



Spectrum Devices Corporation

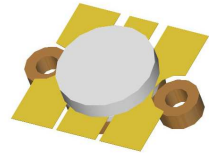
Semiconductor Engineering and Manufacturing

RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

VHF12-75

FEATURES:

- 175 MHz
- 12.5 Volts
- Common Emitter
- P_{out} = 75W Min. with 7.0 dB Gain
- Replacement for MRF247



.500 DIA. 6 LEAD WITH FLANGE

DESCRIPTION:

The VHF 12-75 is a 12.5V Class C epitaxial silicon NPN planar transistor designed primarily for VHF FM communications. This device utilizes diffused emitter resistors to withstand extremely high VSWR under rated operating conditions, and is internally input matched to optimize power gain and efficiency over the 136-175 MHz band.

ABSOLUTE MAXIMUM RATINGS: ($T_{CASE} = 25^{\circ}C$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{CES}	Collector-Emitter Voltage	36	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	270	W
T_J	Junction Temperature	+200	$^{\circ}C$
T_{STG}	Storage Temperature	-65 to +150	$^{\circ}C$

THERMAL DATA:

$R_{TH(J-C)}$	Thermal Resistance Junction-case	0.65	$^{\circ}C/W$
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ELECTRICAL SPECIFICATIONS ($T_{CASE} = 25^{\circ}C$)

STATIC CHARACTERISTICS

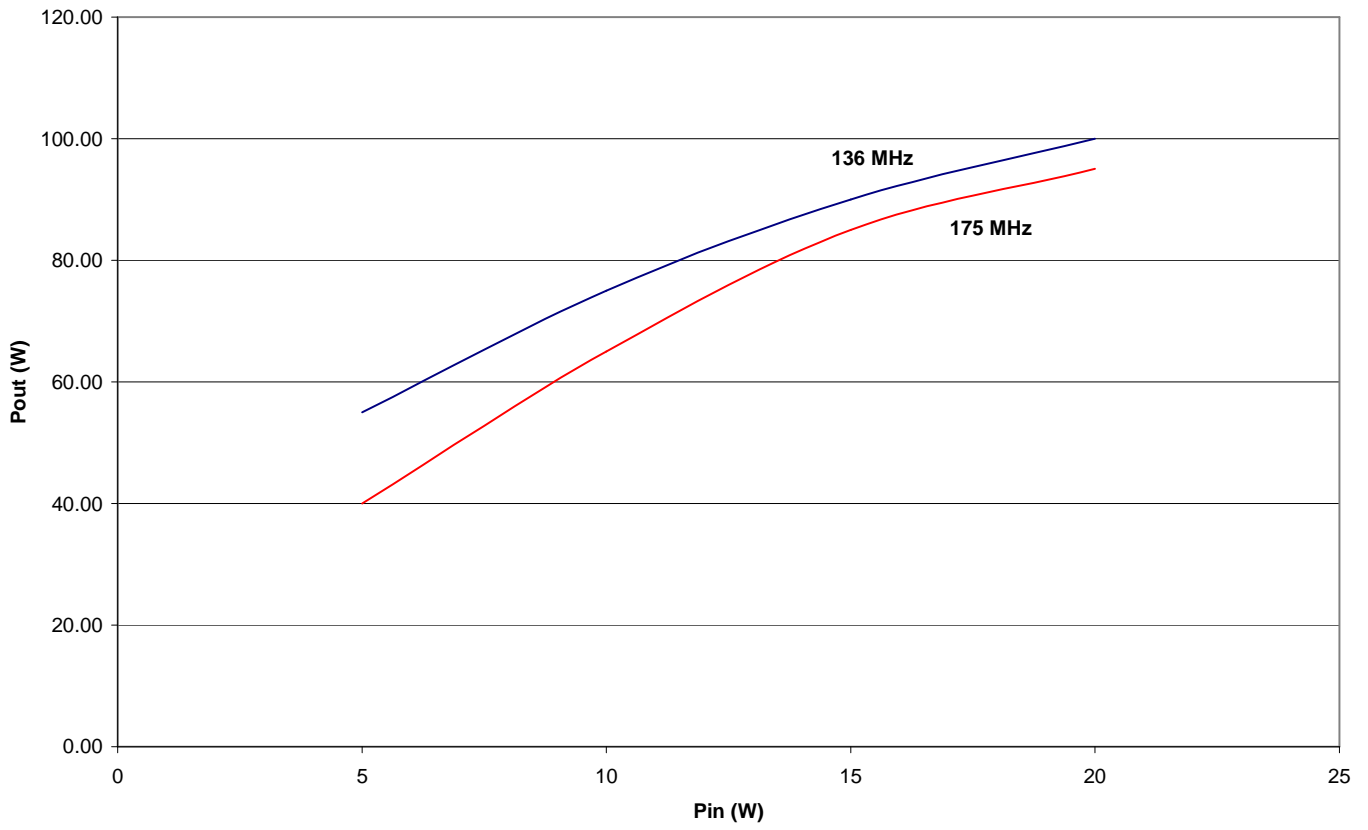
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 50mA$ $I_E = 0mA$	36	--	--	V
BV_{CES}	$I_C = 100mA$ $V_{BE} = 0V$	36	--	--	V
BV_{CEO}	$I_C = 100mA$ $I_B = 0mA$	18	--	--	V
BV_{EBO}	$I_E = 10mA$ $I_C = 0mA$	4.0	--	--	V
I_{CBO}	$V_{CB} = 15V$ $I_E = 0mA$	--	--	15	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 5A$	10	--	--	--

