



Spectrum Devices Corporation

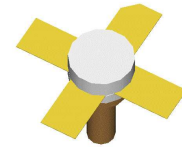
Semiconductor Engineering and Manufacturing

RF & MICROWAVE TRANSISTORS VHF MOBILE APPLICATIONS

VHF12-15

FEATURES:

- 175 MHz
- 12.5 Volts
- Common Emitter
- High Efficiency
- FM Class C Transistor
- P_{out} = 15W Min. with 6.3 dB Gain
- **Replacement for SD1014-02**



**0.380" DIAMETER
SOE STUD PACKAGE**

DESCRIPTION:

The VHF12-15 is an epitaxial silicon NPN planar transistor designed primarily for VHF mobile and marine transmitters. The device utilizes emitter ballasting resistors and improved metallization systems to achieve extreme ruggedness under severe operating conditions.

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_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	2.5	A
P_{DISS}	Power Dissipation	31	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	5.6	$^{\circ}C/W$
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ELECTRICAL SPECIFICATIONS ($T_{CASE} = 25^{\circ}C$)

DC CHARACTERISTICS

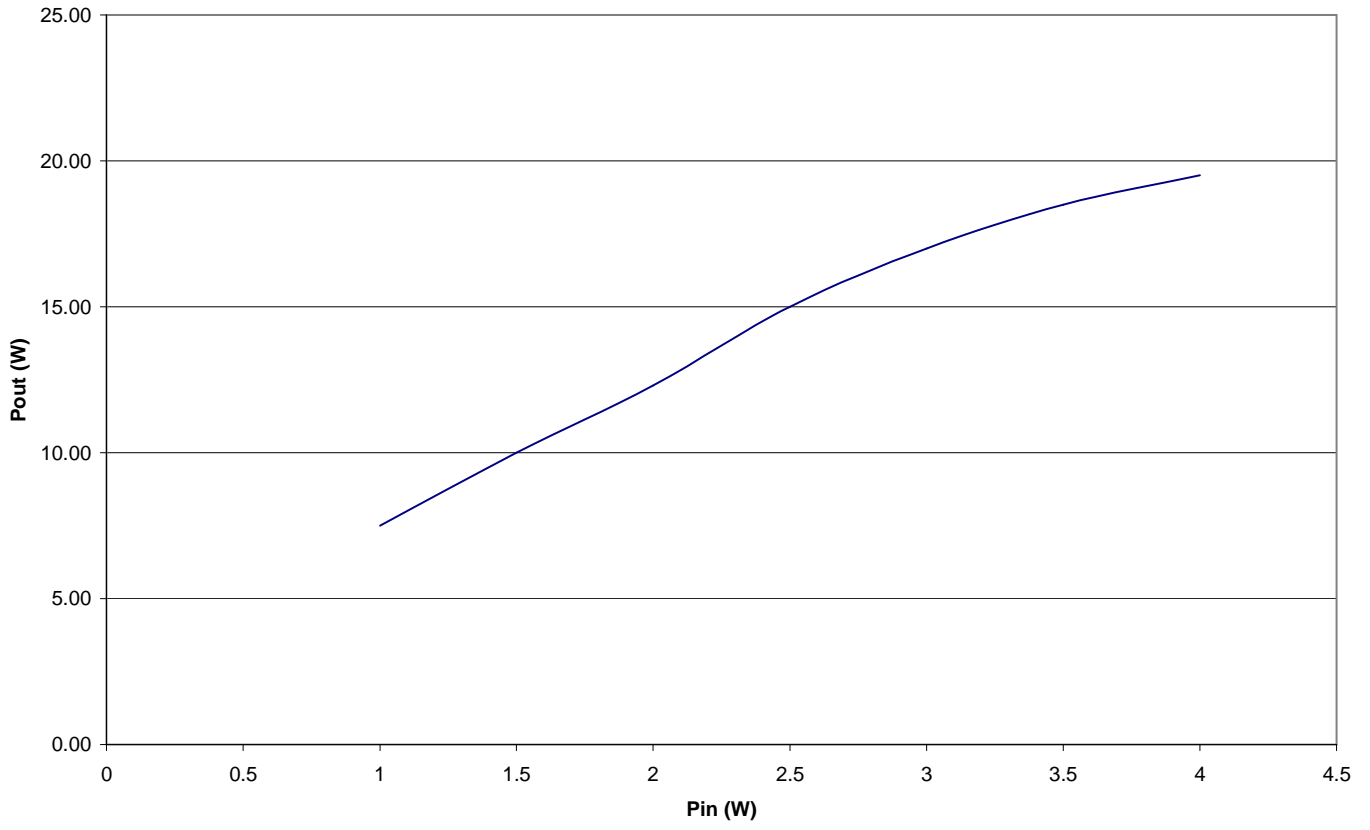
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CES}	$I_C = 10mA$ $V_{BE} = 0V$	36	--	--	V
BV_{CEO}	$I_C = 20mA$ $I_B = 0 mA$	18	--	--	V
BV_{EBO}	$I_E = 2 mA$ $I_C = 0 mA$	4.0	--	--	V
I_{CBO}	$V_{CB} = 15V$ $I_E = 0 mA$	--	--	0.5	mA
h_{FE}	$V_{CE} = 5V$ $I_C = 500mA$	5	--	200	--

