



# Spectrum Devices Corporation

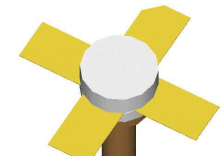
Semiconductor Engineering and Manufacturing

## RF & MICROWAVE TRANSISTORS HF APPLICATIONS

# HF28-25A

### FEATURES:

- 30 MHz
- 28 Volts
- $P_{OUT} = 25W$  min, with 22 dB Gain
- Efficiency – 35%
- Common Emitter
- Class A/AB Operation
- **Improved Collector-Base Breakdown Voltage: 110 Volts Min.**
- **Replacement for MRF426A**



**0.380" DIAMETER  
SOE STUD PACKAGE**

### DESCRIPTION:

The HF28-25A is an epitaxial silicon NPN planar transistor designed primarily for Class A/AB RF amplifiers operating in the 2-30 MHz band. This device utilizes ballasted emitter resistors and improved metallization systems to achieve optimum load mismatch capability. The HF28-series products utilize the unique Spectrum Devices' Bipolar process which offers a 69% improvement in collector-base breakdown voltage, enhancing reliability while maintaining RF performance

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

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector to Base Voltage	110	V
$V_{CEO}$	Collector to Emitter Voltage	35	V
$V_{EBO}$	Emitter to Base Voltage	4.0	V
$I_{C(max)}$	Continuous Collector Current	5.0	A
$P_o$	Total Dissipation at 25°C Stud	60	W
$T_J$	Junction Temperature	+200	°C
$T_{STG}$	Storage Temperature	-65 to +150	°C

### THERMAL DATA:

$R_{TH(J-C)}$	Thermal Resistance Junction-case	2.9	°C/W
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## ELECTRICAL SPECIFICATIONS ( $T_{CASE} = 25^{\circ}C$ )

### DC CHARACTERISTICS

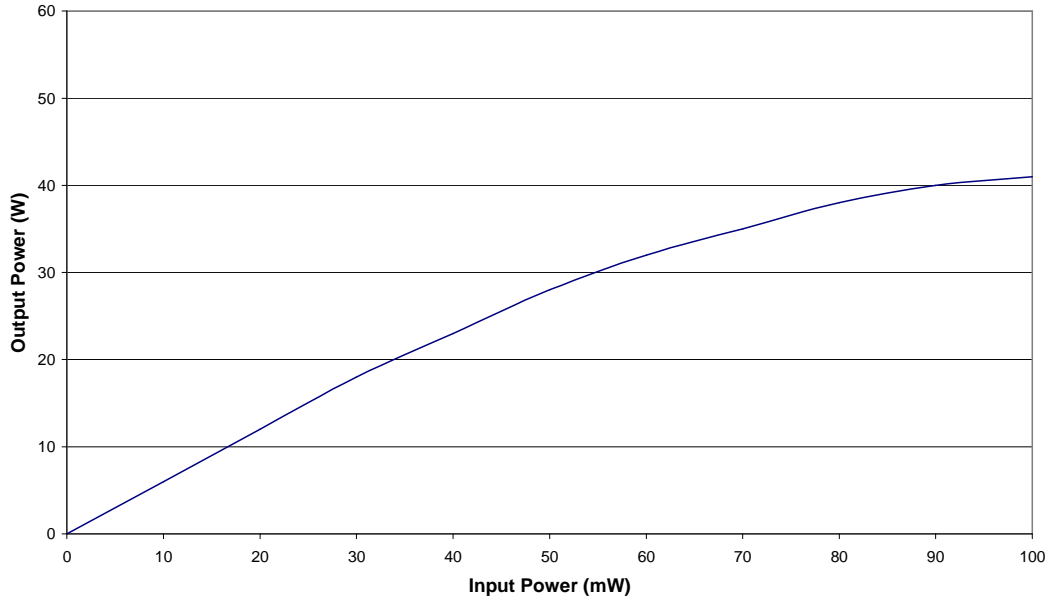
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 200\text{ mA}$ $I_E = 0\text{ mA}$	110	--	--	V
$BV_{CES}$	$I_C = 200\text{ mA}$ $V_{BE} = 0\text{ V}$	110	--	--	V
$BV_{CEO}$	$I_C = 200\text{ mA}$ $I_B = 0\text{ mA}$	35	--	--	V
$BV_{EBO}$	$I_E = 10\text{ mA}$ $I_C = 0\text{ mA}$	4.0	--	--	V
$I_{CBO}$	$V_{CB} = 30\text{ V}$ $I_E = 0\text{ mA}$	--	--	1	mA
$h_{FE}$	$V_{CE} = 5\text{ V}$ $I_C = 500\text{ mA}$	15	--	200	--

