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NTE475 Silicon NPN Transistor RF Power Output

Description:

The NTE475 is an NPN silicon annular RF power transistor, optimized for large-scale power-amplifier and driver applications to 300MHz.

Absolute Maximum Ratings: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Collector–Emitter Voltage, V_{CEO}	18V
Collector–Base Voltage, V_{CB}	36V
Emitter–Base Voltage, V_{EB}	4V
Collector Current, I_C	1.5A
Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	11.6W
Derate Above 25°C	66.3mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$

Electrical Characteristics: ($T_A = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200\text{mA}$, Note 1	18	–	–	V
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 0.25\text{mA}$, $I_E = 0$	36	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1\text{mA}$, $I_C = 0$	4	–	–	V
Dynamic Characteristics						
Current Gain – Bandwidth Product	f_T	$I_C = 100\text{mA}$, $V_{CE} = 13.6\text{V}$, $f = 100\text{MHz}$	–	350	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 13.6\text{V}$, $I_E = 0$, $f = 100\text{kHz}$	–	12.5	20.0	pF
Functional Tests						
Power Input	P_{in}	$R_L = 50\Omega$, $P_{out} = 12\text{W}$, $f = 175\text{MHz}$	–	–	4.0	W
Common–Emitter Amplifier Power Gain	G_{pe}		4.77	5.0	–	dB
Collector Efficiency	η		80	–	–	%

Note 1. Pulsed thru a 25mH inductor.

