ELECTRONICS, INC.
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TIP35E
Silicon NPN Transistor
General Purpose Amp, Switch
TO–247 Type Package

Features:

- Collector–Emitter Sustaining Voltage: $V_{CE(sus)}$ = 140V Min
- Current Gain Bandwidth Product: f_T = 3MHz Min @ I_C = 1A

Absolute Maximum Ratings:

Collector–Emitter Voltage, V_{CEO} 140V
Collector–Base Voltage, V_{CBO} 180V
Emitter–Base Voltage, V_{EBO} 5V
Continuous Current, I_C
  Continuous 25A
  Pulse 40A
Base Current, I_B 5A
Power Dissipation (T_C = +25°C), P_D 125W
  Derate Above +25°C . . . . . $1.0W/°C$
Operating Junction Temperature Range, T_J . . . . . –65° to +150°C
Storage Temperature Range, T_{stg} . . . . . –65° to +150°C
Thermal Resistance, Junction–to–Case, R_{thJC} . . . . . 1.0°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Collector–Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = 30mA, I_B = 0, Note 1	140	–	–	V
Collector Cutoff Current	I_{CEO}	V_{CE} = 90V, I_B = 0	–	–	1.0	mA
	I_{CES}	V_{CE} = 180V, V_{BE} = 0	–	–	0.7	mA
Emitter–Base Cutoff Current	I_{EBO}	V_{EB} = 5V, I_C = 0	–	–	1.0	mA
ON Characteristics (Note 1)						
DC Current Gain	h_{FE}	V_{CE} = 4V, I_C = 1.5A	25	–	–	
		V_{CE} = 4V, I_C = 15A	8	–	–	
Collector–Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 15A, I_B = 3A	–	–	2.5	V
		I_C = 25A, I_B = 6.25A	–	–	5.0	V
Base–Emitter ON Voltage	$V_{BE(on)}$	V_{CE} = 4V, I_C = 15A	–	–	2.0	V
		V_{CE} = 4V, I_C = 25A	–	–	4.0	V

Note 1. Pulsed: Pulse Duration ≤ 300μs, Duty Cycle ≤ 2%.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Current Gain Bandwidth Product	f_T	V_{CE} = 10V, I_C = 1A, f = 1MHz	3	–	–	MHz
Small−Signal Current Gain	h_{fe}	V_{CE} = 4V, I_C = 1A, f = 1kHz	12	–	–	
Switching Characteristics						
Turn On Time	t_{on}	I_C = 15A, I_{B1} = −I_{B2} = 1.5A, $V_{BE(off)}$ = 4.15V, R_L = 2Ω	–	–	1.2	μs
Turn Off Time	t_{off}		–	–	0.9	μs

Note 1. Pulsed: Pulse Duration ≤ 300μs, Duty Cycle ≤ 2%.

Note 2. $f_T = |h_{fe}| \bullet f_{TEST}$