

SD1146

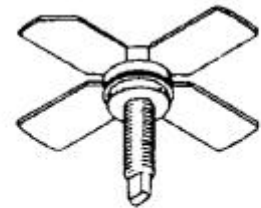
RF AND MICROWAVE TRANSISTORS UHF MOBILE APPLICATIONS

Features

- 470 MHz
- 12.5 Volts
- Efficiency 60%
- Common Emitter
- $P_{OUT} = 10 \text{ W Min.}$
- $G_P = 6.0 \text{ dB Gain}$

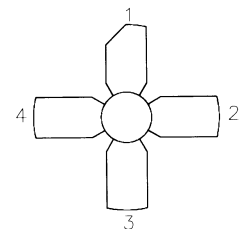
DESCRIPTION:

The SD1146 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for UHF communications. This device utilizes improved metallization to achieve infinite VSWR at rated operating conditions.



.280 4L STUD (M122)
epoxy sealed

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	36	V
V_{CEO}	Collector-Emitter Voltage	16	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	2.0	A
P_{DISS}	Power Dissipation	37.5	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	4.7	$^{\circ}\text{C/W}$
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ELECTRICAL SPECIFICATIONS (T_{case} = 25°C)

STATIC

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
BV_{CES}	I_C = 200 mA V_{BE} = 0 V	36			V
BV_{CEO}	I_C = 200 mA	16			V
BV_{EBO}	I_E = 4 mA I_C = 0 mA	4.0			V
I_{CBO}	V_{CB} = 15 V I_E = 0 mA			2	mA
I_{CES}	V_{CE} = 15 V I_C = 0 mA			5	mA
h_{FE}	V_{CE} = 5 V I_C = .5 A	20			

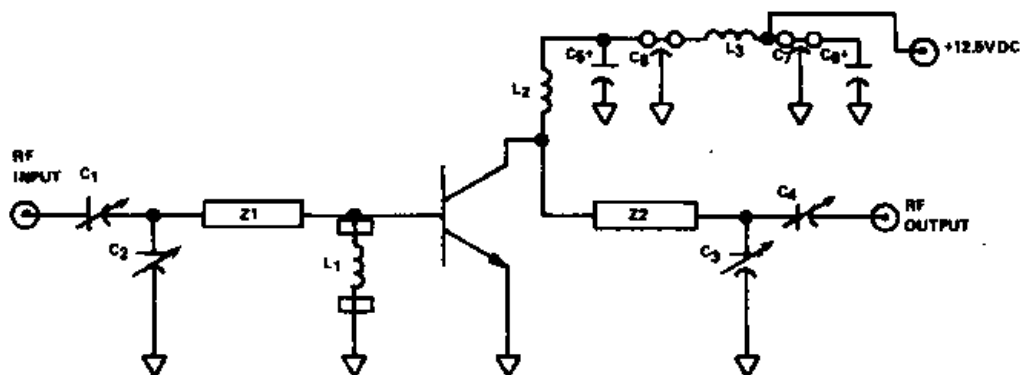
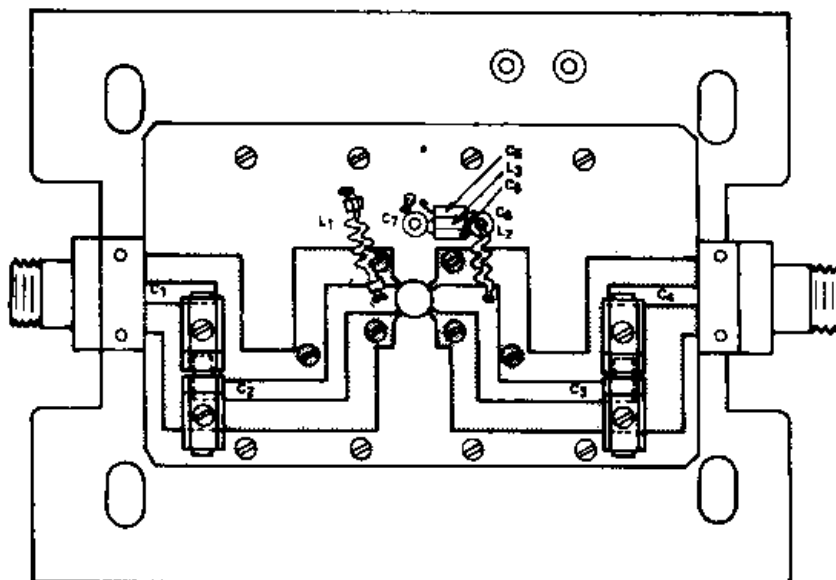
DYNAMIC

