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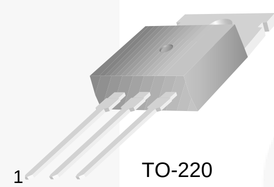
FAIRCHILD

November 2014

TIP125 / TIP126 / TIP127
PNP Epitaxial Darlington Transistor

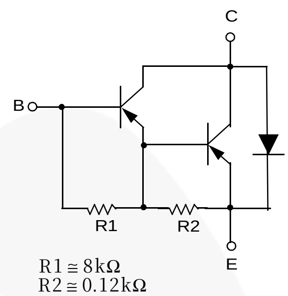
Features

- Medium Power Linear Switching Applications
- Complementary to TIP120 / TIP121 / TIP122



1.Base 2.Collector 3.Emitter

Equivalent Circuit



Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP125	TIP125	TO-220 3L (Single Gauge)	Bulk
TIP125TU	TIP125	TO-220 3L (Single Gauge)	Rail
TIP126	TIP126	TO-220 3L (Single Gauge)	Bulk
TIP126TU	TIP126	TO-220 3L (Single Gauge)	Rail
TIP127	TIP127	TO-220 3L (Single Gauge)	Bulk
TIP127TU	TIP127	TO-220 3L (Single Gauge)	Rail

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_C = 25°C unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	TIP125	-60	V
		TIP126	-80	
		TIP127	-100	
V_{CEO}	Collector-Emitter Voltage	TIP125	-60	V
		TIP126	-80	
		TIP127	-100	
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current (DC)		-5	A
I_{CP}	Collector Current (Pulse)		-8	A
I_B	Base Current (DC)		-120	mA
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-65 to 150	°C

Thermal Characteristics

Values are at T_C = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_C	Collector Dissipation (T_A = 25°C)	2	W
	Collector Dissipation (T_C = 25°C)	65	

Electrical Characteristics

Values are at T_C = 25°C unless otherwise noted.

Symbol	Parameter		Conditions	Min.	Max.	Unit
V_{CEO}(sus)	Collector-Emitter Sustaining Voltage	TIP125	I_C = -100 mA, I_B = 0	-60		V
		TIP126		-80		
		TIP127		-100		
I_{CEO}	Collector Cut-Off Current	TIP125	V_{CE} = -30 V, I_B = 0		-2	mA
		TIP126	V_{CE} = -40 V, I_B = 0		-2	
		TIP127	V_{CE} = -50 V, I_B = 0		-2	
I_{CBO}	Collector Cut-Off Current	TIP125	V_{CB} = -60 V, I_E = 0		-1	mA
		TIP126	V_{CB} = -80 V, I_E = 0		-1	
		TIP127	V_{CB} = -100 V, I_E = 0		-1	
I_{EBO}	Emitter Cut-Off Current		V_{EB} = -5 V, I_C = 0		-2	mA
h_{FE}	DC Current Gain(1)		V_{CE} = -3 V, I_C = -0.5 A	1000		
			V_{CE} = -3 V, I_C = -3 A	1000		
V_{CE}(sat)	Collector-Emitter Saturation Voltage(1)		I_C = -3 A, I_B = -12 mA		-2	V
			I_C = -5 A, I_B = -20 mA		-4	
V_{BE}(on)	Base-Emitter On Voltage(1)		V_{CE} = -3 V, I_C = -3 A		-2.5	V
C_{ob}	Output Capacitance		V_{CB} = -10 V, I_E = 0, f = 0.1 MHz		300	pF

Note:

