



# Spectrum Devices Corporation

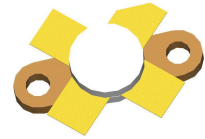
Semiconductor Engineering and Manufacturing

## RF & MICROWAVE TRANSISTORS HF APPLICATIONS

# HF28-25

### 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 MRF426**



**0.380" DIAMETER  
SOE PACKAGE**

### DESCRIPTION:

The HF28-25 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

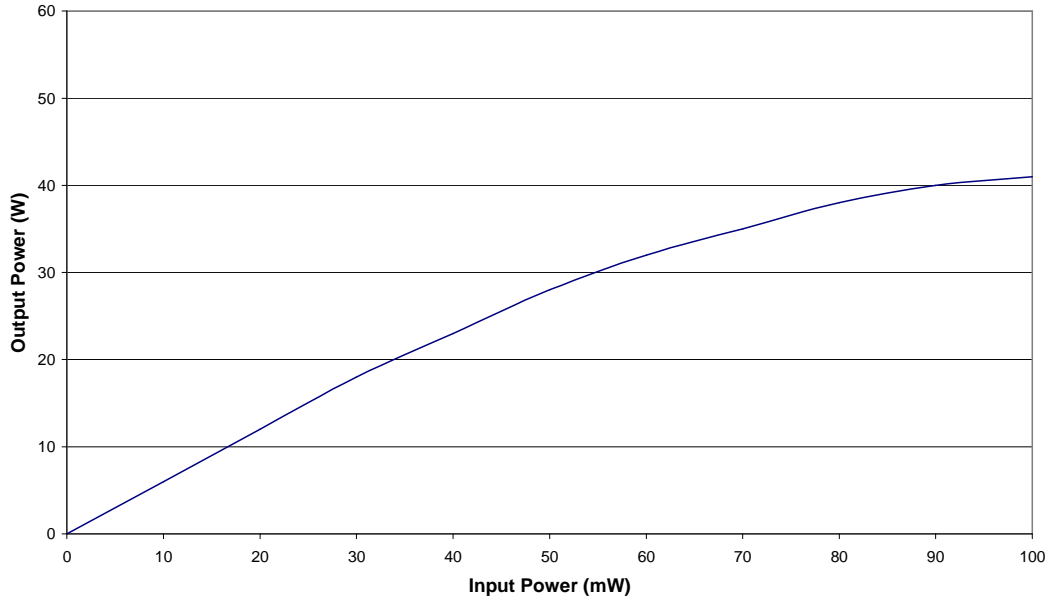
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 200\text{ mA}$ $I_E = 0\text{ mA}$	110	--	--	V
$BV_{CES}$	$I_C = 200\text{ mA}$ $V_{BE} = 0\text{ V}$	110	--	--	V
$BV_{CEO}$	$I_C = 200\text{ mA}$ $I_B = 0\text{ mA}$	35	--	--	V
$BV_{EBO}$	$I_E = 10\text{ mA}$ $I_C = 0\text{ mA}$	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

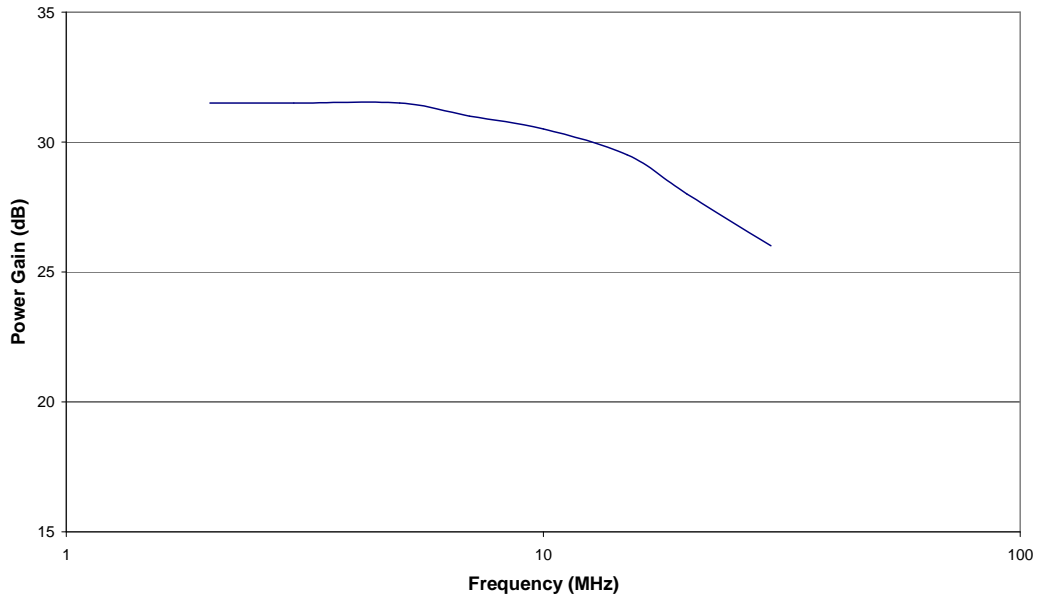
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	25	--	--	W
$G_P$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	22	--	--	dB
$n_c$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	35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