RF CHARACTERISTICS

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 175 MHz$ $P_{IN} = 3.5W$ $V_{CC} = 12.5V$	15	--	--	W
G_P	$f = 175 MHz$ $P_{IN} = 3.5W$ $V_{CC} = 12.5V$	6.3	--	--	dB
η_C	$f = 175 MHz$ $P_{OUT} = 15W$ $V_{CC} = 12.5V$	60			
C_{OB}	$f = 1 MHz$ $V_{CB} = 15 V$	--	--	85	pF

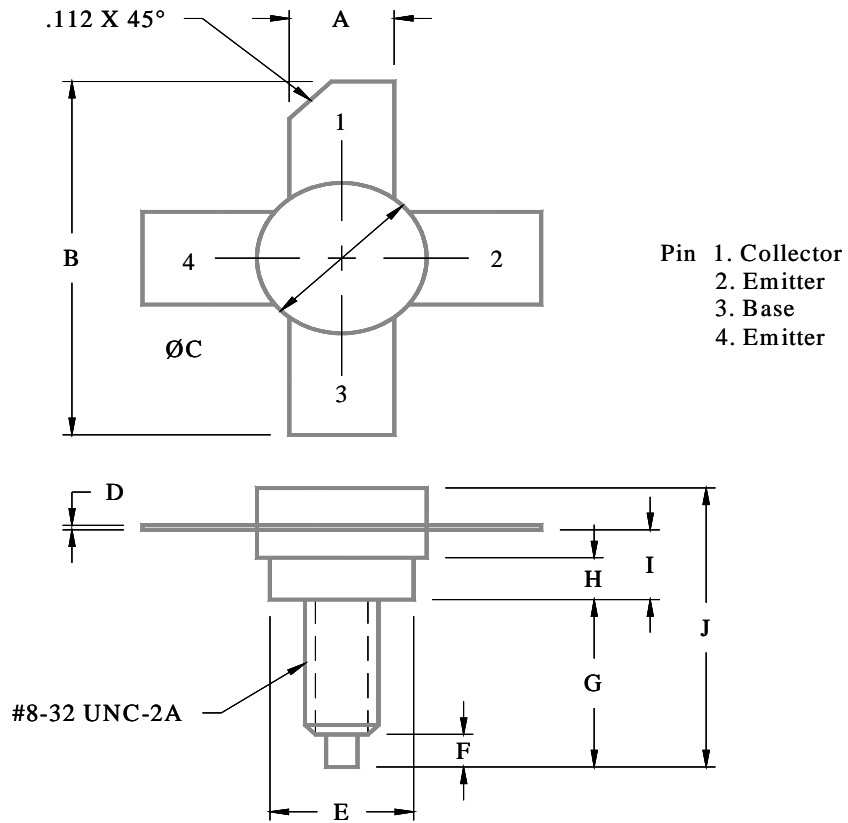
TYPICAL CHARACTERISTICS

Power Output vs Power Input



PACKAGE MECHANICAL DATA

SOE-380-Stud



	MINIMUM INCHES/MM	MAXIMUM INCHES/MM		MINIMUM INCHES/MM	MAXIMUM INCHES/MM
A	.220/5,59	.230/5,84	I	.155/3,94	.175/4,45
B	.980/24,89		J		.750/19,05
C	.370/9,40	.385/9,78			
D	.004/0,10	.007/0,18			
E	.320/8,13	.330/8,38			
F	.100/2,54	.130/3,30			
G	.450/11,43	.490/12,45			
H	.090/2,29	.100/2,54			

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