



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° 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
OFF Characteristics						
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	μA
	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
ON Characteristics						
DC Current Gain	h_{FE}	$V_{CE} = 5\text{V}, I_C = 250\text{mA}$	5	–	–	
Dynamic Characteristics						
Output Capacitance	C_{ob}	$V_{CB} = 12.5\text{V}, I_E = 0, f = 100\text{kHz}$	–	17	20	pF
Functional Test						
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	η	$P_{OUT} = 4\text{W}, V_{CC} = 12.5\text{V}, f = 175\text{MHz}$	50	–	–	%