### RF CHARACTERISTICS

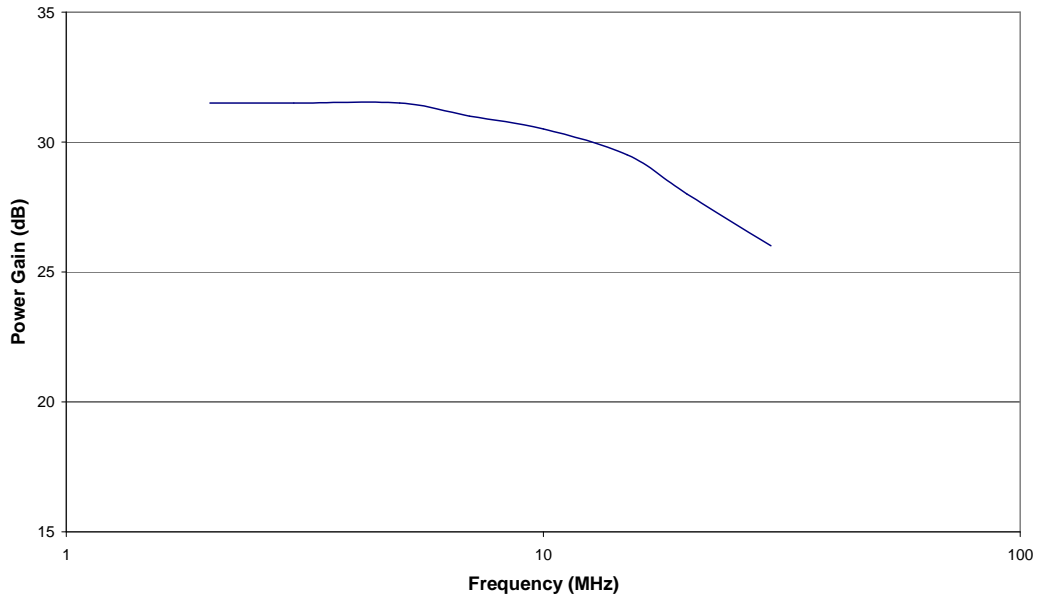
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	25	--	--	W
$G_P$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	22	--	--	dB
$n_c$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	35	--	--	%
$C_{OB}$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	--	65	--	pF

# TYPICAL DATA

Output Power vs Input Power  
 $f = 30\text{MHz}$ ,  $V_{CC} = 28\text{V}$ ,  $I_{CQ} = 25\text{mA}$

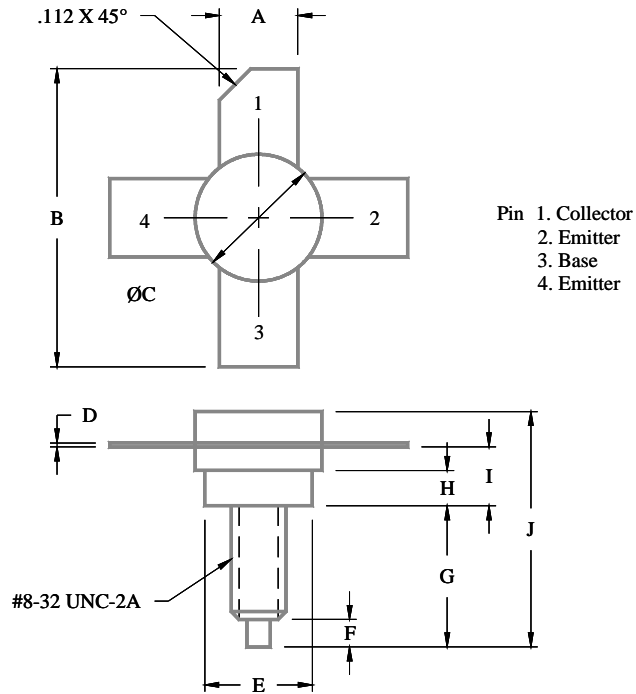


Power Gain vs Frequency  
 $V_{CC} = 28\text{V}$ ,  $I_{CQ} = 25\text{mA}$



# 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	G	.450/11.43	.490/12.45
B	.980/24.89		H	.090/2.29	.100/2.54
C	.370/9.40	.385/9.78	I	.155/3.94	.175/4.45
D	.004/0.10	.007/0.18	J		.750/19.05
E	.320/8.13	.330/8.38			
F	.100/2.54	.130/3.30			

Visit our website at [www.spectrumdevices.com](http://www.spectrumdevices.com) or contact our facility directly at  
 Spectrum Devices Corp., 2880 Bergey Road, Suite C, Hatfield, PA 19440.  
 Phone 215-997-7870 or FAX 215-997-7828

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Visit our website at [www.spectrumdevices.com](http://www.spectrumdevices.com) or contact our facility directly at  
Spectrum Devices Corp., 2880 Bergey Road, Suite C, Hatfield, PA 19440.  
Phone 215-997-7870 or FAX 215-997-7828