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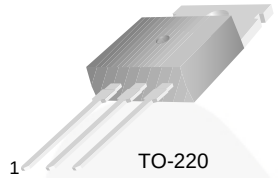
November 2014

TIP42 / TIP42C
PNP Epitaxial Silicon Transistor

Features

- Medium Power Linear Switching Applications
- Complement to TIP41 Series



TO-220

1.Base 2.Collector 3.Emitter

Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP42	TIP42	TO-220 3L (Single Gauge)	Bulk
TIP42C	TIP42C	TO-220 3L (Single Gauge)	Bulk
TIP42CTU	TIP42C	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	TIP42	-40	V
		TIP42C	-100	
V_{CEO}	Collector-Emitter Voltage	TIP42	-40	V
		TIP42C	-100	
V_{EBO}	Emitter-Base Voltage		-5	V
I_C	Collector Current (DC)		-6	A
I_{CP}	Collector Current (Pulse)		-10	A
I_B	Base Current		-2	A
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-65 to 150	°C

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Thermal Characteristics

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

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

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[1]	TIP42	I_C = -30 mA, I_B = 0	-40		V
		TIP42C		-100		
I_{CEO}	Collector Cut-Off Current	TIP42	V_{CE} = -30 V, I_B = 0		-0.7	mA
		TIP42C	V_{CE} = -60 V, I_B = 0		-0.7	
I_{CES}	Collector Cut-Off Current	TIP42	V_{CE} = -40 V, V_{EB} = 0		-400	µA
		TIP42C	V_{CE} = -100 V, V_{EB} = 0		-400	
I_{EBO}	Emitter Cut-Off Current		V_{EB} = -5 V, I_C = 0		-1	mA
h_{FE}	DC Current Gain[1]		V_{CE} = -4 V, I_C = -0.3 A	30		
			V_{CE} = -4 V, I_C = -3 A	15	75	
V_{CE}(sat)	Collector-Emitter Saturation Voltage[1]		I_C = -6 A, I_B = -600 mA		-1.5	V
V_{BE}(on)	Base-Emitter On Voltage[1]		V_{CE} = -4 V, I_C = -6 A		-2.0	V
f_T	Current Gain Bandwidth Product		V_{CE} = -10 V, I_C = -500 mA, f = 1 MHz	3.0		MHz

Note:

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

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Typical Performance Characteristics

