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NTE60 (NPN) & NTE61 (PNP)
Silicon Complementary Transistors
High Power Audio, Disk Head Positioner for Linear Applications

Description:

The NTE60 (NPN) and NTE61 (PNP) are complementary silicon power transistors in a TO3 type package designed for high power audio, disk head positioners, and other linear applications.

Features:

- High Safe Operating Area: 250W @ 50V
- For Low Distortion Complementary Designs
- High DC Current Gain: h_{FE} = 25 Min @ I_C = 5A

Absolute Maximum Ratings:

Collector–Emitter Voltage, $V_{CEO(sus)}$ 140V
Collector–Base Voltage, V_{CBO} 140V
Emitter–Base Voltage, V_{EBO} 5V
Continuous Collector Current, I_C 20A
Continuous Base Current, I_B 5A
Continuous Emitter Current, I_E 25A
Total Power Dissipation (T_C = +25°C), P_D 250W
Derate Above 25°C . . . . . 1.43W/°C
Operating Junction Temperature Range, T_J . . . . . –65° to +200°C
Storage Temperature Range, T_{stg} . . . . . –65° to +200°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 0.70°C/W
Lead Temperature (During Soldering, 1/16” from Case, 10sec Max), T_L . . . . . +265°C

Note 1. Matched complementary pairs are available upon request (NTE61MCP). Matched complementary pairs have their gain specification (h_{FE}) matched to within 10% of each other.

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 = 200mA, I_B = 0, Note 2	140	–	–	V
Collector Cutoff Current	I_{CEX}	V_{CE} = 140V, $V_{BE(off)}$ = 1.5V	–	–	100	µA
		V_{CE} = 140V, $V_{BE(off)}$ = 1.5V, T_C = +150°C	–	–	2	mA
	I_{CEO}	V_{CE} = 140V, I_B = 0	–	–	250	µA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	100	µA

Note 2. Pulse Test: Pulse Width = 300µs, Duty Cycle = 2%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Second Breakdown						
Second Breakdown Collector Current with Base Forward Bias	$I_{S/b}$	V_{CE} = 50V, t = 1s (non–repetitive)	5	–	–	μA
		V_{CE} = 100V, t = 1s (non–repetitive)	1	–	–	μA
ON Characteristics						
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 5A	25	–	150	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 5A, I_B = 500mA	–	–	1	V
Base–Emitter On Voltage	$V_{BE(on)}$	V_{CE} = 2V, I_C = 5A	–	–	2	V
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_T	V_{CE} = 10V, I_C = 500mA, f_{test} = 0.5MHz	2	–	–	MHz
Output Capacitance	C_{ob}	V_{CB} = 10V, I_E = 0, f_{test} = 1MHz	–	–	1000	pF