



# Spectrum Devices Corporation

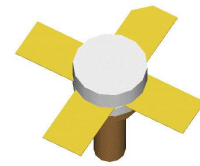
Semiconductor Engineering and Manufacturing

## RF & MICROWAVE TRANSISTORS 130 - 230 MHz FM MOBILE APPLICATIONS

**VHF28-20A**

### FEATURES:

- Frequency 175 MHz
- Voltage 28V
- High Power Out 7 to 40W
- High Power Gain
- Efficiency
- Class C Transistors
- Common Emitter
- **Replacement for 2N5642**



**SOE-380-STUD**

### DESCRIPTION:

The VHF28-20A is an epitaxial silicon NPN-planar transistor designed primarily for 12.5V AM Class C RF amplifiers functional in the aviation band 118-136 MHz and for 28V FM Class C RF amplifiers utilized in ground station transmitters. The VHF28-20A utilize ballasted emitter resistors and improved metallization systems to achieve optimum load mismatch capability.

### ABSOLUTE MAXIMUM RATINGS: (T<sub>CASE</sub> = 25°C)

Symbol	Parameter	Value	Unit
V <sub>CB0</sub>	Collector-Base Voltage	65	V
V <sub>CEO</sub>	Collector-Emitter Voltage	35	V
V <sub>EBO</sub>	Emitter-Base Voltage	4.0	V
I <sub>C</sub>	Continuous Collector Current	3.0	A
P <sub>DISS</sub>	Total Dissipation at 25°C Stud	30	W
T <sub>J</sub>	Junction Temperature	200	°C
T <sub>STG</sub>	Storage Temperature	-65 to +150	°C

### THERMAL DATA:

R <sub>TH(J-C)</sub>	Thermal Resistance Junction-case	5.8	°C/W
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## ELECTRICAL SPECIFICATIONS ( $T_{CASE} = 25^{\circ}C$ )

### DC CHARACTERISTICS

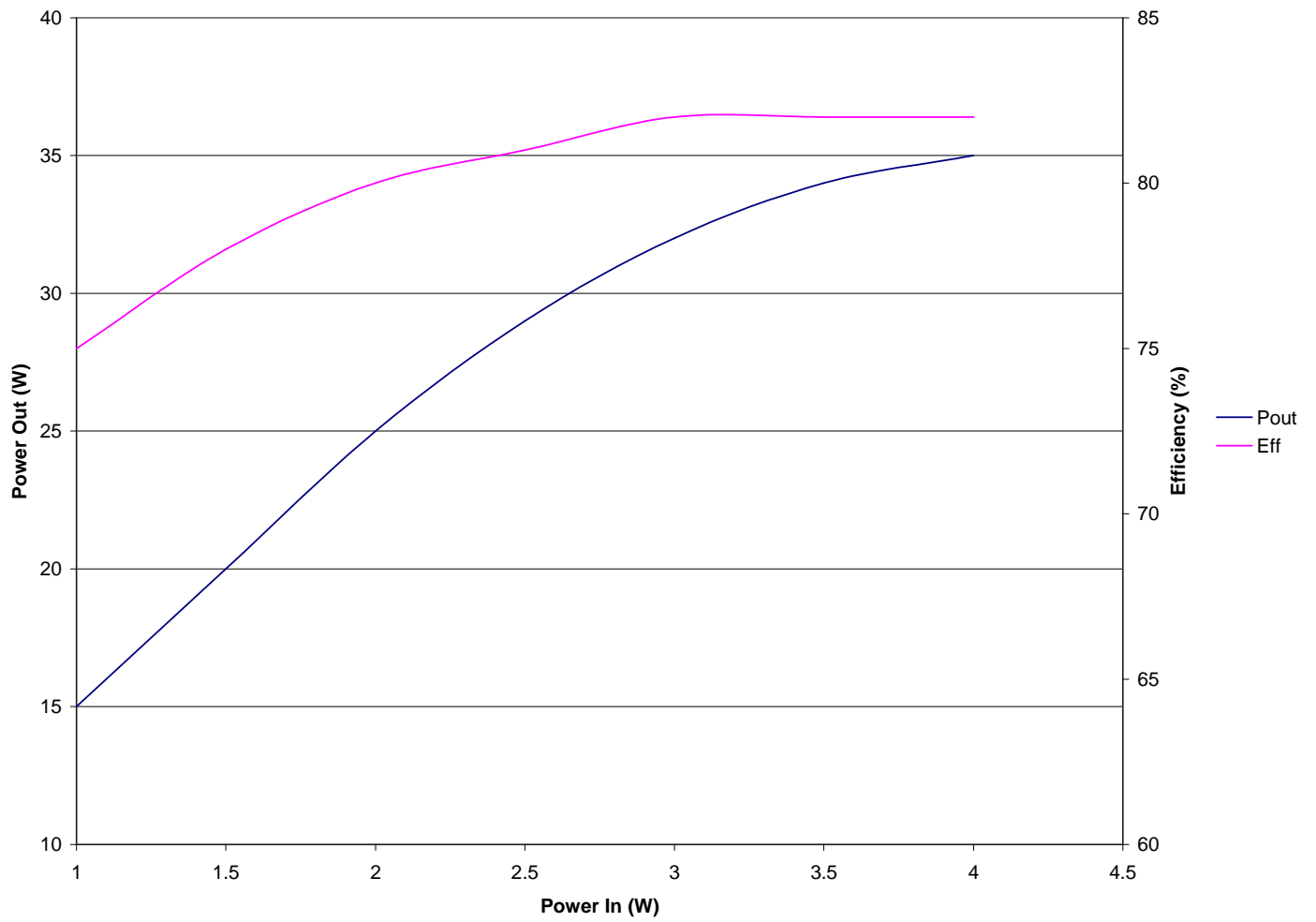
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CES}$	$I_C = 200\text{ mA}$ $V_{BE} = 0$	60	--	--	V
$BV_{CEO}$	$I_C = 200\text{ mA}$ $I_B = 0$	35	--	--	V
$BV_{EBO}$	$I_E = 10\text{ mA}$ $I_C = 0$	4	--	--	V
$I_{CBO}$	$V_{CB} = 30\text{ V}$ $I_E = 0$	-	--	1	V
$h_{FE}$	$V_{CE} = 5\text{ V}$ $I_C = 200\text{ A}$	5	--	--	--

