

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Output Power
30.0 dBm, P_{1dB} @ 1 GHz
- High Gain Bandwidth Product
 $f_t = 6.0$ GHz @ $I_C = 160$ mA
- High Gain
 $|S_{21}|^2 = 12.0$ dB @ 1.0 GHz
- Stud Mount package (Package 20S)



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT30V1E1E is a high performance silicon bipolar transistor intended for medium power applications at VHF and UHF frequencies to 1.0 GHz. Typical applications include wide band oscillators and amplifiers in CATV, aeronautical, maritime and personal communication applications. The BPT30V1E1E is bonded common emitter for linear applications. Linear output power of 1 watt can be achieved. Stud Mount packaging makes this device excellent for industrial and military products. Uniformity and reliability are assured by the use of ion implanted junctions, ion implanted ballast resistors and gold metallization.

PERFORMANCE DATA:

- Electrical Characteristics ($T_A = 25^\circ\text{C}$)

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CBO}	Collector-Base Voltage	60	V
V_{CEO}	Collector-Emitter Voltage	30	V
V_{EBO}	Emitter-Base Voltage	3.0	V
I_C	Collector Current (instantaneous)	320	mA
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{STG}	Storage Temperature	-65 to 150	$^\circ\text{C}$
θ_{JC}	Thermal Resistance	50	C/W

SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 15\text{V}, I_C = 160$ mA, Class A, unless stated	UNIT	MIN.	TYP.	MAX.
P_{1dB}	Power output at 1 dB compression: $f = 1.0$ GHz	dBm		30.0	
G_{1dB}	Gain at 1dB compression: $f = 1.0$ GHz	dB		12.0	
η	Collector Efficiency Class A	%		30	
C_{CB}	Collector Base Capacitance: $f = 1$ MHz, $I_E = 0$	pF	1.3	2.0	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 8\text{V}, I_C = 100$ mA		20	60	100
P_T	Total Power Dissipation ($T_C = 25^\circ\text{C}$)	W		3	