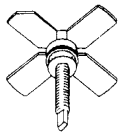
ADVANCED POWER TECHNOLOGY RF®

140 COMMERCE DRIVE
MONTGOMERYVILLE, PA
18936-1013
PHONE: (215) 631-9840
FAX: (215) 631-9855

SD1144

RF AND MICROWAVE TRANSISTORS
UHF MOBILE APPLICATIONS

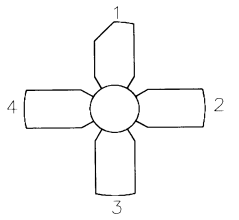


.280 4L STUD (M122)
epoxy sealed

Features

- **470 MHz**
- **12.5 VOLTS**
- **COMMON EMITTER**
- **COLLECTOR EFFICIENCY 60%**
- **P_{OUT} = 2.0 W MIN.**
- **G_P = 9 dB GAIN**

PIN CONNECTION



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

DESCRIPTION:

The SD1144 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 (Tcase = 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	0.4	A
P_{DISS}	Power Dissipation	5.0	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	35	°C/W

ADVANCED POWER TECHNOLOGY RF®

SD1144

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Units
			Min.	Typ.	Max.	
BV_{CES}	I_C = 50 mA	V_{BE} = 0 V	36			V
BV_{CEO}	I_C = 50 mA	I_B = 0 mA	16			V
BV_{EBO}	I_E = 1 mA	I_C = 0 mA	4.0			V
I_{CBO}	V_{CB} =15 V	I_E = 0 mA			1.0	mA
h_{FE}	V_{CE} = 5 V	I_C = 100 mA	20			

