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NTE347 Silicon NPN Transistor RF Power Output $P_O = 3W @ 175MHz$

Description:

The NTE347 is designed for 13.6 volt, VHF large signal power amplifier applications required in military and industrial equipment operating to 240MHz.

Features:

- Low lead inductance stripline package for easier design and increased broadband capability.
- Balanced Emitter Construction for increased Safe Operating Area. The NTE347 is designed to withstand an Open or Shorted Load at rated Output Power.
- Specified 13.6 volt, 175MHz Characteristics—
Output Power = 3.0 Watts
Minimum Gain = 8.2dB
Efficiency = 50%

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

Collector-Emitter Voltage, V_{CEO}	18V
Collector-Base Voltage, V_{CB}	36V
Emitter-Base Voltage, V_{EB}	4.0V
Continuous Collector Current, I_C	0.6A
Total Device Dissipation ($T_A = +25^\circ C$), P_D	15W
Derate Above $25^\circ C$	86mW/ $^\circ C$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ C$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 200mA, I_B = 0$	18	—	—	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	$I_C = 200mA, I_B = 0$	36	—	—	V
Emitter-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_E = 1.0mA, I_C = 0$	4.0	—	—	V
Collector Cutoff Current	$V_{(BR)CBO}$	$V_{CB} = 15V, I_E = 0$	—	—	1.0	mA
ON CHARACTERISTICS						
DC Current Gain	h_{FE}	$I_C = 100mA, V_{CE} = 5.0V_{dc}$	5.0	—	—	—
DYNAMIC CHARACTERISTICS						
Output Capacitance	C_{ob}	$V_{CB} = 15V, I_E = 0, f = 0.1$ to $1.0 MHz$	—	15	30	pF

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
FUNCTIONAL TEST						
Power Input	P_{in}	$P_{OUT} = 3\text{W}$, $V_{CE} = 13.6\text{V}$, $f = 175\text{MHz}$	–	0.35	0.45	W
Common-Emitter Amplifier Power Gain	G_{PE}		8.2	–	–	dB
Collector Efficiency	η		50	–	–	%

