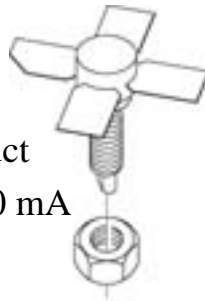


SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

FEATURES:

- High Gain Bandwidth Product
 $f_t = 8 \text{ GHz typ @ } I_C = 140 \text{ mA}$
- High Gain
 $|S_{21}|^2 = 14.2 \text{ dB @ } 1.0 \text{ GHz}$
 $8.2 \text{ dB @ } 2.0 \text{ GHz}$
- Stud Mount package (package 28S)



DESCRIPTION AND APPLICATIONS:

Bipolarics' BPT15V1E1 is a high performance silicon bipolar transistor intended for medium power linear and Class C applications at VHF, UHF and microwave frequencies in 7.2 and 12V systems. Depending on package type, the BPT15V1E1 can operate at up to 1.0W. These applications include high intermod receivers, CATV and instrumentation amplifiers as well as pre-drivers, drivers and final stages in transmitter applications such as cellular telephone. Stud Mount packaging makes this device excellent for industrial and military products.

Absolute Maximum Ratings:

SYMBOL	PARAMETERS	RATING	UNITS
V_{CBO}	Collector-Base Voltage	25	V
V_{CEO}	Collector-Emitter Voltage	15	V
V_{EBO}	Emitter-Base Voltage	1.5	V
I_C	Collector Current (continuous)	240	mA
I_C^{MAX}	Collector Current (instantaneous)	360	mA
T_J	Junction Temperature	200	°C
T_{STG}	Storage Temperature	-65 to 150	°C
θ_{JA}	Thermal Resistance	45	C/W

PERFORMANCE DATA:

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

SYMBOL	PARAMETERS & CONDITIONS $V_{CE} = 8V, I_C = 120 \text{ mA}$, Class A, unless stated	UNIT	MIN.	TYP.	MAX.
f_t	Gain Bandwidth Product	GHz		8.0	
$ S_{21} ^2$	Insertion Power Gain: f = 1.0 GHz f = 2.0 GHz	dB dB		14.2 8.2	
P_{1dB}	Power output at 1dB compression: f = 1.0 GHz $I_C = 150 \text{ mA}$	dBm		30.0	
NF	Noise Figure: $V_{CE} = 5V, I_C = 20 \text{ mA}$ f = 1.0 GHz	dB		1.6	
h_{FE}	Forward Current Transfer Ratio: $V_{CE} = 5V, I_C = 30 \text{ mA}$		30	100	300
I_{CBO}	Collector Cutoff Current : $V_{CB} = 8V$	μA			0.8
C_{CB}	Collector Base Capacitance: $V_{CB} = 8V$ f = 1MHz	pF		.75	

BIPOLARICS, INC.

Part Number BPT15V1E1

SILICON MICROWAVE POWER TRANSISTOR

PRODUCT DATA SHEET

TYPICAL S PARAMETERS:

BIAS CONDITION: $V_{CE} = 8 \text{ V}$, $I_C = 150 \text{ mA}$ S-MATRIX: $Z_S = 50.0 + j 0.0$ $Z_L = 50.0 + j 0.0$

FREQ. GHz	S11		S21		S12		S22		S21 dB
	Mag	Ang	Mag	Ang	Mag	Ang	Mag	Ang	
0.20000	0.6456	-156	17.78	124	0.0169	46	0.3090	-102	25.0
0.40000	0.8128	-136	12.02	102	0.0229	54	0.2630	-136	21.6
0.60000	0.7843	176	8.317	92	0.0288	62	0.2511	-145	18.4
0.80000	0.7952	174	6.456	87	0.0371	68	0.2600	-155	16.2
1.00000	0.7943	172	5.128	83	0.0426	72	0.2371	-155	14.2
1.20000	0.7943	162	4.365	78	0.0506	73	0.2630	-159	12.8
1.40000	0.7478	156	3.715	72	0.0575	73	0.2630	-169	11.4
1.60000	0.7943	154	3.198	70	0.0630	74	0.2722	-164	10.1
1.80000	0.7762	151	2.851	66	0.0707	77	0.2884	-168	9.1
2.00000	0.7673	148	2.570	63	0.0794	77	0.2851	-168	8.2
2.20000	0.7852	139	2.213	58	0.0860	75	0.3235	178	6.9
2.40000	0.7762	136	1.995	59	0.0891	78	0.3090	180	6.0
2.60000	0.8222	132	1.883	54	0.1000	77	0.3845	176	5.5
2.80000	0.8222	131	1.698	51	0.1047	77	0.4265	172	4.6
3.00000	0.8413	129	1.640	49	0.1109	79	0.4073	177	4.3
3.20000	0.8317	128	1.513	45	0.1174	76	0.4073	169	3.6
3.40000	0.8413	125	1.412	46	0.1244	78	0.3801	168	3.0
3.60000	0.9120	117	1.364	37	0.1348	75	0.4677	162	2.7
3.80000	0.8128	114	1.188	17	0.1303	76	0.4168	156	1.5
4.00000	0.8709	118	1.230	18	0.1462	79	0.4365	167	1.8
4.20000	0.8609	111	1.071	30	0.1479	74	0.4415	-154	0.6