ADVANCED POWER TECHNOLOGY RF®

140 COMMERCE DRIVE
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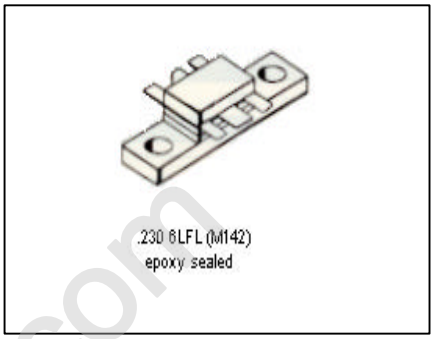
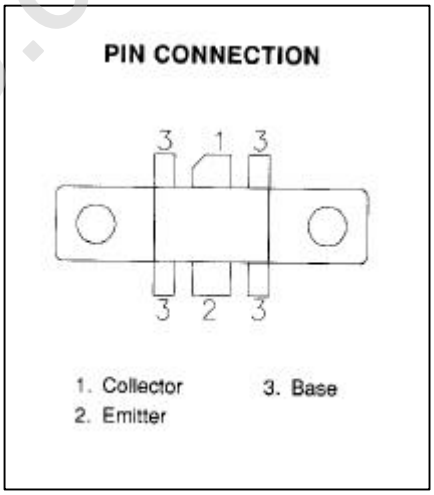
SD1496

RF & MICROWAVE TRANSISTORS
800 / 900 MHz APPLICATIONS



Features

- 900 MHz
- 24 VOLTS
- P_{OUT} = 60 WATTS
- 50% EFFICIENCY
- G_P = 7.5 dB MINIMUM
- INPUT MATCHED
- COMMON BASE CONFIGURATION



DESCRIPTION:

The SD1496 is a silicon NPN transistor designed for 860–900 MHz base station applications. Gold metallization and internal impedance matching provide superior reliability and consistent broadband performance.

ABSOLUTE MAXIMUM RATINGS (Tcase = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	26	V
V_{CES}	Collector-Emitter Voltage	50	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	9	A
P_{DISS}	Power Dissipation	190	W
T_{STG}	Storage Temperature	-65 to +150	°C
T_J	Junction Temperature	+200	°C

THERMAL DATA

$R_{TH(J-C)}$	Thermal Resistance Junction-case	0.9	°C/W

ELECTRICAL SPECIFICATIONS (Tcase = 25°C)

STATIC

Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 50 mA	I_E = 0 mA	50	---	---	V
BV_{CES}	I_C = 50 mA	V_{BE} = 0 mA	50	---	---	V
BV_{CEO}	I_C = 5.0 mA	I_B = 0 mA	26	---	---	V
BV_{EBO}	I_E = 10 mA	I_C = 0 mA	3.0	---	---	V
I_{CES}	V_{CE} = 20 V	I_E = 0 mA	---	---	10	mA
I_{CBO}	V_{CB} = 30 V	I_E = 0 mA	---	---	5	mA
h_{FE}	V_{CE} = 5.0 V	I_C = 1 A	20	---	100	---

DYNAMIC

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
P_{OUT}	f = 860 - 900MHz	P_{IN} = 10.6W	V_{CE} = 24V	60	---	---	dB
G_P	f = 860 - 900MHz	P_{IN} = 10.6W	V_{CE} = 24V	7.5	---	---	dB
η_C	f = 860 - 900MHz	P_{IN} = 10.6W	V_{CE} = 24V	---	50	---	%
C_{OB}	f = 1 MHz	V_{CB} = 24V		---	55	---	pF

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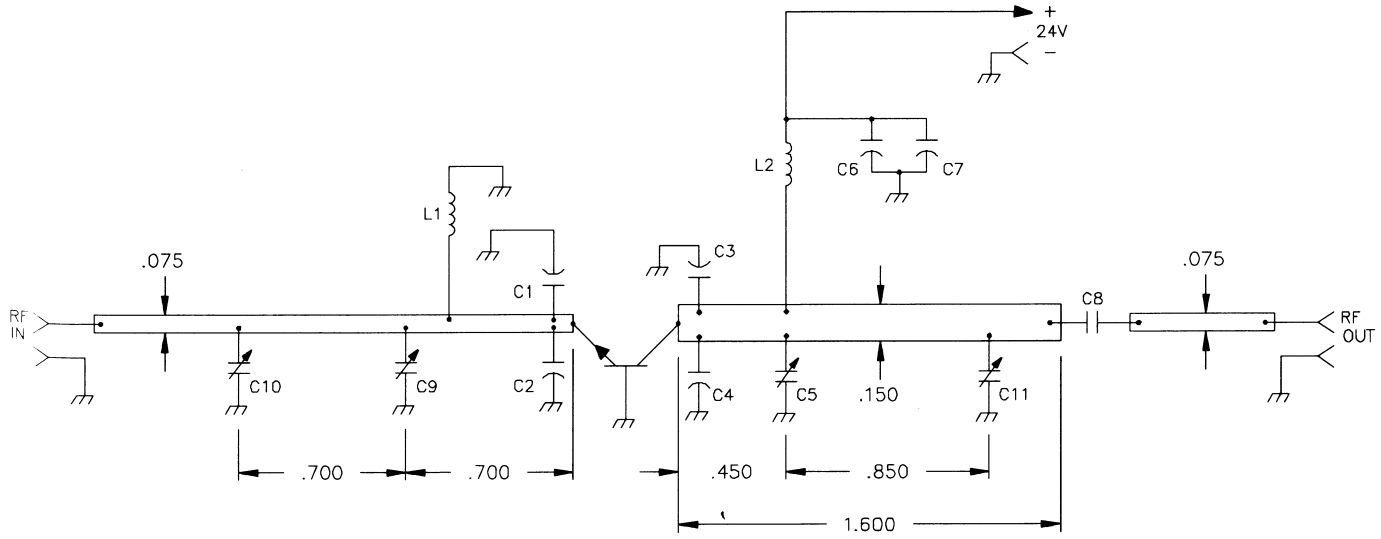
IMPEDANCE DATA