1. Pulse test: pw ≤ 300 μs, duty cycle ≤ 2%.

Typical Performance Characteristics

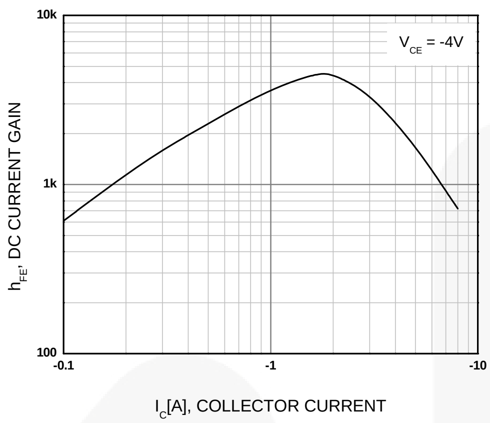


Figure 1. DC Current Gain

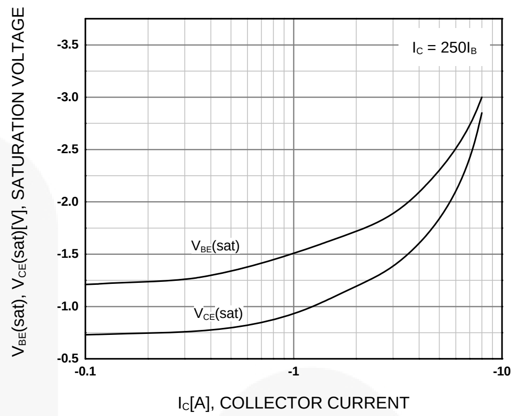


Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

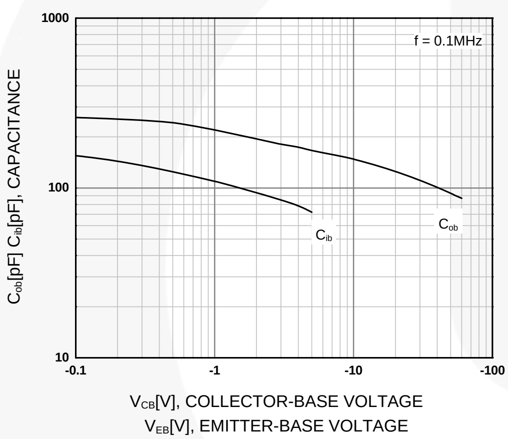


Figure 3. Output and Input Capacitance vs. Reverse Voltage

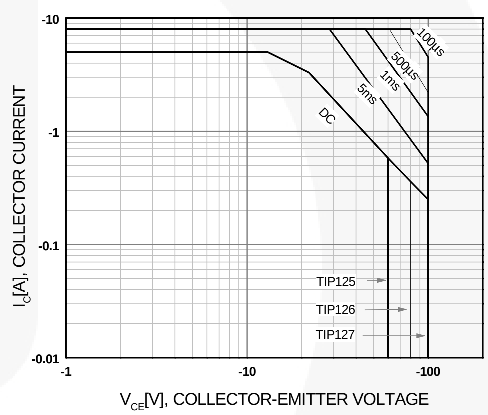


Figure 4. Safe Operating Area

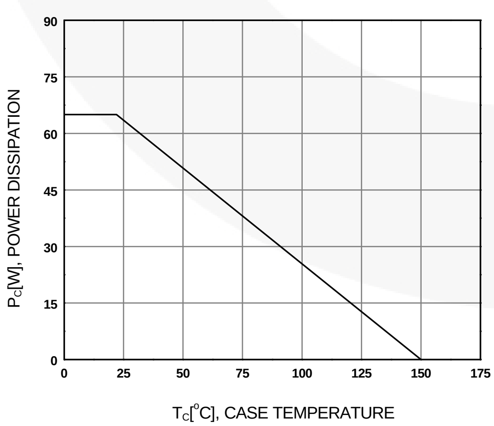


Figure 5. Power Derating

Physical Dimensions

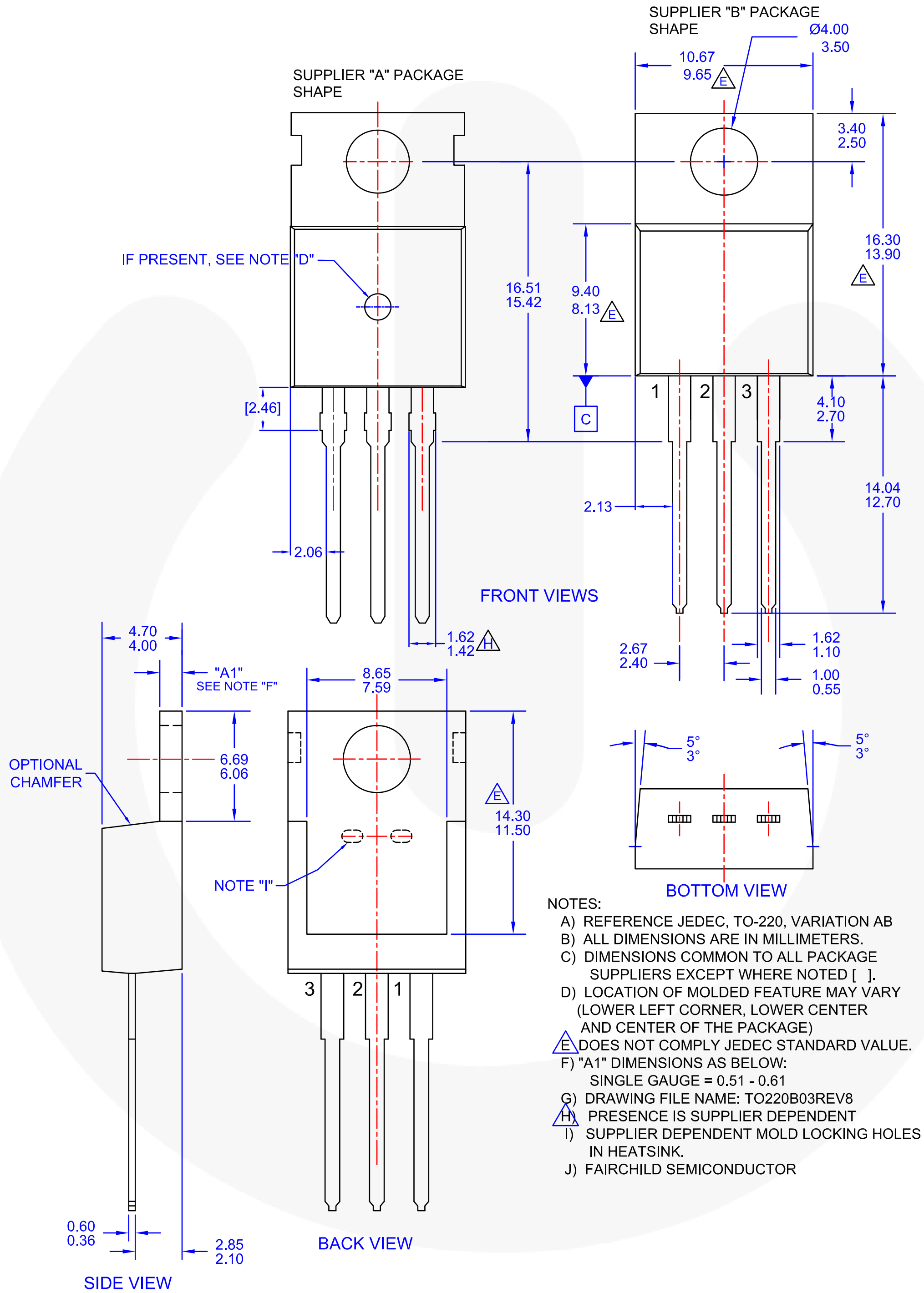


Figure 6. TO-220, MOLDED, 3LEAD, JEDEC VARIATION AB

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