



# Spectrum Devices Corporation

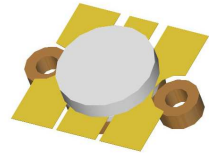
Semiconductor Engineering and Manufacturing

## RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

**VHF12-100**

### FEATURES:

- 175 MHz
- 12.5 Volts
- Common Emitter
- $P_{out}$  = 100W Min. with 6.0 dB Gain
- Replacement for SD1477



**.500 DIA. 6 LEAD WITH FLANGE**

### DESCRIPTION:

The VHF 12-100 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

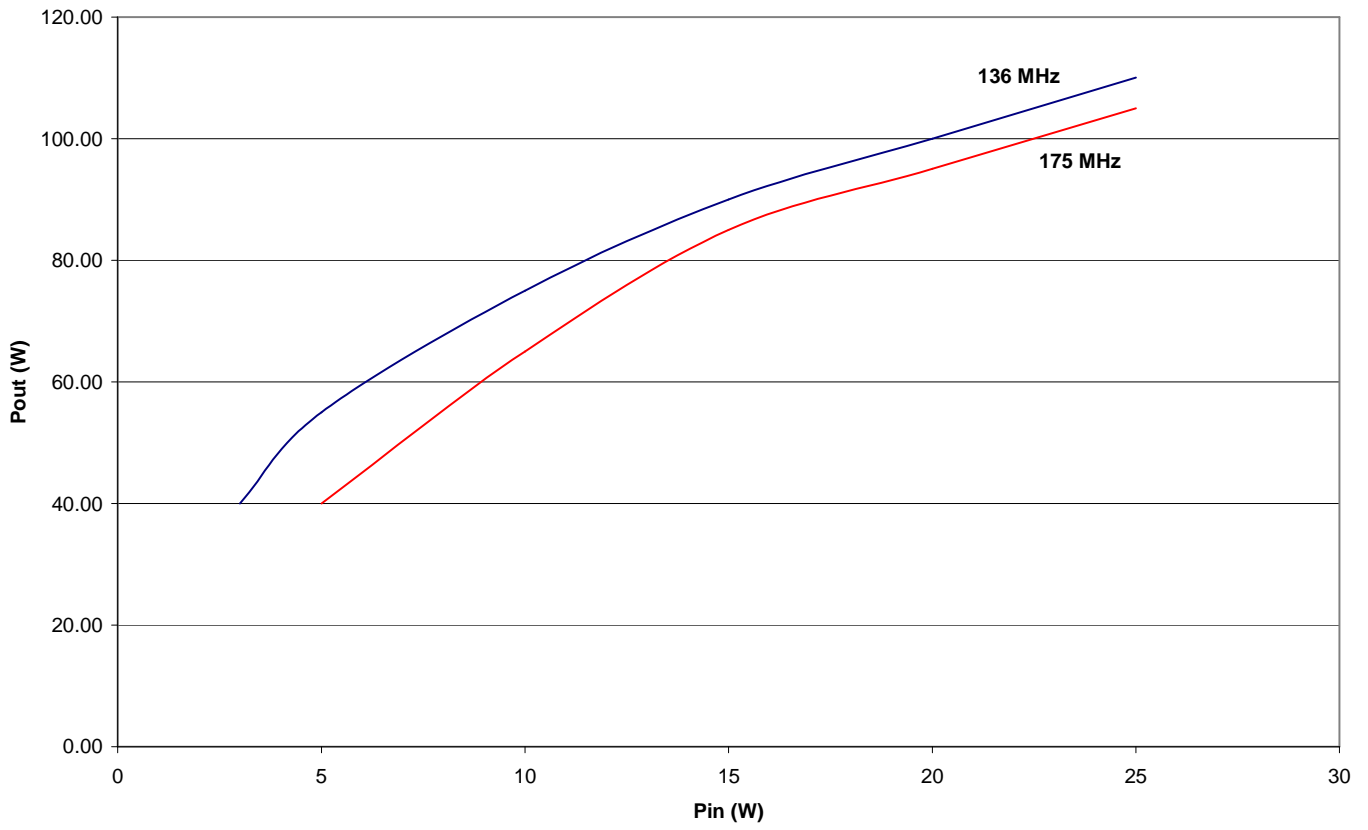
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 50mA$ $I_E = 0mA$	36	--	--	V
$BV_{CES}$	$I_C = 100mA$ $V_{BE} = 0V$	36	--	--	V
$BV_{CEO}$	$I_C = 100mA$ $I_B = 0mA$	18	--	--	V
$BV_{EBO}$	$I_E = 10mA$ $I_C = 0mA$	4.0	--	--	V
$I_{CBO}$	$V_{CB} = 15V$ $I_E = 0mA$	--	--	15	mA
$h_{FE}$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

### DYNAMIC CHARACTERISTICS

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 175\text{ MHz}$ $P_{IN} = 25W$ $V_{CC} = 12.5V$	100	--	--	W
$G_P$	$f = 175\text{ MHz}$ $P_{IN} = 25W$ $V_{CC} = 12.5V$	6.0	--	--	dB
$C_{OB}$	$f = 1\text{ MHz}$ $V_{CB} = 12.5V$	--	350	--	pF

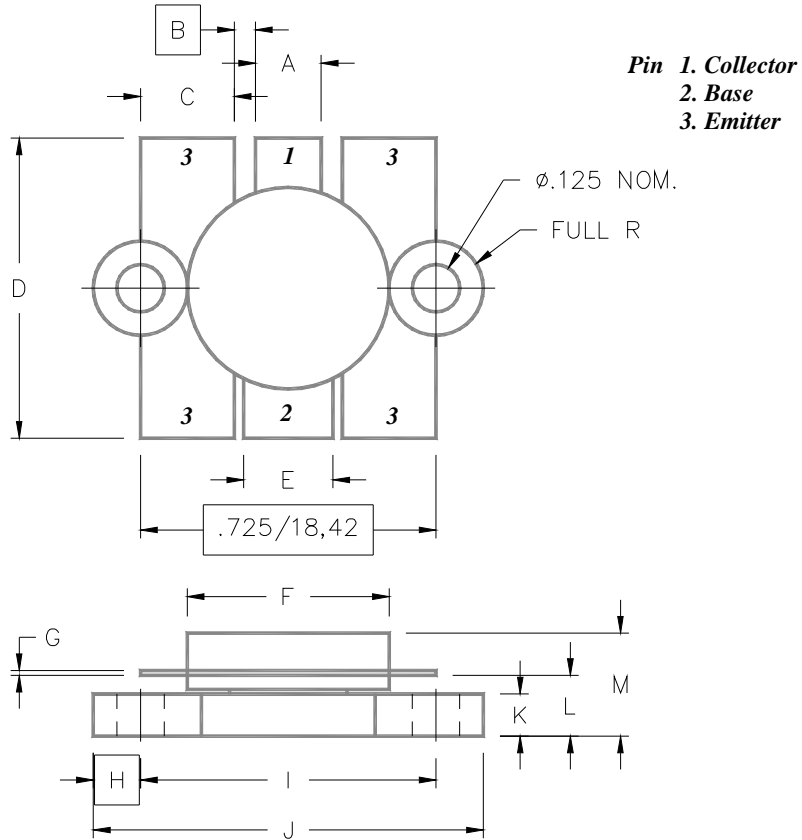
# TYPICAL PERFORMANCE

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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