



ELECTRONICS, INC.  
 44 FARRAND STREET  
 BLOOMFIELD, NJ 07003  
 (973) 748-5089

## TIP100, TIP101, TIP102 Silicon NPN Darlington Power Amp, Switch TO-220 Type Package

**Absolute Maximum Ratings:** ( $T_A = +25^\circ\text{C}$ , Note 1 unless otherwise specified)

Collector-Base Voltage, $V_{CBO}$		
TIP100	.....	60V
TIP101	.....	80V
TIP102	.....	100V
Collector-Emitter Voltage, $V_{CEO}$		
TIP100	.....	60V
TIP101	.....	80V
TIP102	.....	100V
Emitter-Base Voltage, $V_{EBO}$		5V
Collector Current, $I_C$		
DC	.....	5A
Pulse	.....	8A
Base Current, $I_B$		1A
Collector Dissipation, $P_C$		
$T_A = +25^\circ\text{C}$	.....	2W
$T_C = +25^\circ\text{C}$	.....	80W
Operating Junction Temperature, $T_J$		+150°C
Storage Temperature Range, $T_{stg}$		-65° to +150°C

Note 1. These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

**Electrical Characteristics:** ( $T_A = +25^\circ\text{C}$ , Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Emitter Sustaining Voltage TIP100	$V_{CEO(sus)}$	$I_C = 30\text{mA}, I_B = 0$	60	-	-	V
TIP101			80	-	-	V
TIP102			100	-	-	V
Collector Cutoff Current TIP100	$I_{CEO}$	$V_{CE} = 30\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$
TIP101		$V_{CE} = 40\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$
TIP102		$V_{CE} = 50\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$
TIP100	$I_{CBO}$	$V_{CE} = 60\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$
TIP101		$V_{CE} = 80\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$
TIP102		$V_{CE} = 100\text{V}, I_B = 0$	-	-	50	$\mu\text{A}$

Note 2. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

**Electrical Characteristics (Cont'd):** ( $T_A = +25^\circ\text{C}$ , Note 2 unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Emitter Cutoff Current	$I_{EBO}$	$V_{EB} = 5\text{V}, I_C = 0$	-	-	2	mA
DC Current Gain	$h_{FE}$	$V_{CE} = 4\text{V}, I_C = 3\text{A}$	1000	-	20000	
		$V_{CE} = 4\text{V}, I_C = 8\text{A}$	200	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 3\text{A}, I_B = 6\text{mA}$	-	-	2.0	V
		$I_C = 8\text{A}, I_B = 80\text{mA}$	-	-	2.5	V
Base-Emitter ON Voltage	$V_{BE(on)}$	$V_{CE} = 4\text{V}, I_C = 8\text{A}$	-	-	2.8	V
Output Capacitance	$C_{ob}$	$V_{CB} = 10\text{V}, I_E = 0, f = 0.1\text{MHz}$	-	-	20	pF

Note 2. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .

