

## NTE473 Silicon NPN Transistor RF Power Driver

**Description:**

The NTE473 is a silicon NPN transistor in a TO39 type package designed for amplifier and oscillator applications in military and industrial equipment. Suitable for use as output, driver or predriver stages in VHF equipment.

**Features:**

- Specified 175MHz, 28V Characteristics:  
     Output Power: 2.5W  
     Minimum Gain: 10dB  
     Efficiency: 50%

**Absolute Maximum Ratings:**

Collector–Emitter Voltage, $V_{CEO}$ .....	40V
Collector–Base Voltage, $V_{CB}$ .....	65V
Emitter–Base Voltage, $V_{EB}$ .....	4V
Collector Current, $I_C$ .....	1A
Total Device Dissipation ( $T_C = +25^\circ\text{C}$ ), $P_D$ .....	7W
Derate Above $25^\circ\text{C}$ .....	40mW/ $^\circ\text{C}$
Operating Junction Temperature Range, $T_J$ .....	$-65^\circ$ to $+200^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-65^\circ$ to $+200^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>OFF Characteristics</b>						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	$I_C = 200\text{mA}$ , $I_B = 0$ , Note 1	40	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 0.1\text{mA}$ , $I_C = 0$	4	–	–	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 30\text{V}$ , $I_B = 0$	–	–	0.1	mA
		$V_{CE} = 30\text{V}$ , $V_{BE(off)} = 1.5\text{V}$ , $T_C = +200^\circ\text{C}$	–	–	5.0	mA
	$V_{CE} = 65\text{V}$ , $V_{BE(off)} = 1.5\text{V}$	–	–	1.0	mA	
Emitter Cutoff Current	$I_{EBO}$	$V_{BE} = 4\text{V}$ , $I_C = 0$	–	–	0.1	mA

Note 1. Pulsed thru a 25mH inductor.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
<b>ON Characteristics</b>						
DC Current Gain	$h_{FE}$	$I_C = 250\text{mA}, V_{CE} = 5\text{V}$	10	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 250\text{mA}, I_B = 50\text{mA}$	–	–	1.0	V
<b>Dynamic Characteristics</b>						
Current Gain – Bandwidth Product	$f_T$	$I_C = 100\text{mA}, V_{CE} = 28\text{V}, f = 100\text{MHz}$	–	500	–	MHz
Output Capacitance	$C_{ob}$	$V_{CB} = 30\text{V}, I_E = 0, f = 100\text{kHz}$	–	8.0	10.0	pF
<b>Functional Tests</b>						
Power Input	$P_{in}$	$V_{CE} = 28\text{V}, P_{out} = 2.5\text{W}, f = 175\text{MHz}$	–	–	0.25	W
Common–Emitter Amplifier Power Gain	$G_{pe}$		10	–	–	dB
Collector Efficiency	$\eta$		50	–	–	%