DYNAMIC CHARACTERISTICS

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 175\text{ MHz}$ $P_{IN} = 20W$ $V_{CC} = 12.5V$	75	--	--	W
G_P	$f = 175\text{ MHz}$ $P_{IN} = 20W$ $V_{CC} = 12.5V$	7.0	--	--	dB
C_{OB}	$f = 1\text{ MHz}$ $V_{CB} = 12.5V$	--	350	--	pF

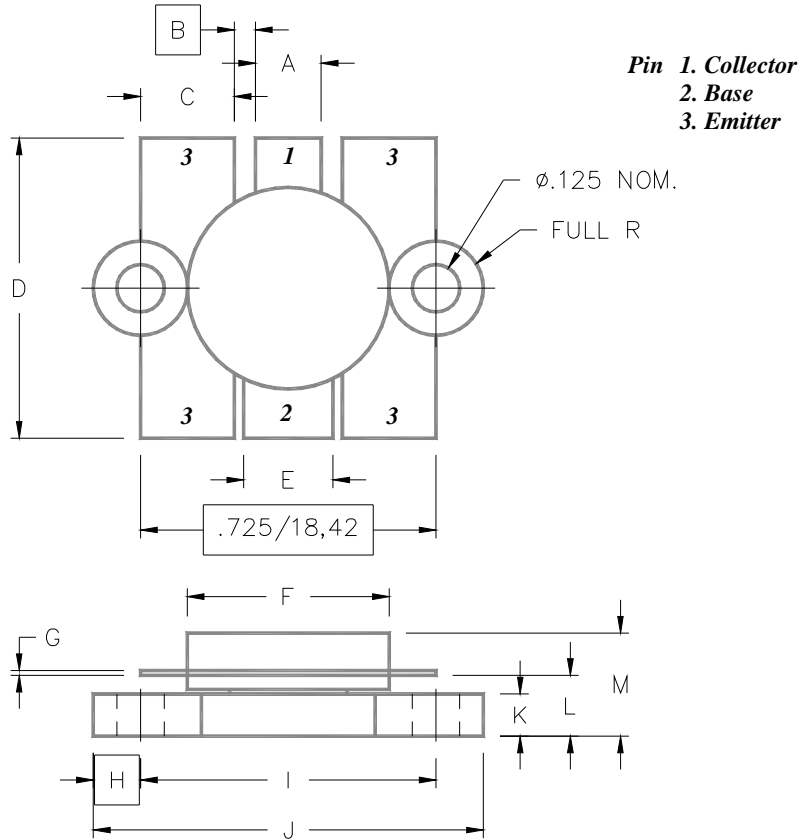
TYPICAL PERFORMANCE

Power Output vs Power Input



PACKAGE MECHANICAL DATA

0.500" Diameter 6-Lead with Flange



	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				

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