



**ELECTRONICS, INC.**  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## NTE353 Silicon NPN Transistor RF Power Output $P_O = 4W @ 175MHz$

**Description:**

The NTE353 is designed for 12.5 Volt VHF large-signal amplifier applications required in military and industrial equipment operating to 250MHz.

**Features:**

- Balanced Emitter Construction with Isothermal Resistor Design to Provide the Designer with the Optimum in Transistor Ruggedness.
- Low lead Inductance Stripline Packaging for Easier Design and Increased Broadband Capabilities
- Flange Package for Easy Mounting and Better Thermal Conductivity to Heat Sink.
- Exceptional Power Output Stability versus Temperature.

**Absolute Maximum Ratings:**

Collector-Emitter Voltage, $V_{CEO}$ .....	18V
Collector-Base Voltage, $V_{CBO}$ .....	36V
Emitter-Base Voltage, $V_{EBO}$ .....	4V
Collector Current-Continuous, $I_C$ .....	1A
Total Device Dissipation ( $T_C = +25^\circ C$ , Note 1), $P_D$ .....	8W
Derate Above $25^\circ C$ .....	45.7mW/ $^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ C$

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.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA, I_B = 0$	18	-	-	V
	$V_{(BR)CES}$	$I_C = 5mA, V_{BE} = 0$	36	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 1mA, I_C = 0$	4	-	-	V
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 15V, I_E = 0$	-	-	250	$\mu A$
	$I_{CES}$	$V_{CE} = 15V, V_{BE} = 0, T_C = +55^\circ C$	-	-	5	mA

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$V_{CE} = 5\text{V}, I_C = 250\text{mA}$	5	-	-	
<b>Dynamic Characteristics</b>						
Output Capacitance	$C_{ob}$	$V_{CB} = 12.5\text{V}, I_E = 0, f = 100\text{kHz}$	-	17	20	pF
<b>Functional Test</b>						
Common-Emitter Amplifier Power Gain	$G_{PE}$	$P_{OUT} = 4\text{W}, V_{CC} = 12.5\text{V}, I_{Cmax} = 620\text{mA}, f = 175\text{MHz}$	12	-	-	dB
Collector Efficiency	$\eta$	$P_{OUT} = 4\text{W}, V_{CC} = 12.5\text{V}, f = 175\text{MHz}$	50	-	-	%

