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NTE191 (NPN) & NTE240 (PNP)
Silicon Complementary Transistors
High Voltage Video Amplifier

Description:

The NTE191 (NPN) and NTE240 (PNP) are silicon complementary transistors in a TO202N type package designed for high–voltage video and luminance output stages in TV receivers.

Features:

- High Collector–Emitter Breakdown Voltage: $V_{(BR)CEO}$ = 300V (Min) @ I_C = 1mA
- Low Collector–Emitter Saturation Voltage: $V_{CE(sat)}$ = 0.75V (Max) @ I_C = 30mA
- Low Collector–Base Capacitance: C_{cb} = 3pF (Max) @ V_{CB} = 20V

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 300V
Collector–Base Voltage, V_{CB} 300V
Emitter–Base Voltage, V_{EBO}
NTE191 . . . . . 6V
NTE240 . . . . . 5V
Continuous Collector Current, I_C 500mA
Total Device Dissipation (T_A = +25°C), P_D 1W
Derate Above 25°C . . . . . 8mW/°C
Total Device Dissipation (T_C = +25°C), P_D 10W
Derate Above 25°C . . . . . 80mW/°C
Operating Junction Temperature Range, T_J . . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 12.5°C/W
Thermal Resistance, Junction–to–Ambient (Note 2), R_{thJA} . . . . . 125°C/W

Note 1. NTE191 is a **discontinued** device and **no longer available**.
Note 2. R_{thJA} is measured with the device soldered into a typical printed circuit board.

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

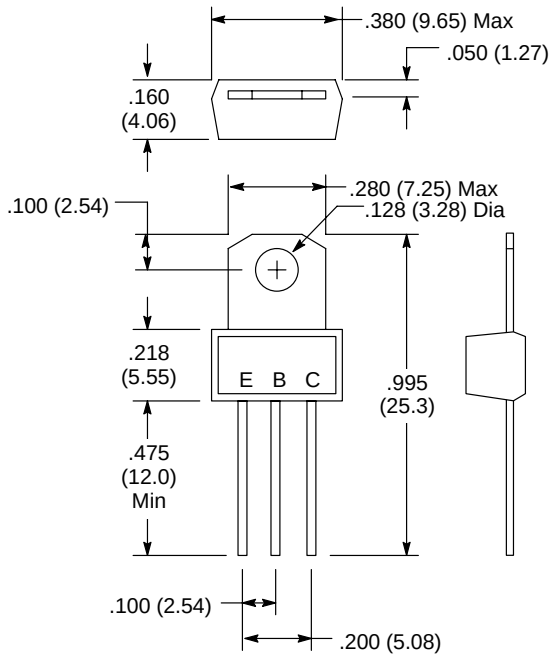
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 1mA, I_B = 0, Note 3	300	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = 100µA, I_E = 0	300	–	–	V
Emitter–Base Breakdown Voltage NTE191	$V_{(BR)EBO}$	I_E = 100µA, I_C = 0	6	–	–	V
NTE240			5	–	–	V

Note 3. Pulse Test: Pulse Width ≤ 300µs, Duty Cycle ≤ 2%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics (Cont'd)						
Collector Cutoff Current	I_{CBO}	V_{CB} = 200V, I_E = 0	–	–	0.2	μA
Emitter Cutoff Current	I_{EBO}	V_{BE} = 6V, I_C = 0	–	–	0.1	μA
ON Characteristics						
DC Current Gain (NTE191 & NTE240)	h_{FE}	I_C = 1mA, V_{CE} = 10V, Note 3	25	–	–	
NTE191		I_C = 10mA, V_{CE} = 10V, Note 3	40	–	–	
		I_C = 30mA, V_{CE} = 10V, Note 3	40	–	–	
NTE240		I_C = 10mA, V_{CE} = 10V, Note 3	30	–	–	
		I_C = 30mA, V_{CE} = 10V, Note 3	30	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 30mA, I_B = 3mA	–	–	0.75	V
Base–Emitter ON Voltage NTE191	$V_{BE(on)}$	I_C = 30mA, V_{CE} = 10V	–	–	0.85	V
NTE240			–	–	0.90	V
Dynamic Characteristics						
Current Gain–Bandwidth Product NTE191	f_T	I_C = 10mA, V_{CE} = 20V, f = 100MHz, Note 2	45	–	–	MHz
NTE240			60	–	–	MHz
Collector–Base Capacitance NTE191	C_{cb}	V_{CB} = 20V, I_E = 0, f = 1MHz	–	–	3.0	pF
NTE240			–	–	8.0	pF

Note 3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.



Collector Connected to Tab