TIP42/42A/42B/42C

SemiHow
Know-How for Semiconductor

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TIP42/42A/42B/42C

Medium Power Linear Switching Applications

- Complement to TIP41/41A/41B/41C

PNP Epitaxial Silicon Darlington Transistor

TO-220
1. Base
2. Collector
3. Emitter

Absolute Maximum Ratings T_a=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	RATING	UNIT
Collector-Base Voltage : TIP42	V_{CBO}	-40	V
: TIP42A		-60	V
: TIP42B		-80	V
: TIP42C		-100	V
Collector-Emitter Voltage : TIP42	V_{CEO}	-40	V
: TIP42A		-60	V
: TIP42B		-80	V
: TIP42C		-100	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current(DC)	I_C	-6	A
Collector Current(Pulse)	I_{CP}	-10	A
Base Current	I_B	-2	A
Collector Dissipation(Ta=25℃)	P_C	2	W
Collector Dissipation(Tc=25℃)	P_C	65	W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-65~150	℃

Electrical Characteristics T_a=25℃ unless otherwise noted

CHARACTERISTICS	SYMBOL	Test Condition	Min	Max	Unit
Collector-Emitter Sustaining Voltage	V_{CEO}(SUS)				
: TIP42		I_C=-30mA, I_B=0	-40		V
: TIP42A			-60		V
: TIP42B			-80		V
: TIP42C			-100		V
Collector Cut-off Current					
: TIP42/42A	I_{CEO}	V_{CE}=-30V,I_B=0		-0.7	mA
: TIP42B/42C		V_{CE}=-60V,I_B=0		-0.7	mA
Collector Cut-off Current	I_{CES}				
: TIP42		V_{CE}=-40V,V_{EB}=0		-400	μA
: TIP42A		V_{CE}=-60V,V_{EB}=0		-400	μA
: TIP42B		V_{CE}=-80V,V_{EB}=0		-400	μA
: TIP42C		V_{CE}=-100V,V_{EB}=0		-400	μA
Emitter Cut-off Current	I_{EBO}	V_{EB}=-5V,I_C=0		-1	mA
*DC Current Gain	h_{FE}	V_{CE}=-4V,I_C=-0.3A	30		
		V_{CE}=-4V,I_C=-3A	15	75	
*Collector-Emitter Saturation Voltage	V_{CE}(sat)	I_C=-6A,I_B=-600mA		-1.5	V
*Base-Emitter ON Voltage	V_{BE}(on)	V_{CE}=-4V,I_C=-6A		-2.0	V
Output Capacitance	f_T	V_{CE}=-10V,I_C=-500mA f=1MHz	3.0		MHz