Symbol	Test Conditions	Value			Units
		Min.	Typ.	Max.	
P_{OUT}	f = 470 MHz P_{IN} = 2.5 W V_{CE} = 12.5 V	10			W
η_C	f = 470 MHz P_{IN} = 2.5 W V_{CE} = 12.5 V	60			%
G_P	f = 470 MHz P_{IN} = 2.5 W V_{CE} = 12.5 V	6			dB
C_{OB}	f = 1 MHz V_{CB} = 12.5 V			45	pF

IMPEDANCE DATA

Freq.	Z _{IN} (Ω)	Z _{CL} (Ω)
470 MHz	1.6 + j 2.2	6.0 - j 0.34

TEST CIRCUIT



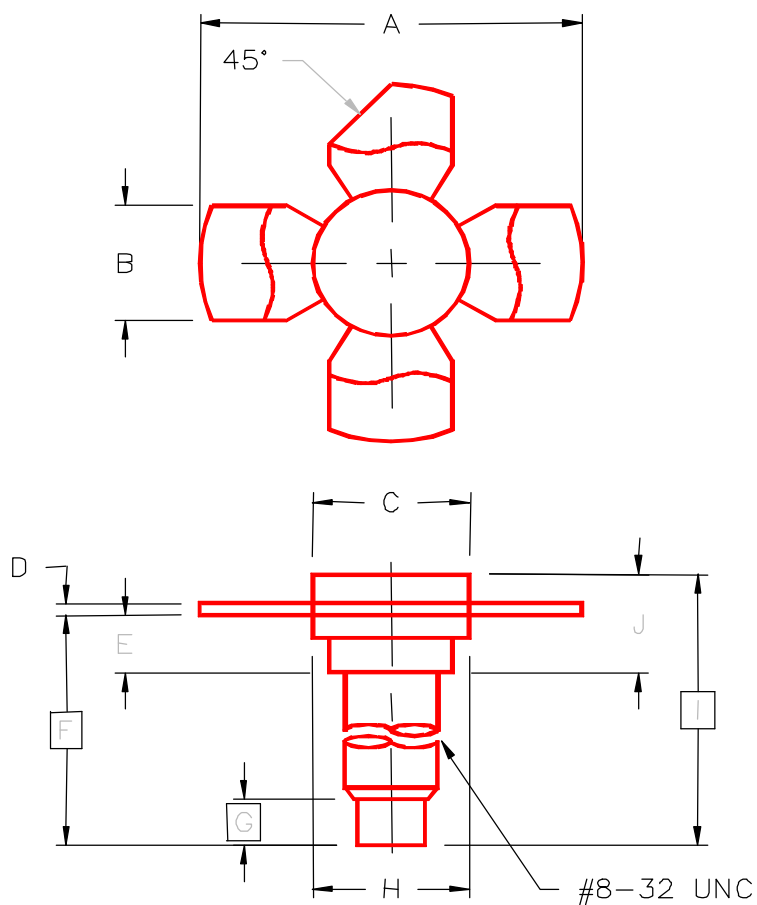
C1 : 1.0-20pF, ARCO #420
 C2,C3,C4 : 1.0-25pF, ARCO #421
 C5,C6 : Electrolytic, 1.0 μ F, 35V
 C7,C8 : Feedthru, 1000pF
 L1 : 7 Turns #22 Enameled 0.175" I.D. Ferroxcube
 Ferrite Beads #56-590-65/3B

L2 : 5 Turns #22 Enameled 0.175" I.D.
 L3 : 2 Turns in Ferroxcube VK 200/19-4B (RFC)

Board Material - Glass Teflon 1/16" Duroid

PACKAGE MECHANICAL DATA

PACKAGE STYLE M122



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	1.010/25,65	1.055/26,80	I	.640/16,26	
B	.220/5,59	.230/5,84	J	.175/4,45	.217/5,51
C	.270/6,86	.285/7,24			
D	.003/0,08	.007/0,18			
E	.117/2,97	.137/3,48			
F	.572/14,53				
G	.130/3,30				
H	.275/6,99	.285/7,24			