



# Spectrum Devices Corporation

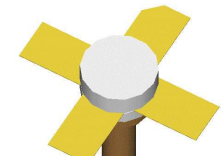
Semiconductor Engineering and Manufacturing

## 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
---------------	----------------------------------	-----	------

## ELECTRICAL SPECIFICATIONS ( $T_{CASE} = 25^{\circ}C$ )

### DC CHARACTERISTICS

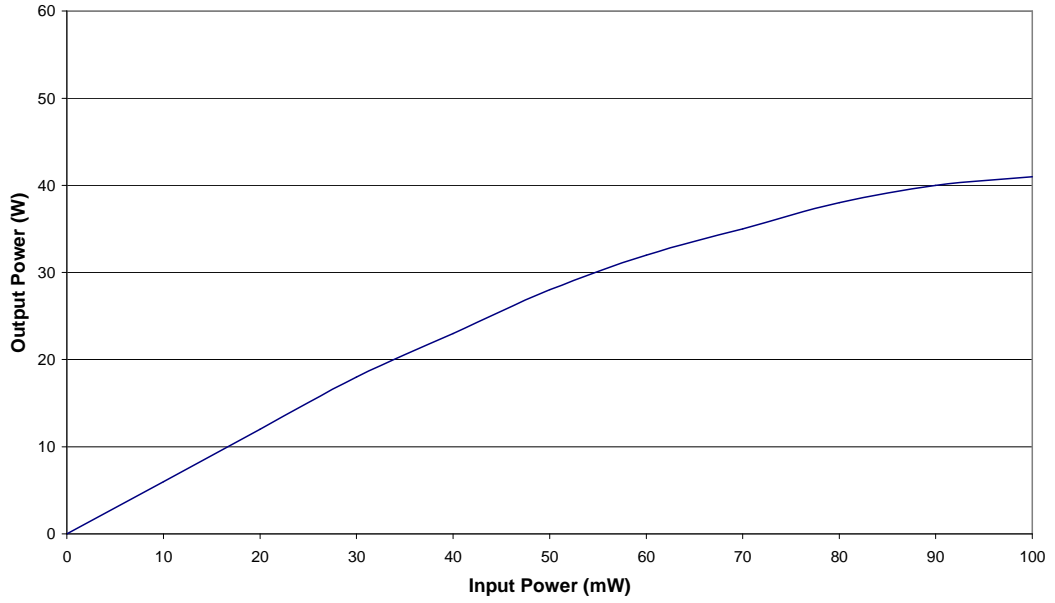
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$BV_{CBO}$	$I_C = 200\text{ mA}$ $I_E = 0\text{ mA}$	110	--	--	V
$BV_{CES}$	$I_C = 200\text{ mA}$ $V_{BE} = 0\text{ V}$	110	--	--	V
$BV_{CEO}$	$I_C = 200\text{ mA}$ $I_B = 0\text{ mA}$	35	--	--	V
$BV_{EBO}$	$I_E = 10\text{ mA}$ $I_C = 0\text{ mA}$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

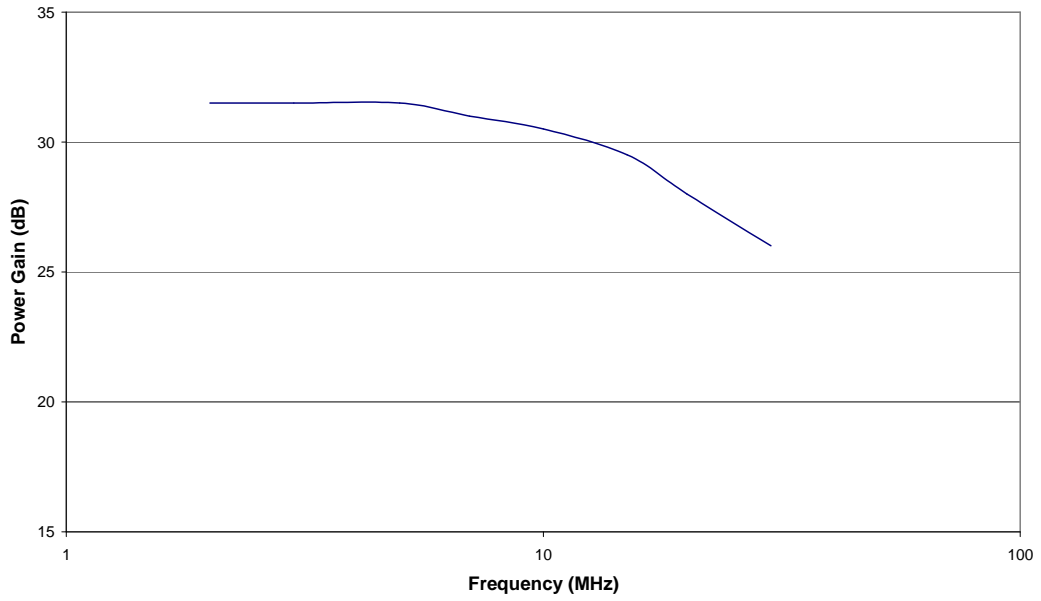
Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
$P_{OUT}$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	25	--	--	W
$G_P$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	22	--	--	dB
$n_c$	$f = 30\text{ MHz}$ $V_{CC} = 28\text{ V}$ $I_{CQ} = 25\text{ mA}$	35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

