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TIP147T

PNP Epitaxial Silicon Darlington Transistor

Features

- Monolithic Construction with Built-in Base-Emitter Shunt Resistors
- High DC Current Gain: $h_{FE} = 1000$ at $V_{CE} = -4$ V, $I_C = -5$ A (Minimum)
- Industrial Use
- Complement to TIP142T

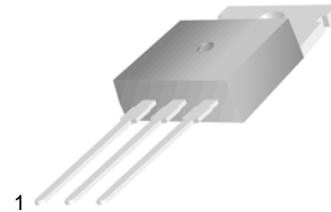
ORDERING INFORMATION

Part Number	Top Mark	Package	Packing Method
TIP147T	TIP147	TO-220 3L (Single Gauge)	Bulk
TIP147TTU	TIP147	TO-220 3L (Single Gauge)	Rail



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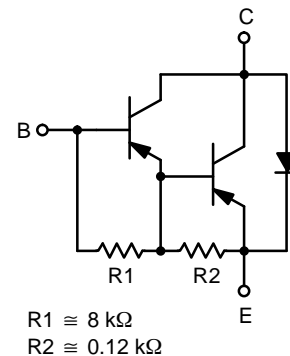
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1.Base 2.Collector 3.Emitter

**TO-220
MOLDED
CASE 340AT**

EQUIVALENT CIRCUIT



TIP147T

Table 1. ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_{CBO}	Collector–Base Voltage	–100	V
V_{CEO}	Collector–Emitter Voltage	–100	V
V_{EBO}	Emitter–Base Voltage	–5	V
I_C	Collector Current (DC)	–10	A
I_{CP}	Collector Current (Pulse)	–15	A
I_B	Base Current (DC)	–0.5	A
P_C	Collector Dissipation ($T_C = 25^\circ\text{C}$)	80	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	–65 to 150	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

Table 2. ELECTRICAL CHARACTERISTICS Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
$V_{CEO(sus)}$	Collector–Emitter Sustaining Voltage	$I_C = -30\text{ mA}, I_B = 0$	–100			V
I_{CEO}	Collector Cut–Off Current	$V_{CE} = -50\text{ V}, I_B = 0$			–2	mA
I_{CBO}	Collector Cut–Off Current	$V_{CB} = -100\text{ V}, I_E = 0$			–1	mA
I_{EBO}	Emitter Cut–Off Current	$V_{EB} = -5\text{ V}, I_C = 0$			–2	mA
h_{FE}	DC Current Gain	$V_{CE} = -4\text{ V}, I_C = -5\text{ A}$	1000			
		$V_{CE} = -4\text{ V}, I_C = -10\text{ A}$	500			
$V_{CE(sat)}$	Collector–Emitter Saturation Voltage	$I_C = -5\text{ A}, I_B = -10\text{ mA}$			–2	V
		$I_C = -10\text{ A}, I_B = -40\text{ mA}$			–3	
$V_{BE(sat)}$	Base–Emitter Saturation Voltage	$I_C = -10\text{ A}, I_B = -40\text{ mA}$			–3.5	V
$V_{BE(on)}$	Base–Emitter On Voltage	$V_{CE} = -4\text{ V}, I_C = -10\text{ A}$			–3	V
t_D	Delay Time	$V_{CC} = -30\text{ V}, I_C = -5\text{ A},$ $I_{B1} = -20\text{ mA},$ $I_{B2} = 20\text{ mA},$ $R_L = 6\ \Omega$		0.15		μs
t_R	Rise Time			0.55		μs
t_{STG}	Storage Time			2.50		μs
t_F	Fall Time			2.50		μs