FREQ	$Z_{IN}(\Omega)$	$Z_{CL}(\Omega)$
900 MHz	1.0 + j4.9	1.40 + j1.3
890 MHz	1.2 + j5.1	1.35 + j1.2
880 MHz	1.45 + j5.2	1.25 + j1.1
860 MHz	2.0 + j5.4	1.15 + j0.85

TEST CIRCUIT



C1, C2 : 16pF Unelco
C3, C4 : 17pF Unelco
C5, C9
C10, C11 : .8 - 8pF Johanson Trimmer
C6 : 1000pF Unelco
C7 : 33µF Electrolytic
C8 : 47pF ATC Chip Capacitor

L1 : 4 1/2 Turns #22 Wire
L2 : 1 1/2 Turns #18 Wire

Z1 : 50Ω Transmission Line
Z2 : 35Ω Transmission Line

Board Dielectric Constant 2.5

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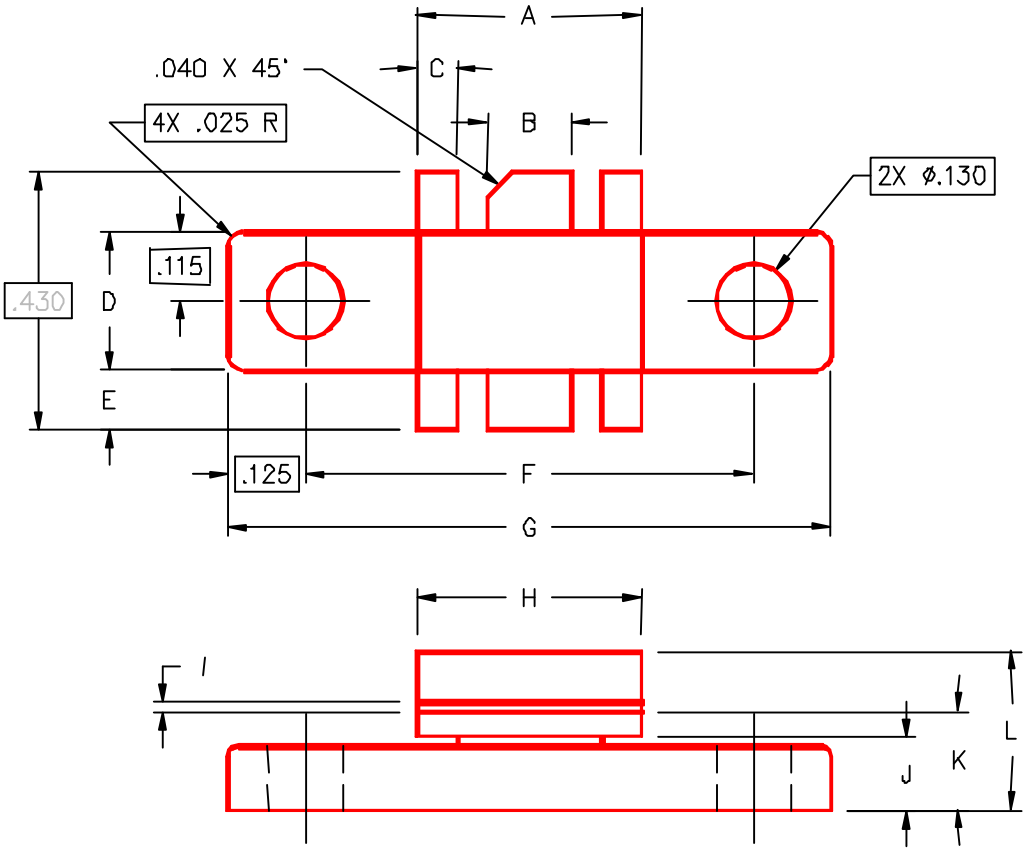
PACKAGE MECHANICAL DATA

PACKAGE STYLE M142



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.355/9,02	.365/9,27	I	.004/0,10	.006/0,15
B	.115/2,92	.125/3,18	J	.120/3,05	.130/3,30
C	.075/1,91	.085/2,16	K	.160/4,06	.180/4,57
D	.225/5,72	.235/5,97	L	.230/5,84	.260/6,60
E	.090/2,29	.110/2,79			
F	.720/18,29	.730/18,54			
G	.970/24,64	.980/24,89			
H	.355/9,02	.365/9,27			