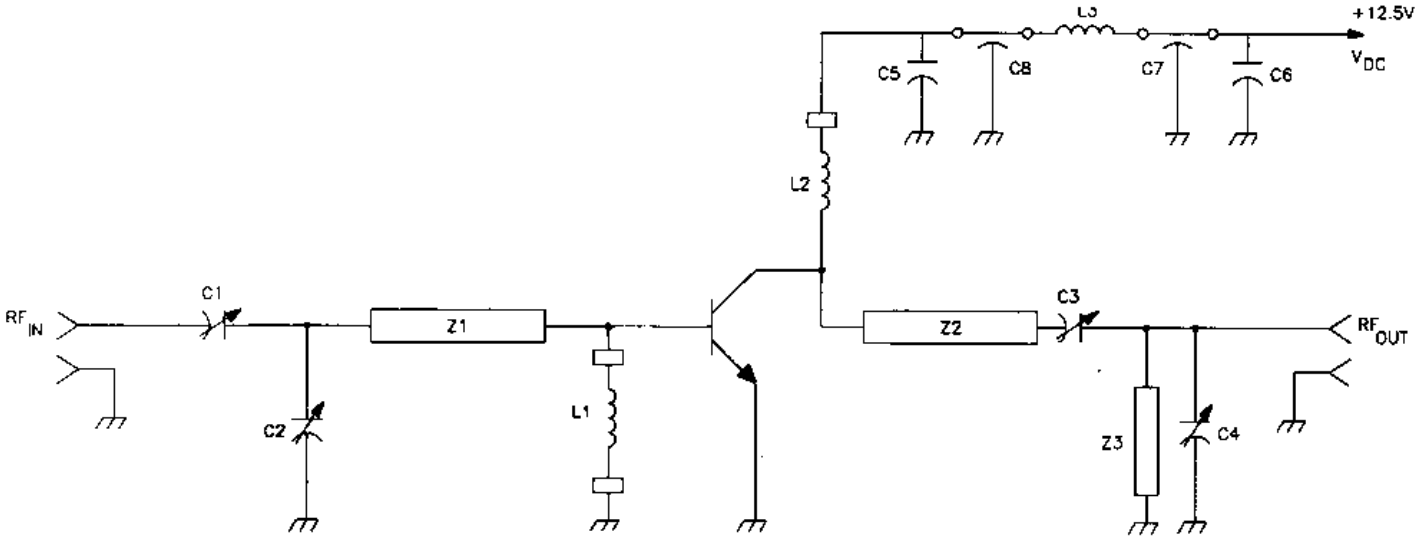
DYNAMIC

Symbol	Test Conditions			Value			Units
				Min.	Typ.	Max.	
P_{OUT}	f = 470 MHz	P_{IN} = 0.25 W	V_{CE} = 12.5 V	2.0			W
G_P	f = 470 MHz	P_{IN} = 0.25 W	V_{CE} = 12.5 V	9.0			dB
η_C	f = 175 MHz	P_{IN} = 0.25 W	V_{CE} = 12.5 V	60			%
C_{OB}	f = 1 MHz	V_{CB} = 12.5 V				15	pF

IMPEDANCE DATA

Freq.	ZIN (Ω)	ZCL (Ω)
470 MHz	2.24 + j 6.5	13.0 - j 8.65

TEST CIRCUIT



C1, C2
C3, C4 : 1.0 - 25pF, Arco 421
C5 : 1.0µF, 35V, Electrolytic
C6 : 4.7µF, 35V, Electrolytic
C7, C8 : 1000pF Feedthru

L1, L2 : 7 Turns #22 Enameled 0.175" I.D. with Ferroxcube Ferrite Beads #56-590-65/3B
L3 : 2 Turns in Ferroxcube VK200/10-3B (RFC)

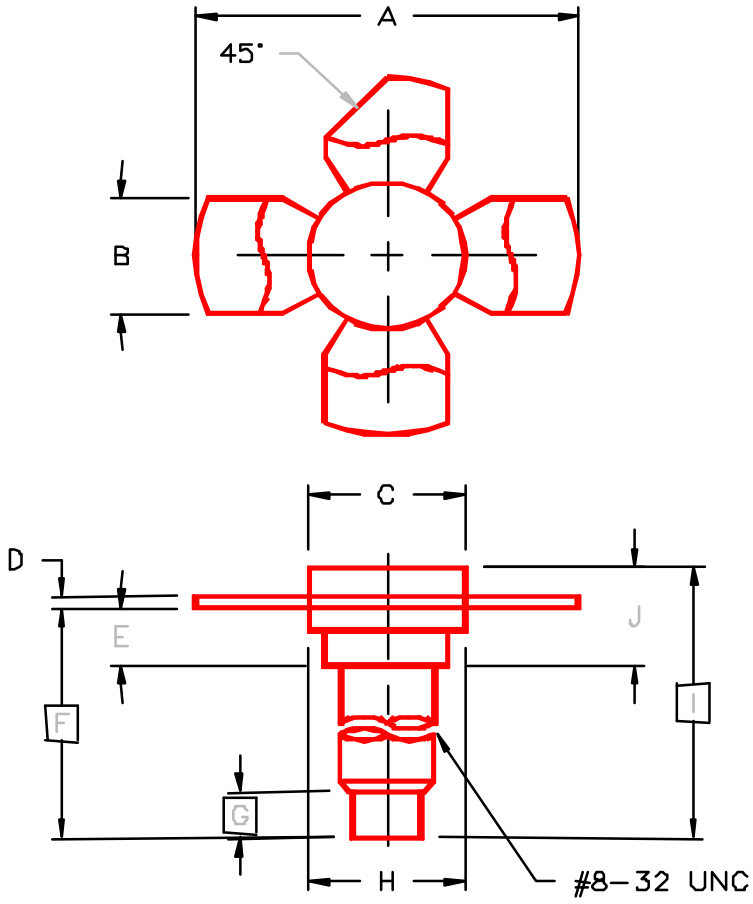
Board Material: Glass Teflon, 1/16" Duriod

ADVANCED POWER TECHNOLOGY RF®

SD1144

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			