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

TIP147T

Typical Performance Characteristics

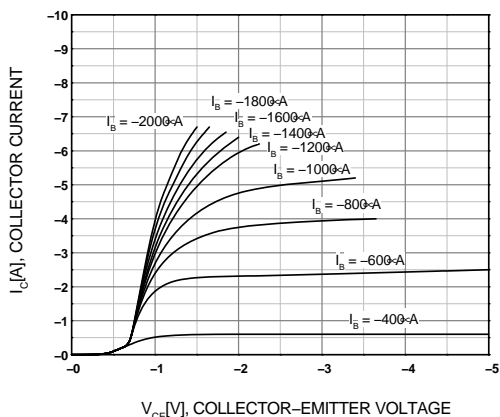


Figure 1. Static Characteristic

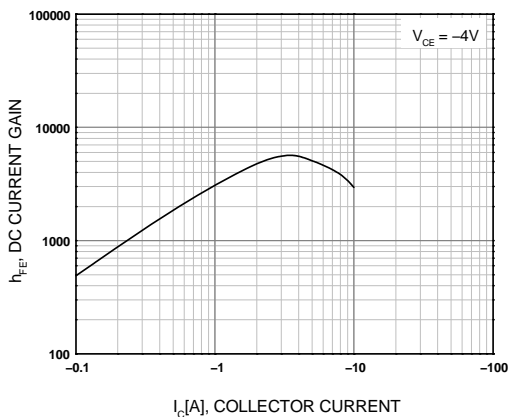


Figure 2. DC Current Gain

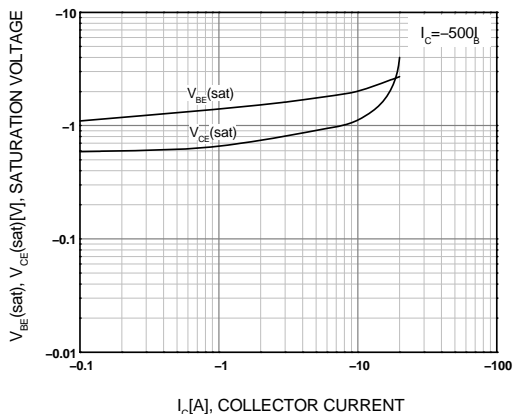


Figure 3. Collector-Emitter Voltage and Base-Emitter Saturation Voltage

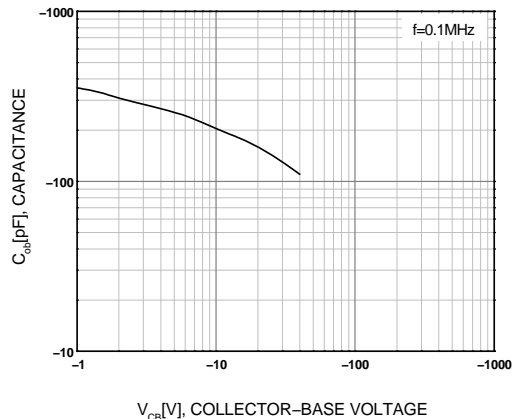


Figure 4. Collector Output Capacitance

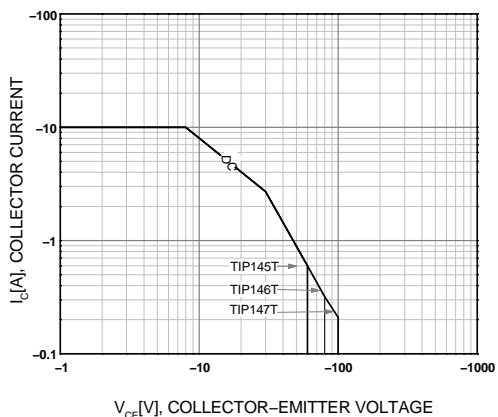


Figure 5. Safe Operating Area

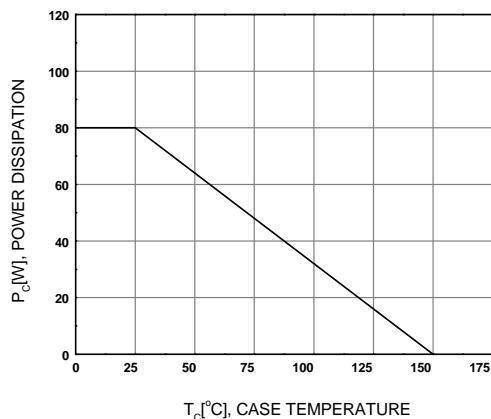
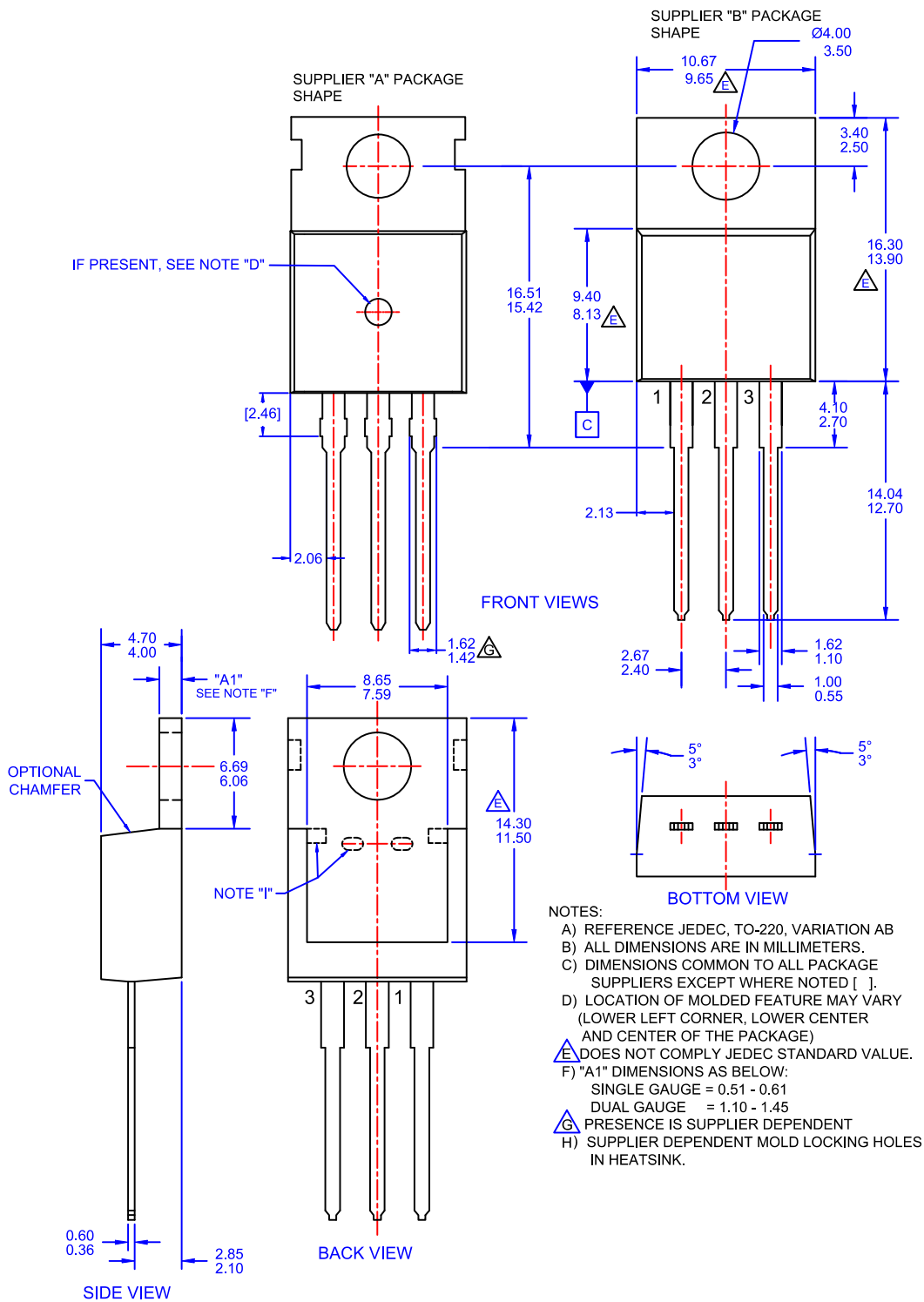


Figure 6. Power Derating

TIP147T


PACKAGE DIMENSIONS

TO-220-3LD
CASE 340AT
ISSUE O



- NOTES:
- A) REFERENCE JEDEC, TO-220, VARIATION AB
 - B) ALL DIMENSIONS ARE IN MILLIMETERS.
 - C) DIMENSIONS COMMON TO ALL PACKAGE SUPPLIERS EXCEPT WHERE NOTED [].
 - D) LOCATION OF MOLDED FEATURE MAY VARY (LOWER LEFT CORNER, LOWER CENTER AND CENTER OF THE PACKAGE)
 - E) DOES NOT COMPLY JEDEC STANDARD VALUE.
 - F) "A1" DIMENSIONS AS BELOW:
SINGLE GAUGE = 0.51 - 0.61
DUAL GAUGE = 1.10 - 1.45
 - G) PRESENCE IS SUPPLIER DEPENDENT
 - H) SUPPLIER DEPENDENT MOLD LOCKING HOLES IN HEATSINK.

TIP147T

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