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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°C	40mW/ $^\circ\text{C}$
Operating Junction Temperature Range, T_J	-65° to $+200^\circ\text{C}$
Storage Temperature Range, T_{stg}	-65° to $+200^\circ\text{C}$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
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
ON Characteristics						
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
Dynamic Characteristics						
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
Functional Tests						
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	η		50	–	–	%