* Pulse Test: PW≤300us, Duty Cycle≤2%

Typical Characteristics

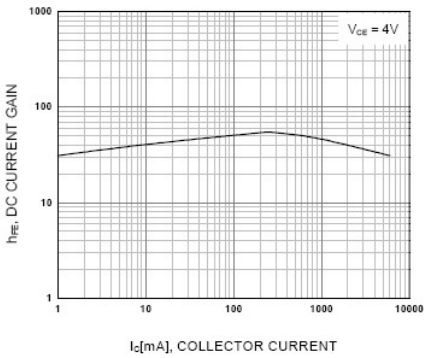


Figure 1. DC current Gain

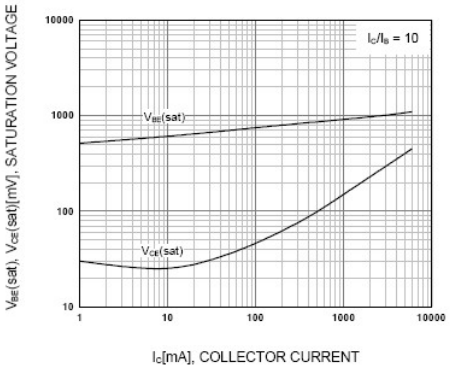


Figure 2. Base-Emitter Saturation Voltage Collector-Emitter Saturation Voltage

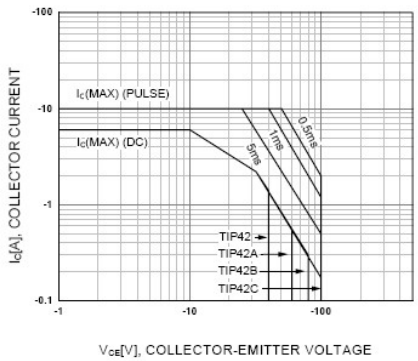


Figure 3. Safe Operating Area

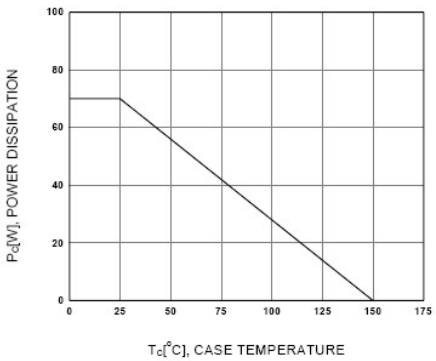
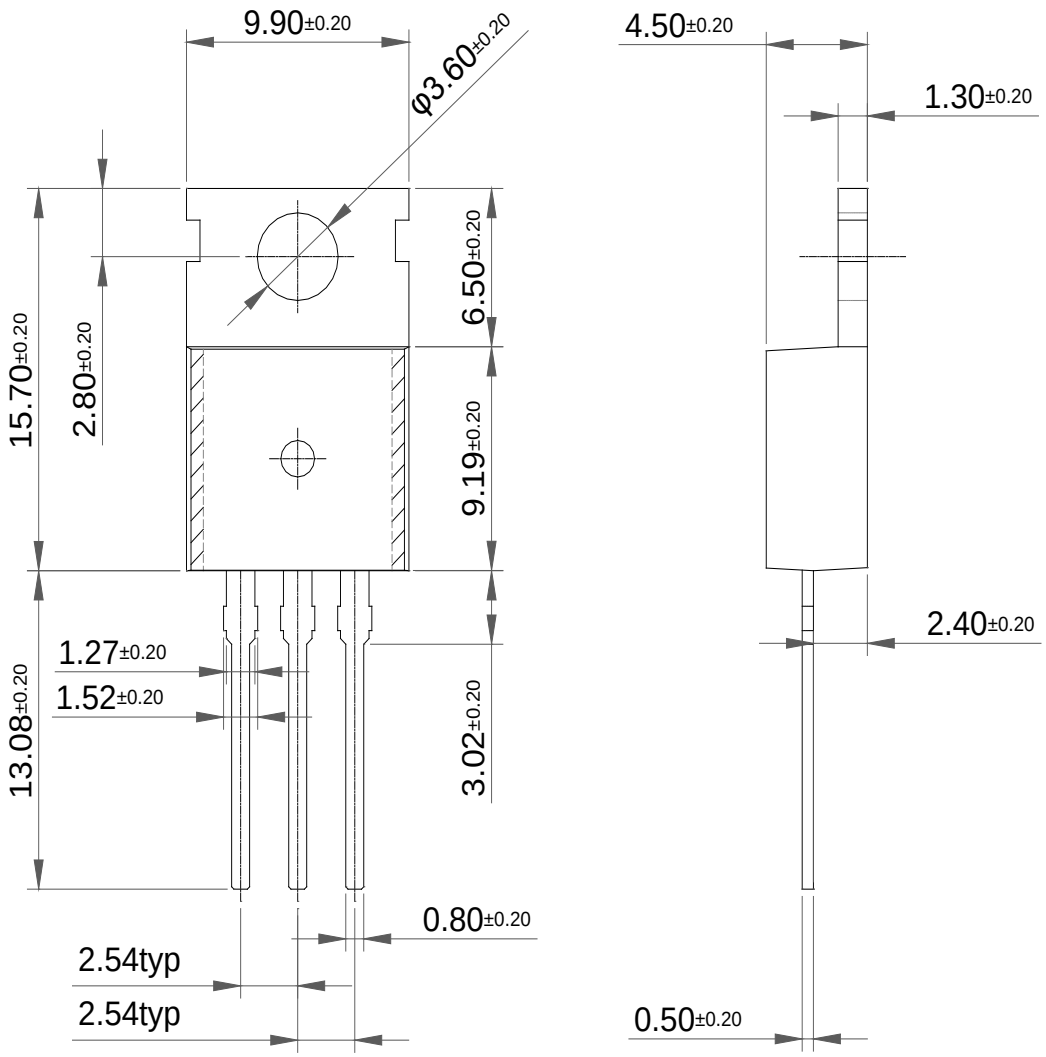


