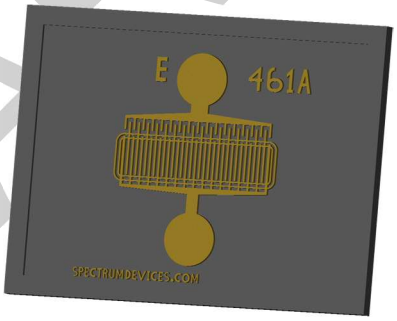
Spectrum Devices Corporation

Semiconductor Engineering and Manufacturing

RF & MICROWAVE TRANSISTOR DIE
LOW POWER APPLICATIONS TO 1 GHz

SD461A-12

FEATURES:



- 5.5 GHz f_T
- 12 Volt Operation
- Output Power 27dBm, typical
- IMD –40 dBc, typical
- Common Emitter
- Gold Metallization
- **Replacement for NEC NE46100**

DESCRIPTION:

The SD461A-12 NPN silicon bipolar transistor is designed for medium power applications requiring high dynamic range. This device exhibits an outstanding combination of high gain and low intermodulation distortion, as well as low noise figure. The SD461A-12 offers excellent performance and reliability using gold topside and backside metallization of the chip.

ABSOLUTE MAXIMUM RATINGS: ($T_{SUBSTRATE}$ = 25°C)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	30	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Device Current	250	mA
P_{DISS}	Total Dissipation	3.75	W
T_J	Junction Temperature	+200	°C
T_{STG}	Storage Temperature	-65 to +150	°C

THERMAL DATA:

$R_{TH(J-S)}$	Thermal Resistance Junction-Substrate	45	°C/W

ELECTRICAL SPECIFICATIONS ($T_{SUBSTRATE}$ = 25°C)

DC CHARACTERISTICS

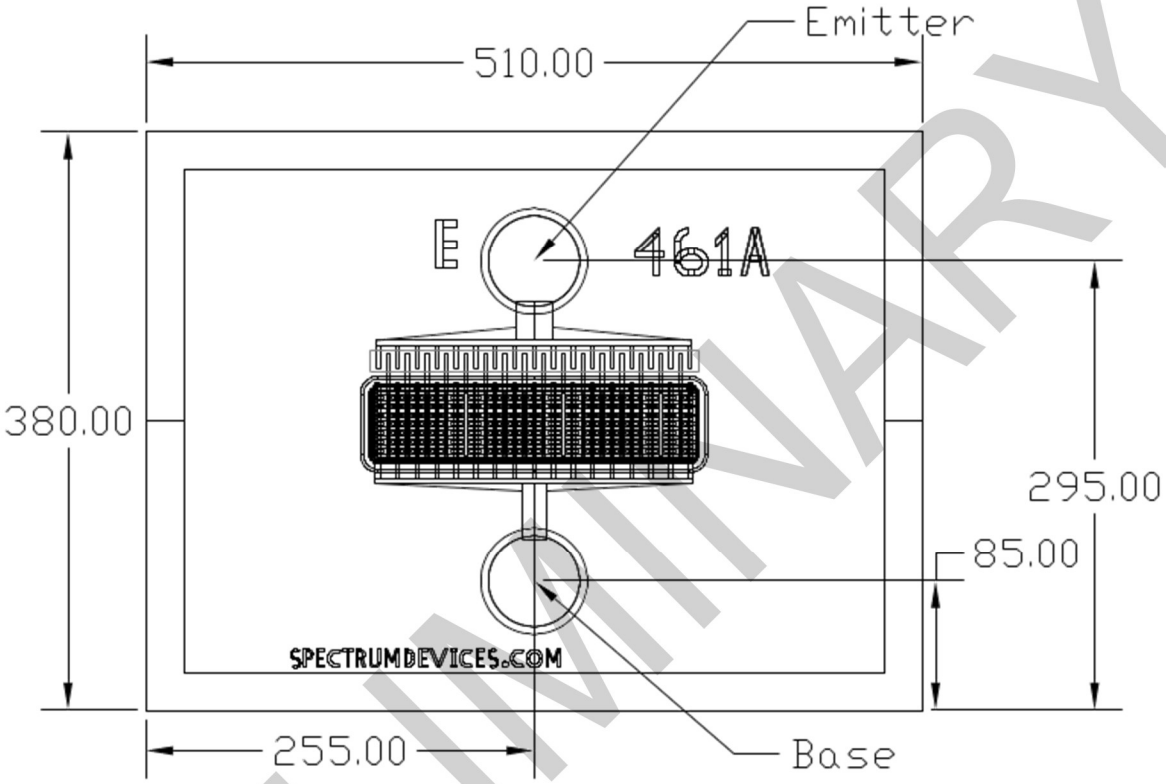
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	I_C = 5 mA	I_E = 0 mA	30	--	--	V
BV_{CEO}	I_C = 5 mA	I_B = 0 mA	15	--	--	V
BV_{EBO}	I_E = 1 mA	I_C = 0 mA	3.0	--	--	V
I_{CBO}	V_{CE} = 30V	I_E = 0 mA	--	--	100	uA
h_{FE}	V_{CE} = 5 V	I_C = 50 mA	30	--	200	--

RF CHARACTERISTICS

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
f_T	V_{CE} = 10 V	I_C =100 mA		--	5.5	--	GHz
NF_{MIN}	V_{CE} = 10 V	I_C =50 mA	f_{meas} =500 MHz	--	2.0	--	dB
G_L	V_{CE} = 12 V	I_C =100 mA	f_{meas} =1 GHz	--	10	--	dB
P_{1dB}	V_{CE} = 12 V	I_C =100 mA	f_{meas} =1 GHz	--	27	--	dBm
C_{OB}	f = 1 MHz	V_{CB} =12 V		--	2	--	pF

OUTLINE DIMENSIONS

(Dimensions in Microns)



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