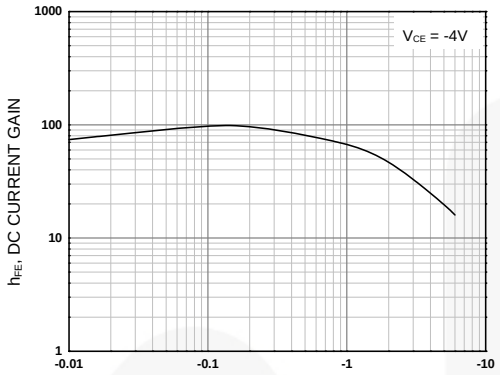

Figure 1. DC Current Gain

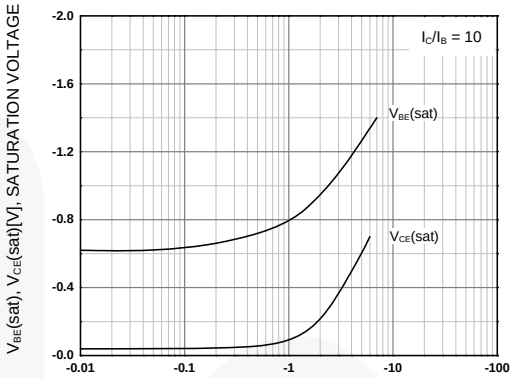

Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

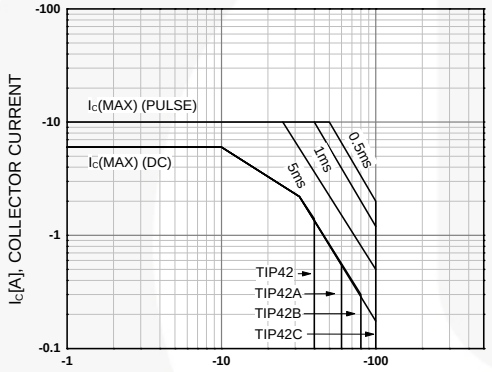

Figure 3. Safe Operating Area

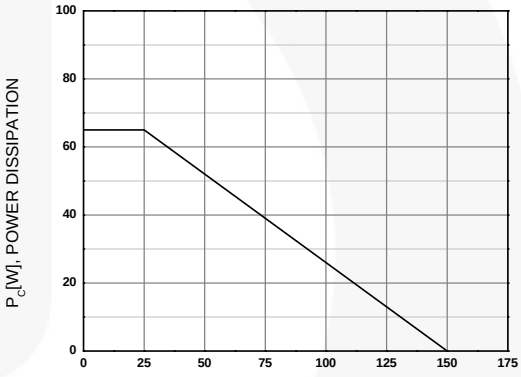

Figure 4. Power Derating

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Physical Dimensions

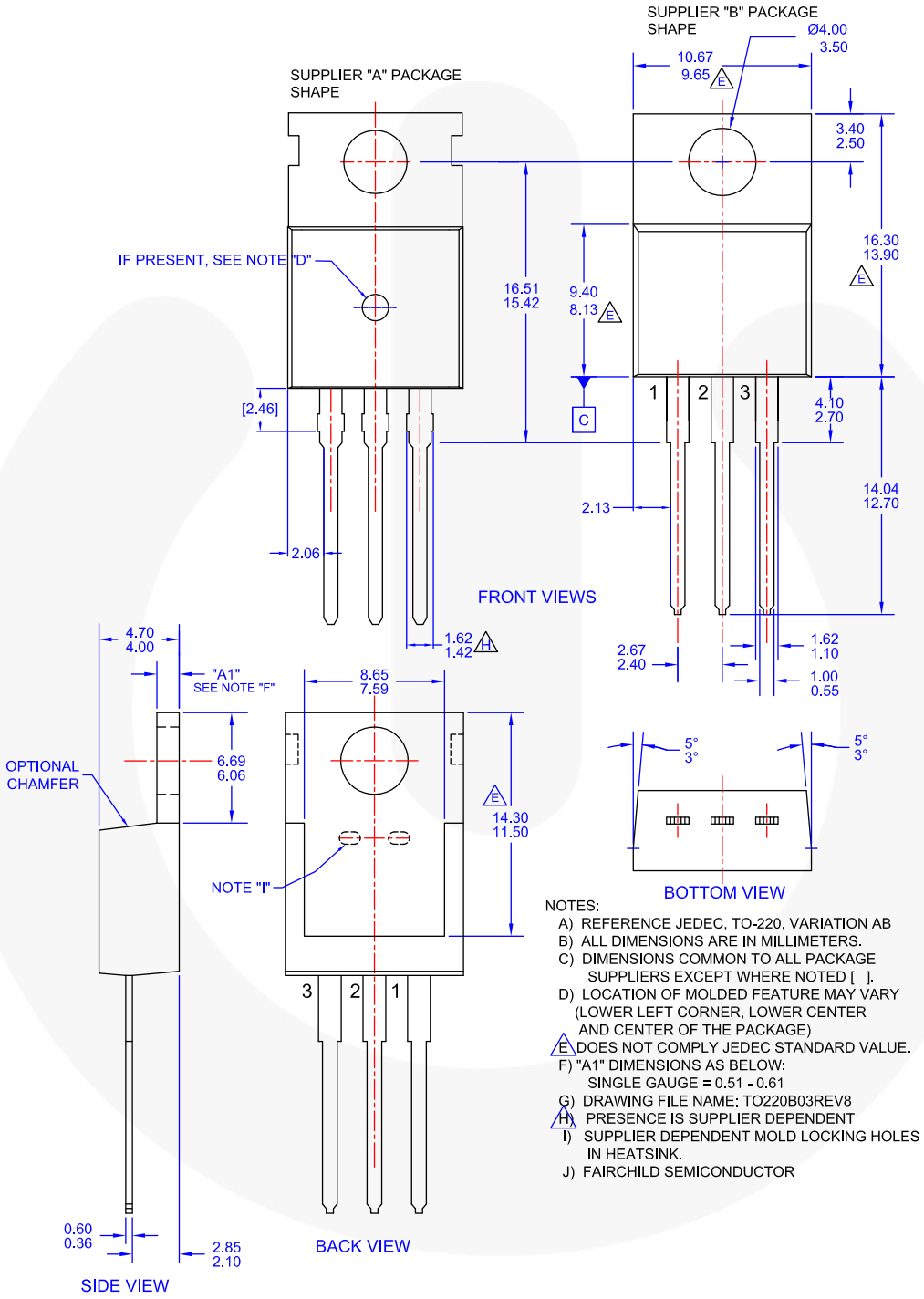

Figure 5. TO-220, MOLDED, 3LEAD, JEDEC VARIATION AB

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