Microsemi

RF PRODUCTS DIVISION

MS1510

RF & MICROWAVE TRANSISTORS

PRODUCT PREVIEW

DESCRIPTION

The MS1510 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for broadband applications in the 450 – 512 MHz land mobile radio band. This device utilizes diffused emitter resistors to withstand infinite VSWR at rated operating conditions.

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

KEY FEATURES

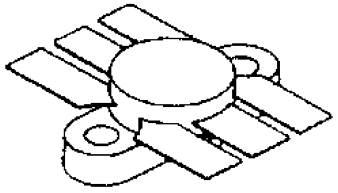
- 470 MHz
- 12.5 Volts
- Efficiency 55%
- Common Emitter
- P_{OUT} = 38 W Min.
- G_P = 5.8 dB Gain

APPLICATIONS/BENEFITS

- UHF Mobile Applications

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_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	8.0	A
P_{DISS}	Power Dissipation	117	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

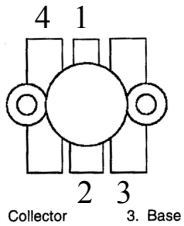


.500 6LFL (M111)
EPOXY SEALED

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	1.5	°C/W

PIN CONNECTION



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

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STATIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

Symbol	Test Conditions		MS1504			Units
			Min.	Typ.	Max.	
BV_{CES}	I_C = 15 mA	V_{BE} = 0 V	36	—	—	V
BV_{CEO}	I_C = 50 mA	I_B = 0 mA	16	—	—	V
BV_{EBO}	I_E = 5 mA	I_C = 0 mA	4.0	—	—	V
I_{CES}	V_{CB} =12.5 V	I_E = 0 mA	—	—	5	mA
h_{FE}	V_{CE} = 5 V	I_C = 1 A	20	—	200	—

DYMANIC ELECTRICAL SPECIFICATIONS (T_{CASE} = 25°C)

Symbol	Test Conditions			MS1504			Units
				Min.	Typ.	Max.	
P_{OUT}	f = 470 MHz	P_{IN} = 10.0 W	V_{CC} = 12.5 V	38	—	—	W
G_P	f = 470 MHz	P_{IN} = 10.0 W	V_{CC} = 12.5 V	5.8	—	—	dB
C_{OB}	f = 1 MHz	V_{CB} = 12.5 V		—	—	95	pF

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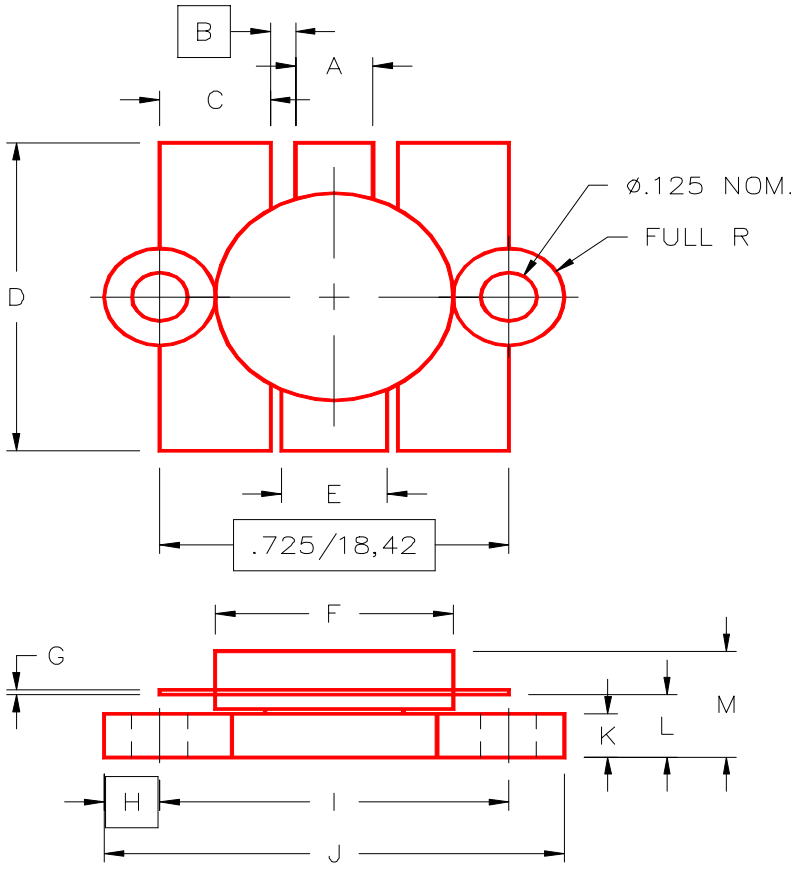
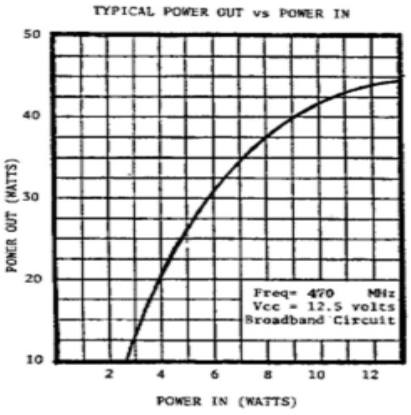
PACKAGE STYLE M111