Figure 4. Power derating

Package Dimension

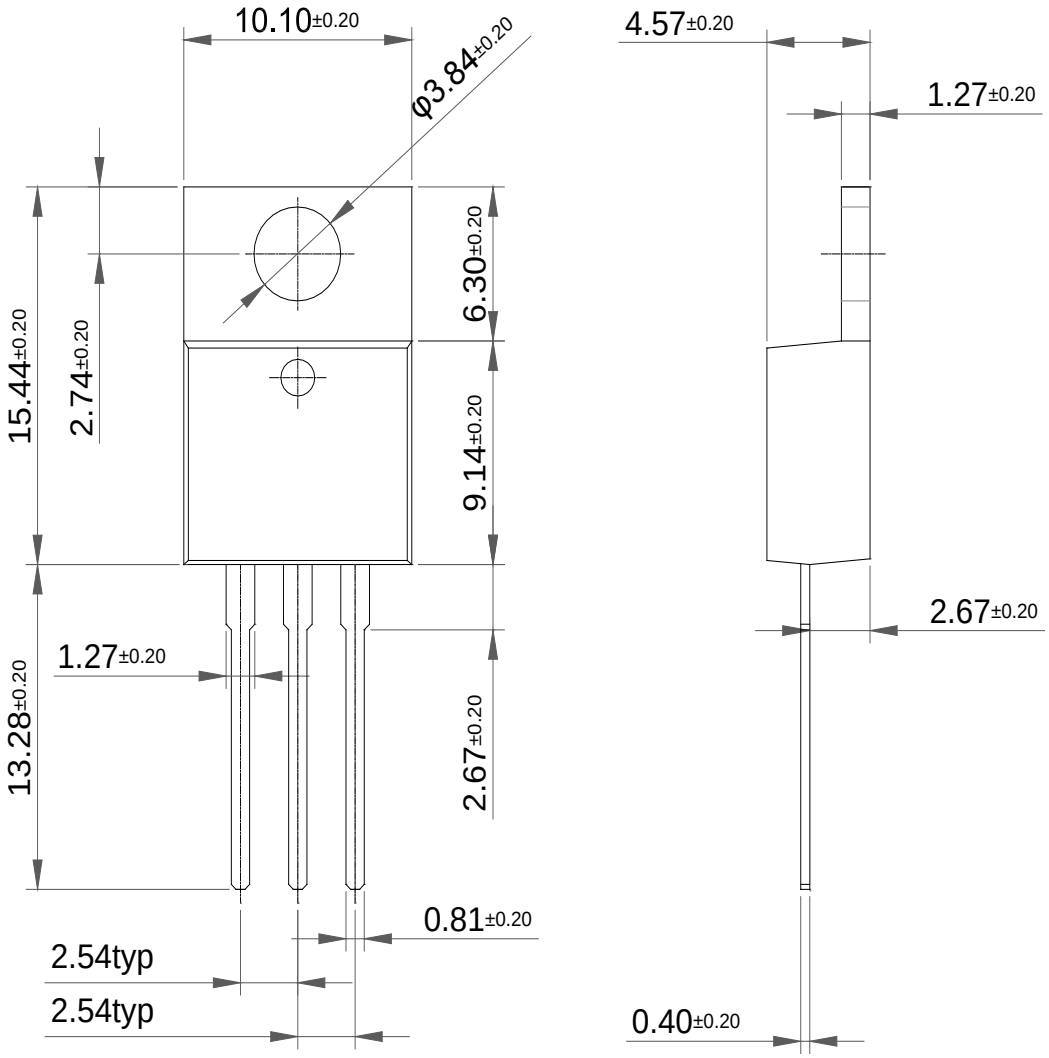
TO-220 (A)



Dimensions in Millimeters

Package Dimension

TO-220 (B)



Dimensions in Millimeters