NTE327
Silicon NPN Transistor
Power Amp, Switch

Description:
The NTE327 is a silicon NPN transistor in a TO3 type package designed for use in industrial amplifier and switching circuit applications.

Features:
● High Collector–Emitter Sustaining Voltage
● High DC Current Gain
● Low Collector–Emitter Saturation Voltage
● Fast Switching Times

Absolute Maximum Ratings:
Collector–Emitter Voltage, V_{CEO} 150V
Collector–Base Voltage, V_{CB} 180V
Emitter–Base Voltage, V_{EB} 6V
Collector Current, I_C
        Continuous 25A
        Peak 50A
Base Current, I_B 10A
Total Device Dissipation (T_C = +25°C), P_D 200W
        Derate Above 25°C . . . . 1.14W/°C
Operating Junction Temperature Range, T_J . . . . −65° to +200°C
Storage Temperature Range, T_{stg} . . . . −65° to +200°C
Maximum Thermal Resistance, Junction–to–Case, R_{thJC} . . . . 0.875°C/W

Electrical Characteristics: (T_C = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 50mA, I_B = 0, Note 1	150	–	–	V
Collector Cutoff Current	I_{CEX}	V_{CE} = 150V, $V_{EB(off)}$ = 1.5V	–	–	10	mA
		V_{CE} = 150V, $V_{EB(off)}$ = 1.5V, T_C = +150°C	–	–	1.0	mA
	I_{CEO}	V_{CE} = 75V, I_B = 0	–	–	50	μA
	I_{CBO}	V_{CB} = 180V, I_E = 0	–	–	50	μA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 6V, I_C = 0	–	–	100	μA

Electrical Characteristics (Cont'd): $(T_C = +25°C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	$V_{CE} = 2V$, $I_C = 0.5A$	50	–	–	
		$V_{CE} = 2V$, $I_C = 10A$	30	–	120	
		$V_{CE} = 2V$, $I_C = 25A$	12	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10A$, $I_B = 1.0A$	–	–	1.0	V
		$I_C = 25A$, $I_B = 2.5A$	–	–	1.8	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10A$, $I_B = 1.0A$	–	–	1.8	V
		$I_C = 25A$, $I_B = 2.5A$	–	–	2.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	$I_C = 10A$, $V_{CE} = 2V$	–	–	1.8	V
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	$V_{CE} = 10V$, $I_C = 1A$, $f = 10MHz$, Note 2	40	–	–	MHz
Output Capacitance	C_{ob}	$V_{CB} = 10V$, $I_E = 0$, $f = 0.1MHz$	–	–	300	pF
Switching Characteristics						
Rise Time	t_r	$V_{CC} = 80V$, $I_C = 10A$, $I_{B1} = 1A$, $V_{BE(off)} = 6V$	–	–	0.3	μ
Storage Time	t_s	$V_{CC} = 80V$, $I_C = 10A$, $I_{B1} = I_{B2} = 1A$	–	–	1.0	µs
Fall Time	t_f		–	–	0.25	µs

Note 1. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

Note 2. $f_T = |h_{fe}| \bullet f_{test}$.