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## NTE2341(NPN) & NTE2342 (PNP) Silicon Complementary Transistors Darlington Driver

**Description:**

The NTE2341 (NPN) and NTE2342 (PNP) are silicon complementary Darlington transistors in a TO92 type package designed for general purpose, low frequency applications and as relay drivers.

**Absolute Maximum Ratings:**

Collector–Base Voltage, $V_{CBO}$ .....	100V
Collector–Emitter Voltage, $V_{CEO}$ .....	80V
Emitter–Base Voltage, $V_{EBO}$ .....	5V
DC Collector Current, $I_C$ .....	1A
Total Power Dissipation, $P_{tot}$	
$T_A = +25^\circ\text{C}$ .....	800mW
$T_A = +25^\circ\text{C}$ , Note 1 .....	1W
Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	–65° to +150°C
Maximum Thermal Resistance, Junction–to–Ambient, $R_{thJA}$	156K/W
Note 1 .....	125K/W

Note 1. Mounted on a PC Board, max lead length 4mm, mounting pad for collector lead min 10mm x 10mm.

**Electrical Characteristics:** ( $T_J = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 50\text{mA}, I_B = 0$	80	–	–	V
Collector–Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 100\mu\text{A}, I_B = 0$	100	–	–	V
Emitter–Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 100\mu\text{A}, I_C = 0$	5	–	–	V
Collector Cutoff Current	$I_{CEO}$	$V_{CE} = 40\text{V}, I_B = 0$	–	–	500	nA
	$I_{CBO}$	$V_{CB} = 100\text{V}, I_E = 0$	–	–	100	nA
Emitter Cutoff Current	$I_{EBO}$	$V_{CE} = 4\text{V}, I_C = 0$	–	–	100	nA
DC Current Gain	$h_{FE}$	$I_C = 150\text{mA}, V_{CE} = 10\text{V}$	1000	–	–	
		$I_C = 500\text{mA}, V_{CE} = 10\text{V}$	2000	–	–	

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 500\text{mA}, I_B = 0.5\text{mA}$	–	–	1.3	V
		$I_C = 1\text{A}, I_B = 1\text{mA}$	–	–	1.8	V
Base–Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 1\text{A}, I_B = 1\text{mA}, \text{Note 3}$	–	–	2.2	V
Transition Frequency	$f_T$	$I_C = 500\text{mA}, V_{CE} = 5\text{V}, f = 100\text{MHz}$	–	200	–	MHz

