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NTE291 (NPN) & NTE292 (PNP)
Silicon Complementary Transistors
Medium Power Amp, Switch

Description:

The NTE291 (NPN) and NTE292 (PNP) are General–Purpose Medium–Power silicon complementary transistors in a TO220 type package designed for switching and amplifier applications. They are especially designed for series and shunt regulators and as a driver and output stage of high–fidelity amplifiers.

Features:

- Low Saturation Voltage

Absolute Maximum Ratings:

Collector–to–Base Voltage, V_{CBO} . . . 130V
Collector–to–Emitter Voltage (R_{BB} = 100Ω, V_{BB} = 0), V_{CEX} . . . 130V
Collector–to–Emitter Voltage, V_{CEO} . . . 120V
Emitter–To–Base Voltage, V_{EBO} . . . 5V
Continuous Collector Current ($T_C \leq$ +106°C), I_C . . . 4A
Continuous Base Current ($T_C \leq$ +130°C), I_B . . . 2A
Power Dissipation, P_D
  T_C = +100°C . . . 16W
    Derate Linearly Above T_C = +100°C . . . 0.32W/°C
  T_C = +25°C . . . 40W
    Derate Linearly Above T_C = +25°C . . . 0.32W/°C
  T_A = +25°C . . . 1.8W
    Derate Linearly Above T_A = +25°C . . . 0.0144W/°C
Operating Temperature Range, T_{opr} . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . –65° to +150°C
Lead Temperature (During Soldering), T_L
  At distance ≥ 1/8 in. (3.17mm) from case for 10s Max . . . +235°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . 3.125°C/W
Thermal Resistance, Junction–to–Ambient, R_{thJA} . . . 70°C/W

Note 1. NTE292MCP is a matched complementary pair containing 1 each of NTE291 (NPN) and NTE292 (PNP).

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	I_{CEO}	V_{CE} = 60V, I_B = 0	–	–	1	mA
Collector Cutoff Current	I_{CER}	R_{BE} = 100Ω, V_{CE} = 120V	–	–	0.1	mA
		R_{BE} = 100Ω, V_{CE} = 120V, T_C = +100°C	–	–	2	mA
Collector Cutoff Current	I_{CEX}	V_{CE} = 120V, V_{BE} = –1.5V	–	–	0.1	mA
		V_{CE} = 120V, V_{BE} = –1.5V, T_C = +100°C	–	–	2	mA
Emitter Cutoff Current	I_{EBO}	V_{BE} = –5V, I_C = 0	–	–	1	mA
Collector–to–Emitter Sustaining Voltage	$V_{CEO(sus)}$	I_C = 0.1A, I_B = 0, Note 1	120	–	–	V
Collector–to–Emitter Sustaining Voltage	$V_{CER(sus)}$	R_{BE} = 100Ω, I_C = 0.1A, Note 2	130	–	–	V
DC Forward Current	h_{FE}	V_{CE} = 4V, I_C = 1.5A, Note 1	15	–	150	
		V_{CE} = 2.5V, I_C = 4A, Note 1	2	–	–	
Base–to–Emitter Voltage	V_{BE}	V_{CE} = 4V, I_C = 1.5A, Note 1	–	–	2	V
		V_{CE} = 2.5V, I_C = 4A, Note 1	–	–	3.5	V
Collector–to–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1.5A, I_B = 0.15A, Note 1	–	–	1.2	V
		I_C = 4A, I_B = 2A, Note 1	–	–	2.5	V
Small Signal Forward Current Transfer Ratio	h_{fe}	V_{CE} = 4V, I_C = 0.5A, f = 50kHz	20	–	–	
Gain Bandwidth Product	f_T	V_{CE} = 4V, I_C = 0.5A	4	–	–	MHz
Small Signal Forward Current Transfer Ratio	$\|h_{fe}\|$	V_{CE} = 4V, I_C = 0.5A, f = 50kHz	4	–	–	
Collector–to–Base Capacitance	C_{obo}	V_{CB} = 10V, I_C = 0, f = 1MHz	–	–	250	pF

Note 1. Pulsed: Pulse Duration = 300µs, Duty Factor = 0.018.

Note 2. **CAUTION:** The sustaining voltage ($V_{CER(sus)}$) ***MUST NOT*** be measured on a curve tracer.