# TYPICAL DATA

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

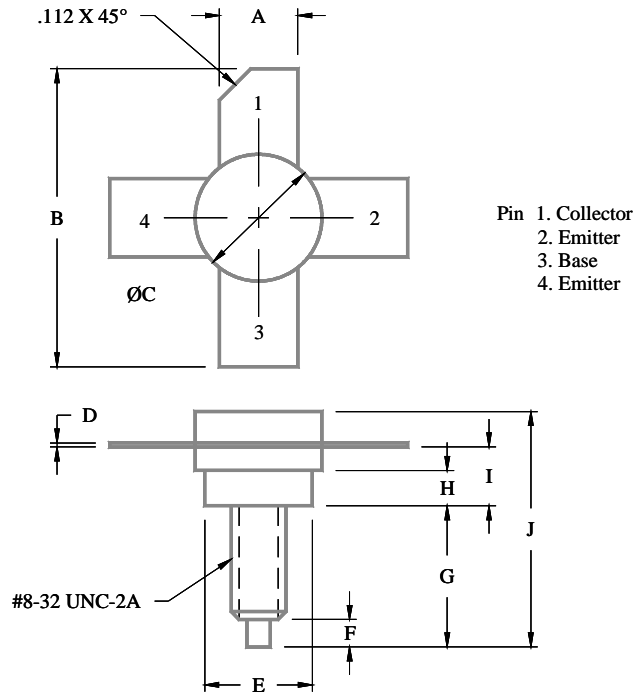


Power Gain vs Frequency  
 $V_{CC} = 28\text{V}$ ,  $I_{CQ} = 25\text{mA}$



# PACKAGE MECHANICAL DATA

## SOE-380-Stud



	Minimum Inches/mm	Maximum Inches/mm		Minimum Inches/mm	Maximum Inches/mm
<b>A</b>	<b>.220/5.59</b>	<b>.230/5.84</b>	<b>G</b>	<b>.450/11.43</b>	<b>.490/12.45</b>
<b>B</b>	<b>.980/24.89</b>		<b>H</b>	<b>.090/2.29</b>	<b>.100/2.54</b>
<b>C</b>	<b>.370/9.40</b>	<b>.385/9.78</b>	<b>I</b>	<b>.155/3.94</b>	<b>.175/4.45</b>
<b>D</b>	<b>.004/0.10</b>	<b>.007/0.18</b>	<b>J</b>		<b>.750/19.05</b>
<b>E</b>	<b>.320/8.13</b>	<b>.330/8.38</b>			
<b>F</b>	<b>.100/2.54</b>	<b>.130/3.30</b>			

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

## **DISCLAIMER**

Spectrum Devices Corporation reserves the right to change, without notice, the specifications and information contained herein. Spectrum Devices Corporation believes the information contained within this data sheet to be accurate and reliable. However, no responsibility is assumed by Spectrum Devices Corporation for its use or for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of Spectrum Devices Corporation. Spectrum Devices Corporation makes no warranty, representation, or guarantee regarding the suitability of its products for any particular purpose. "Typical" parameters are the average values expected by Spectrum Devices Corporation and are provided for information purposes only. These values can and do vary in different applications, and actual performance can vary over time. All operating parameters should be validated by customer's technical personnel for each application.

### **Life Support Applications**

These products are not designed, intended, or authorized for use in applications intended for surgical implant or to support or sustain life, in which the failure of the Spectrum Devices Corporation product could result in personal injury or death. Spectrum Devices Corporation customers using or selling these products in such applications do so at their own risk and agree to indemnify Spectrum Devices Corporation from any damages resulting from improper use or sale.

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