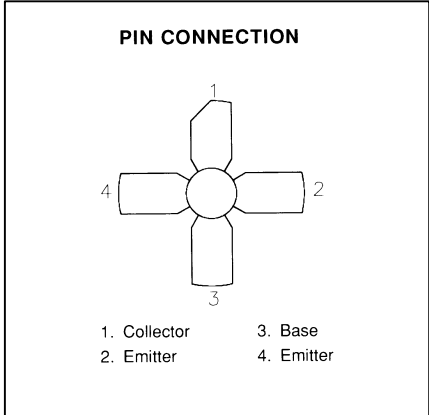


SD1146

**RF AND MICROWAVE TRANSISTORS
UHF MOBILE APPLICATIONS**

Features

- **470 MHz**
- **12.5 Volts**
- **Efficiency 60%**
- **Common Emitter**
- **P_{OUT} = 10 W Min.**
- **G_P = 6.0 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.

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°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	°C
T_{STG}	Storage Temperature	-65 to +150	°C

Thermal Data

R_{TH(j-c)}	Junction-Case Thermal Resistance	4.7	°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			

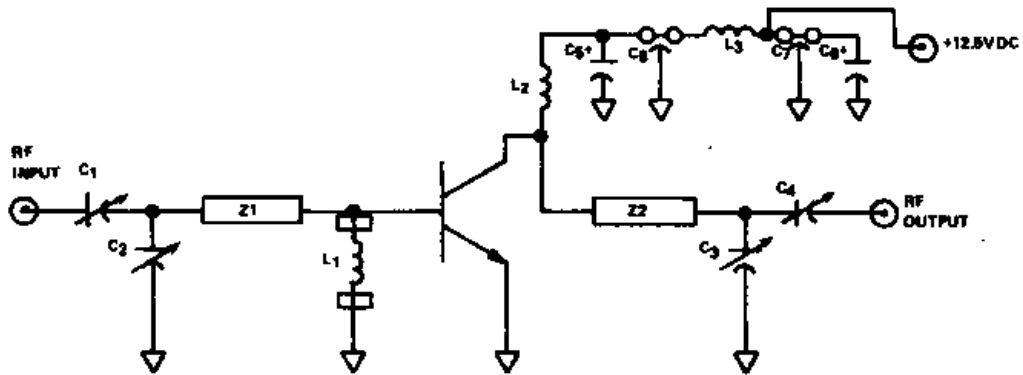
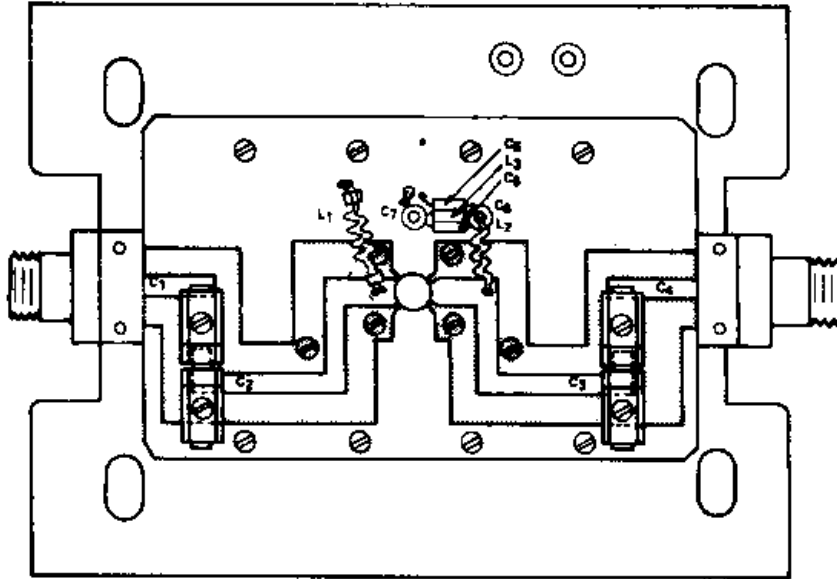
DYNAMIC

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



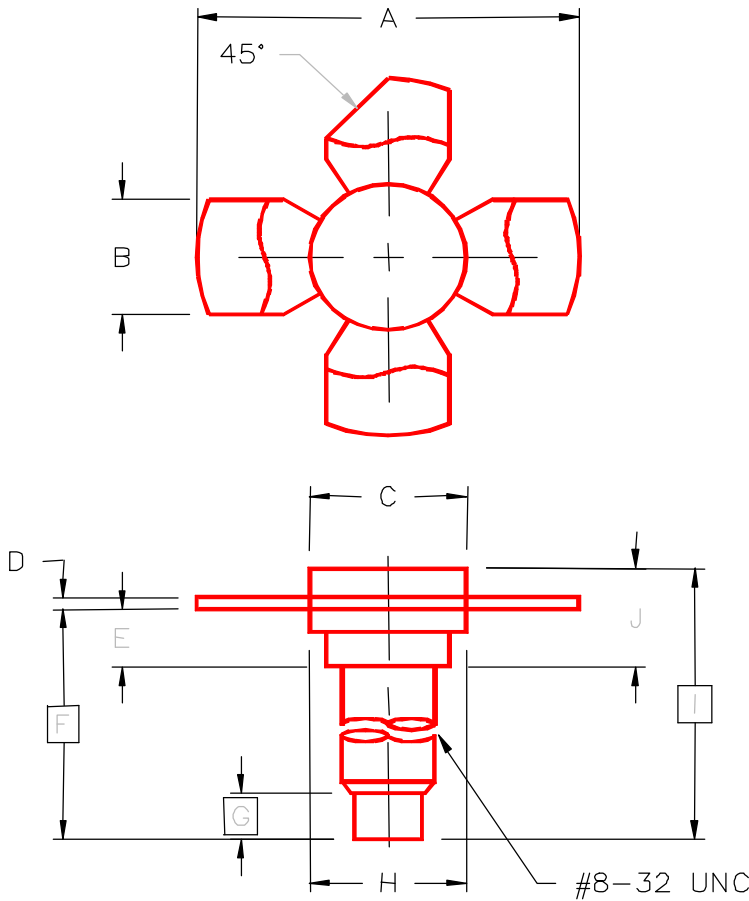
- C1 : 1.0-20pF, ARCO #420
- C2,C3,C4 : 1.0-25pF, ARCO #421
- C5,C6 : Electrolytic, 1.0μF, 35V
- C7,C8 : Feedthru, 1000pF
- L1 : 7 Turns #22 Enameled 0.175" I.D. Ferroxcube Ferrite Beads #56-590-65/3B

- 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			