ELECTRONICS, INC.
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TIP100, TIP101, TIP102
Silicon NPN Darlington Power Amp, Switch
TO–220 Type Package

Absolute Maximum Ratings: (T_A = +25°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°C 2W
- T_C = +25°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°C, Note 2 unless otherwise specified)

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

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

Electrical Characteristics (Cont'd): (T_A = +25°C, Note 2 unless otherwise specified)

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

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