# TYPICAL DATA

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

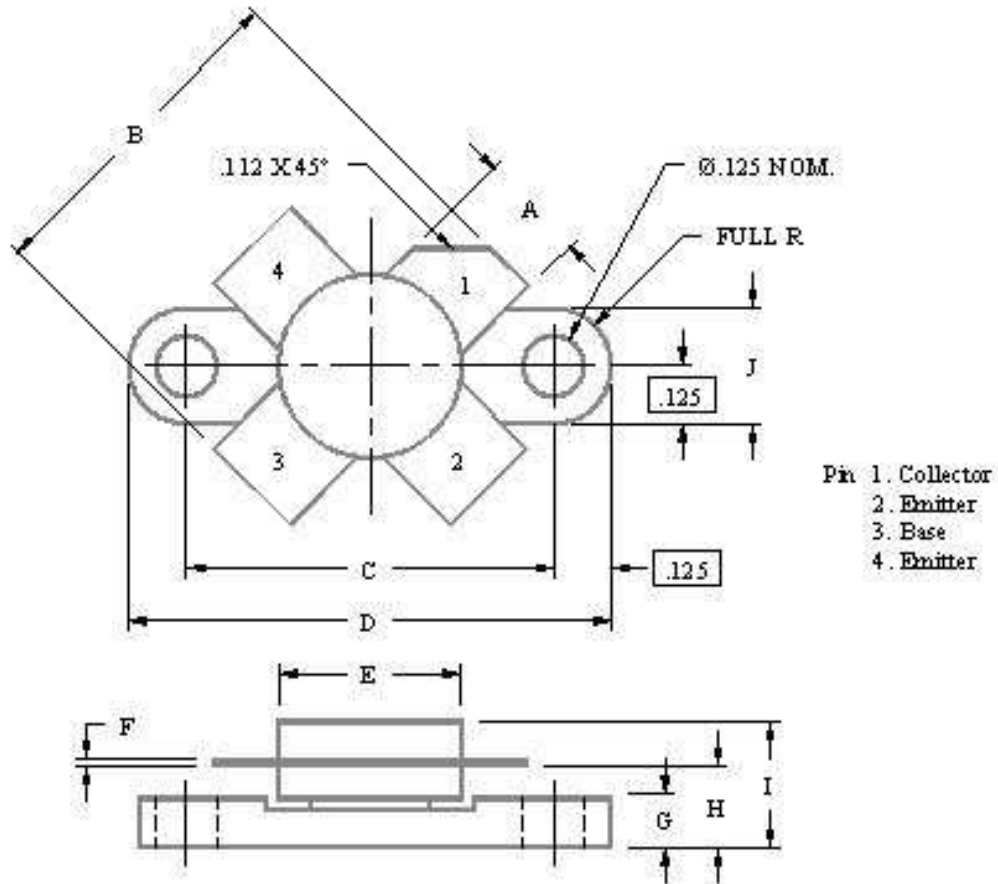


Power Gain vs Frequency  
 $V_{CC} = 28\text{V}$ ,  $I_{CQ} = 25\text{mA}$



# PACKAGE MECHANICAL DATA

## SOE-380



	Minimum Inches/MM	Maximum Inches/MM		Minimum Inches/MM	Maximum Inches/MM
A	.220/5.59	.230/5.84	G	.085/2.16	.105/2.67
B	.785/19.94		H	.160/4.06	.180/4.57
C	.720/18.29	.730/18.54	I	.260/7.11	
D	.970/24.64	.980/24.89	J	.240/6.10	.255/6.48
E	.385/9.78				
F	.004/0.10	.006/0.15			

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### **Life Support Applications**

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