



## NTE2540 Silicon NPN Transistor Darlington, High Voltage Switch

### **Features:**

- High DC Current Gain:  $h_{FE} = 600$  Min ( $V_{CE} = 2V$ ,  $I_C = 2A$ )
- Monolithic Construction w/Built-In Base-Emitter Shunt Resistor

### **Absolute Maximum Ratings:** ( $T_A = +25^\circ C$ unless otherwise specified)

Collector Base Voltage, $V_{CBO}$ .....	600V
Collector Emitter Voltage, $V_{CEO}$ .....	400V
Emitter Base Voltage, $V_{EBO}$ .....	5V
Collector Current, $I_C$ .....	6A
Base Current, $I_B$ .....	1A
Collector Power Dissipation, $P_C$	
$T_A = +25^\circ C$ .....	2W
$T_C = +25^\circ C$ .....	25W
Operating Junction Temperature, $T_J$ .....	+150°C
Storage Temperature Range, $T_{stg}$ .....	-55° to +150°C

### **Electrical Characteristics:** ( $T_A = +25^\circ C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cutoff Current	$I_{CBO}$	$V_{CB} = 600V$ , $I_E = 0$	—	—	0.5	mA
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5V$ , $I_C = 0$	—	—	3	mA
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10mA$ , $I_B = 0$	400	—	—	V
DC Current Gain	$h_{FE}$	$V_{CE} = 2V$ , $I_C = 2A$	600	—	—	
		$V_{CE} = 2V$ , $I_C = 4A$	100	—	—	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 4A$ , $I_B = 40mA$	—	—	2.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 4A$ , $I_B = 40mA$	—	—	2.5	V
Emitter-Collector Forward Voltage	$V_{ECF}$	$I_E = 4A$ , $I_B = 0$	—	—	3.0	V
Collector Output Capacitance	$C_{ob}$	$V_{CB} = 50V$ , $I_E = 0$ , $f = 1MHz$	—	35	—	pF
Turn-On Time	$t_{on}$	$V_{CC} = 100V$ , $I_{B1} = -I_{B2} = 40mA$ , Duty Cycle ≤ 1%	—	1	—	μs
Storage Time	$t_{stg}$		—	8	—	μs
Fall Time	$t_f$		—	5	—	μs

Darlington Internal Schematic

