



Spectrum Devices Corporation

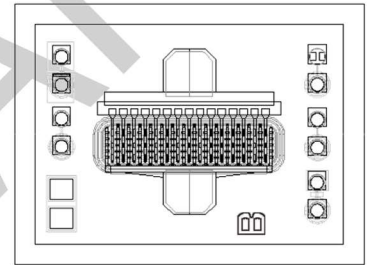
Semiconductor Engineering and Manufacturing

RF & MICROWAVE TRANSISTOR DIE LOW POWER APPLICATIONS TO 1 GHz

SD801-12

FEATURES:

- 5GHz f_T
- 12 Volt Operation
- Output Power 27dBm, typical
- IMD -35 dBc, typical
- Common Emitter
- Gold Metallization



DESCRIPTION:

The SD801 series of NPN silicon bipolar transistors 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 SD801 series offers excellent performance and reliability using gold topside and backside metallization of the chip.

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

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	200	mA
P_{DISS}	Total Dissipation	2.5	W
T_{J}	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	-65 to +150	$^{\circ}\text{C}$

THERMAL DATA:

$R_{\text{TH(J-S)}}$	Thermal Resistance Junction-Substrate	70	$^{\circ}\text{C/W}$
----------------------	---------------------------------------	----	----------------------

ELECTRICAL SPECIFICATIONS ($T_{\text{SUBSTRATE}} = 25^{\circ}\text{C}$)

DC CHARACTERISTICS

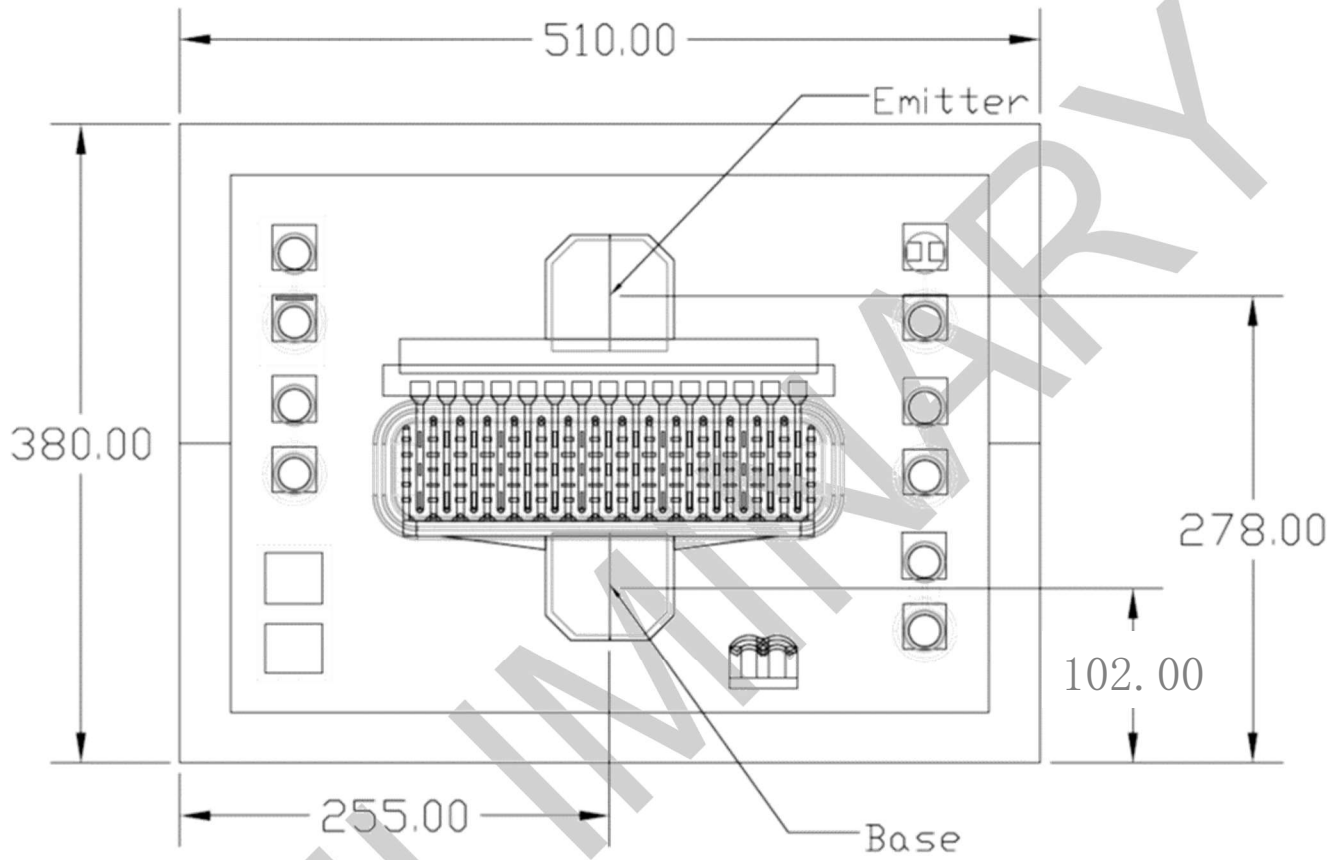
Symbol	Test Conditions		Value			Unit
			Min.	Typ.	Max.	
BV_{CBO}	$I_C = 5 \text{ mA}$	$I_E = 0 \text{ mA}$	30	--	--	V
BV_{CEO}	$I_C = 5 \text{ mA}$	$I_B = 0 \text{ mA}$	15	--	--	V
BV_{EBO}	$I_E = 1 \text{ mA}$	$I_C = 0 \text{ mA}$	3.0	--	--	V
I_{CBO}	$V_{CE} = 30\text{V}$	$I_E = 0 \text{ mA}$	--	--	100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

RF CHARACTERISTICS

Symbol	Test Conditions			Value			Unit
				Min.	Typ.	Max.	
f_T	$V_{CE} = 10 \text{ V}$	$I_C = 75 \text{ mA}$	--	5	--	GHz	
NF_{MIN}	$V_{CE} = 10 \text{ V}$	$I_C = 50 \text{ mA}$	$f_{meas} = 500 \text{ MHz}$	--	5.0	--	dB
G_L	$V_{CE} = 12 \text{ V}$	$I_C = 100 \text{ mA}$	$f_{meas} = 1 \text{ GHz}$	--	10	--	dB
P_{1dB}	$V_{CE} = 12 \text{ V}$	$I_C = 100 \text{ mA}$	$f_{meas} = 1 \text{ GHz}$	--	27	--	dBm
COB	$f = 1 \text{ MHz}$	$V_{CB} = 12 \text{ V}$	--	2	--	pF	

OUTLINE DIMENSIONS

(Dimensions in Microns)



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 or contact our facility directly at
Spectrum Devices Corp., 3009A Old State Road, Telford, PA 18969.
Phone 215-997-7870