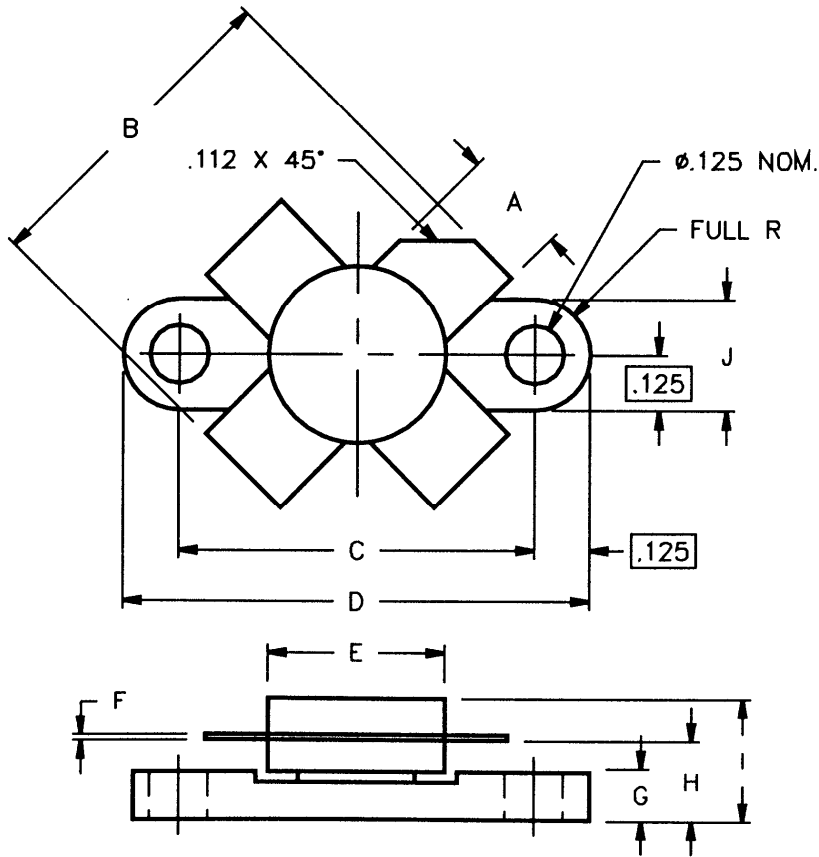
Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
<b>P<sub>OUT</sub></b>	<b>f = 175 MHz    P<sub>IN</sub> = 7.0 W    V<sub>CE</sub> = 28 V</b>	<b>40</b>			<b>W</b>
<b>η<sub>C</sub></b>	<b>f = 175 MHz    P<sub>IN</sub> = 7.0 W    V<sub>CE</sub> = 28 V</b>	<b>60</b>			<b>%</b>
<b>G<sub>P</sub></b>	<b>f = 175 MHz    P<sub>IN</sub> = 7.0 W    V<sub>CE</sub> = 28 V</b>	<b>7.6</b>			<b>dB</b>
<b>C<sub>OB</sub></b>	<b>f = 1 MHz    V<sub>CB</sub> = 30 V</b>			<b>65</b>	<b>pF</b>

Revision A, October 2009

**TEST CIRCUIT**



- C1, C2, C3, C4 : ARCO 464, 25-280pF
- C5 : 0.1 $\mu$ F
- L1 : 1" Straight #16 AWG
- L2 : 1 Turn, #16 AWG, 1/4" I.D.
- L3 : 0.22 $\mu$ H

**PACKAGE MECHANICAL DATA**


	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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