### RF CHARACTERISTICS

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 175\text{ MHz}$ $V_{CE} = 28\text{ V}$	20	--	--	W
$G_P$	$f = 175\text{ MHz}$ $V_{CE} = 28\text{ V}$	8.2	--	--	dB
$\eta_c$	$f = 175\text{ MHz}$ $V_{CE} = 28\text{ V}$	60	--	--	dB
$C_{OB}$	$f = 1\text{ MHz}$ $V_{CB} = 30\text{ V}$ $I_C = 0$	--	--	35	pF

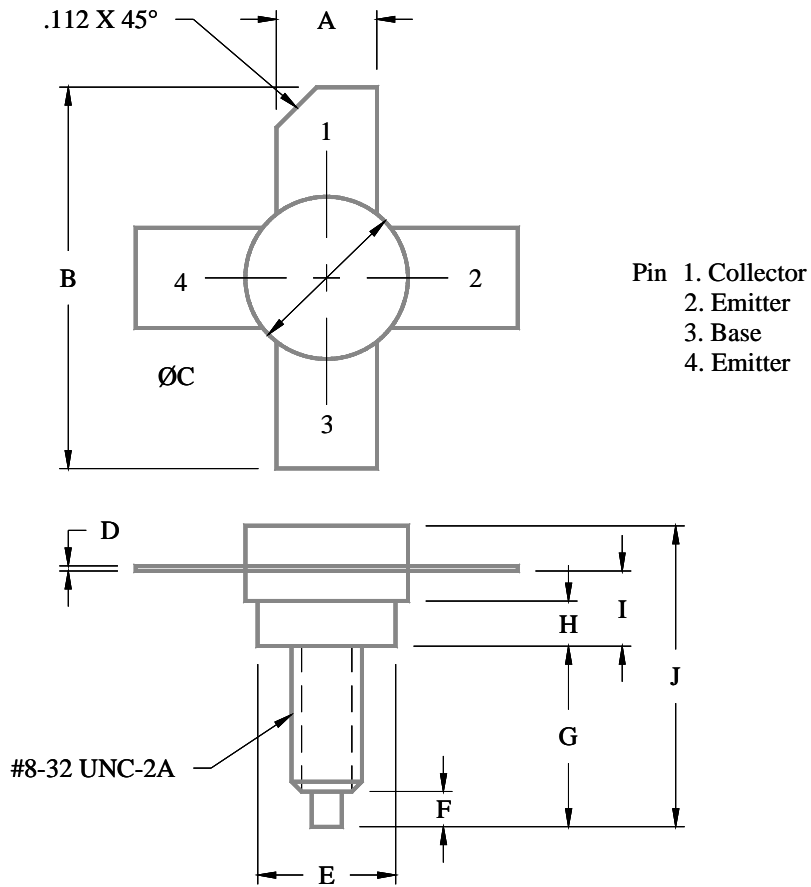
# TYPICAL CHARACTERISTICS

Power Output & Efficiency 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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