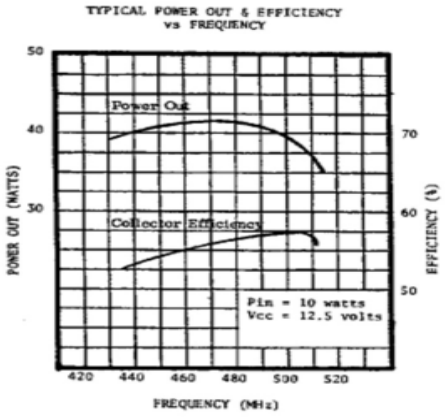
	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.150/3,43	.160/4,06	I	.720/18,29	.730/18,54
B	.045/1,14		J	.970/24,64	.980/24,89
C	.210/5,33	.220/5,59	K	.095/2,41	.105/2,67
D	.835/21,21	.865/21,97	L	.150/3,81	.170/4,32
E	.200/5,08	.210/5,33	M		.280/7,11
F	.490/12,45	.510/12,95			
G	.003/0,08	.007/0,18			
H	.125/3,18				

TYPICAL PERFORMANCE

POWER OUTPUT vs POWER INPUT

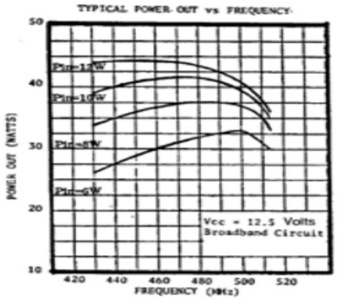


POWER OUTPUT & COLLECTOR EFFICIENCY vs FREQUENCY

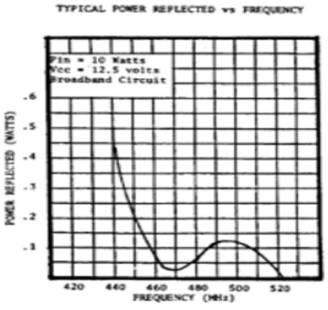


TYPICAL PERFORMANCE (cont'd)

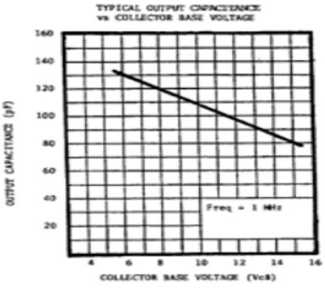
POWER OUTPUT vs FREQUENCY



POWER REFLECTED vs FREQUENCY



OUTPUT CAPACITANCE vs COLLECTOR BASE VOLTAGE



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