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## NTE352 Silicon NPN Transistor RF Power Amp, Driver

**Description:**

The NTE352 is a silicon NPN transistor in a W65 type package designed primarily for use in 12.5V VHF large-signal power amplifier applications required in commercial and industrial FM equipment to 175MHz.

**Features:**

- Specified 12.5V, 175MHz Characteristics:  
     Output Power = 75W  
     Minimum Gain = 7.0dB  
     Efficiency = 55%
- Characterized with Series Equivalent large-Signal Impedance Parameters
- Internal Matching Network Optimized for Minimum Gain Frequency Slope Response over the Range 136 to 175MHz
- Load Mismatch capability at Rated P<sub>OUT</sub> and Supply Voltage

**Absolute Maximum Ratings:**

Collector-Emitter Voltage, V <sub>CEO</sub> .....	18V
Collector-Base Voltage, V <sub>CBO</sub> .....	36V
Emitter-Base Voltage, V <sub>EBO</sub> .....	4V
Collector Current (Peak), I <sub>C</sub> .....	20A
Total Device Dissipation (Note 1, T <sub>C</sub> = +25°C), P <sub>D</sub> .....	250W
Derate Above 25°C .....	1.43mW/°C
Storage Temperature Range, T <sub>stg</sub> .....	-65° to +150°C
Thermal Resuistance, Junction-to-Case (Note 2), R <sub>thJC</sub> .....	0.7°C/W

Note 1. This device is designed for RF operation. The total device dissipation rating applies only when the device is operated as an RF amplifier.

Note 2. Thermal Resistance is determined under specified RF operating conditions by infrared measurement techniques.

**Electrical Characteristics:** (T<sub>C</sub> = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	V <sub>(BR)CEO</sub>	I <sub>C</sub> = 100mA, I <sub>B</sub> = 0	18	-	-	V
	V <sub>(BR)CES</sub>	I <sub>C</sub> = 50mA, V <sub>BE</sub> = 0	36	-	-	V
Emitter-Base Breakdown Voltage	V <sub>(BR)EBO</sub>	I <sub>E</sub> = 10mA, I <sub>C</sub> = 0	4	-	-	V
<b>ON Characteristics</b>						
DC Current Gain	h <sub>FE</sub>	I <sub>C</sub> = 5A, V <sub>CE</sub> = 5V	10	75	150	

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>Dynamic Characteristics</b>						
Output Capacitance	$C_{ob}$	$V_{CB} = 15\text{V}, I_E = 0, f = 0.1\text{MHz}$	–	235	300	pF
<b>Functional Tests</b> ( $V_{CC} = 12.5\text{V}$ unless otherwise specified)						
Common–Emitter Amplifier Power Gain	$G_{PE}$	$P_{out} = 75\text{W}, f = 175\text{MHz}$	7.0	8.5	–	dB
Collector Efficiency	$\eta$	$P_{out} = 75\text{W}, f = 175\text{MHz}$	55	60	–	%
Load Mismatch		$P_{out} = 75\text{W}, f = 175\text{MHz}, V_{SWR} = 30:1, \text{All Phase Angles}$	No Degradation in Output Power			

