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NTE478
Silicon NPN Transistor
RF Power Output, P_O = 100W @ 175MHz

Description:

The NTE478 is a 12.5 Volt epitaxial silicon NPN planar transistor designed primarily for VHF communications. This device utilizes diffused emitter resistors to achieve infinite VSWR under operating conditions, and is internally input matched to optimize power gain and efficiency over the band.

Features:

- Designed for VHF Military and Commercial Equipment
- 100W Min with Greater than 6.0dB Gain
- Withstands Infinite VSWR under Operating Conditions
- Low Intermodulation Distortion (–32dB)
- Diffused Emitter Resistors

Absolute Maximum Ratings: (T_C = +25°C unless othrwise specified)

Collector–Base Voltage, V_{CBO} 36V
Collector–Emitter Voltage, V_{CEO} 18V
Emitter–Base Voltage, V_{EBO} 4V
Maximum Collector Current, I_C 20A
Total Device Dissipation (At +25°C), P_{tot} 270W
Operating Junction Temperature, T_J . . . . . +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 65°C/W

Electrical Characteristic: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 100mA, I_B = 0, Note 1	18	–	–	V
	$V_{(BR)CES}$	I_C = 100mA, V_{BE} = 0, Note 1	36	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = 10mA, i_C = 0	4	–	–	V
Collector Cutoff Current	I_{CBO}	V_{CB} = 12V, I_E = 0	–	–	10	mA
DC Current Gain	h_{FE}	V_{CE} = 6V, I_C = 5A	10	–	–	

Note 1. Pulsed through 25mH indicator.

Electrical Characteristic (Cont'd): (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Output Power	P_O	V_{CE} = 12.5V, f = 175MHz	100	–	–	W
Power Gain	P_G	V_{CE} = 12.5V, f = 175MHz	6	7	–	dB
Impedance	Z_s	V_{CE} = 12.5V, P_i = 20W, f = 175MHz	–	1.5– j0.9	–	Ω
	Z_{cl}		–	0.5– j0.1	–	Ω
Output Capacitance	C_{ob}	V_{CB} = 12V, I_E = 0, f = 1MHz	–	354	–	pF