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NTE54 (NPN) & NTE55 (PNP)
Silicon Complementary Transistors
High Frequency Driver for Audio Amplifier

Description:

The NTE54 (NPN) and NTE55 (PNP) are silicon complementary transistors in a TO220 type case designed for use as a high frequency driver in audio amplifier applications.

Features:

- DC Current Gain Specified to 4A:
  h_{FE} = 40 Min @ I_C = 3A
  = 20 MIn @ I_C = 4A
- Collector–Emitter Sustaining Voltage: $V_{CEO(sus)}$ = 150V Min
- High Current Gain–Bandwidth Product: f_T = 30MHz Min @ I_C = 500mA

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 150V
Collector–Base Voltage, V_{CBO} 150V
Emitter–Base Voltage, $V_{EB)}$ 5V
Collector Current, I_C
Continuous 8A
Peak 16A
Total Power Dissipation (T_C = +25°C), P_D 50W
Derate Above 25°C . . . . . . 0.04W/°C
Total Power Dissipation (T_A = +25°C), P_D 2W
Derate Above 25°C . . . . . . 0.016W/°C
Operating Junction Temperature, T_J . . . . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . . +2.5°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . . . . +62.5°C/W

Note 1. Matched complementary pairs are available upon request (NTE55MCP). Matched complementary pairs have their gain specification (h_{FE}) matched to within 10% of each other.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Sustaining Voltage	$V_{CE(sus)}$	I_C = 10mA, I_B = 0, Note 2	150	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 150V, I_B = 0	–	–	0.1	mA
	I_{CBO}	V_{CE} = 150V, I_E = 0	–	–	10	µA
Emitter Cutoff Current	I_{EBO}	V_{CE} = 150V, I_C = 0	–	–	10	µA
ON Characteristics (Note 2)						
DC Current Gain	h_{FE}	V_{CE} = 2V, I_C = 0.1A	40	–	–	
		V_{CE} = 2V, I_C = 2A	40	–	–	
		V_{CE} = 2V, I_C = 0.1A	40	–	–	
		V_{CE} = 2V, I_C = 0.1A	20	–	–	
DC Current Gain Linearity	h_{FE}	V_{CE} from 2V to 20V, I_C from 0.1A to 3A	–	2	–	
		NPN to PNP	–	3	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 0.1A	–	–	0.5	V
Base–Emitter ON Voltage	$V_{BE(on)}$	V_{CE} = 2V, I_C = 1A	–	–	1	V
Dynamic Characteristics						
Current Gain–Bandwidth Product	f_t	V_{CE} = 10V, I_C = 500mA, f_{test} = 10MHz, Note 3	30	–	–	MHz

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

Note 3. $f_T = |h_{fe}| \bullet f_{test}$