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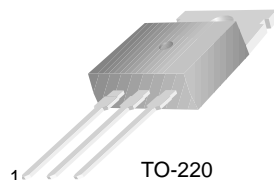
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TIP42 SERIES(TIP42/42A/42B/42C)

Medium Power Linear Switching Applications

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



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

PNP Epitaxial Silicon Transistor

Absolute Maximum Ratings $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage : TIP42 : TIP42A : TIP42B : TIP42C	- 40	V
		- 60	V
		- 80	V
		- 100	V
V_{CEO}	Collector-Emitter Voltage : TIP42 : TIP42A : TIP42B : TIP42C	- 40	V
		- 60	V
		- 80	V
		- 100	V
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
P_C	Collector Dissipation ($T_C=25^\circ\text{C}$)	65	W
P_C	Collector Dissipation ($T_a=25^\circ\text{C}$)	2	W
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature	- 65 ~ 150	$^\circ\text{C}$

Electrical Characteristics $T_C=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Max.	Units
$V_{CEO(sus)}$	* Collector-Emitter Sustaining Voltage : TIP42 : TIP42A : TIP42B : TIP42C	$I_C = -30\text{mA}, I_B = 0$	-40		V
			-60		V
			-80		V
			-100		V
I_{CEO}	Collector Cut-off Current : TIP42/42A : TIP42B/42C	$V_{CE} = -30\text{V}, I_B = 0$		-0.7	mA
		$V_{CE} = -60\text{V}, I_B = 0$		-0.7	mA
I_{CES}	Collector Cut-off Current : TIP42 : TIP42A : TIP42B : TIP42C	$V_{CE} = -40\text{V}, V_{EB} = 0$		-400	μA
		$V_{CE} = -60\text{V}, V_{EB} = 0$		-400	μA
		$V_{CE} = -80\text{V}, V_{EB} = 0$		-400	μA
		$V_{CE} = -100\text{V}, V_{EB} = 0$		-400	μA
I_{EBO}	Emitter Cut-off Current	$V_{EB} = -5\text{V}, I_C = 0$		-1	mA
h_{FE}	* DC Current Gain	$V_{CE} = -4\text{V}, I_C = -0.3\text{A}$	30		
		$V_{CE} = -4\text{V}, I_C = -3\text{A}$	15	75	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = -6\text{A}, I_B = -600\text{mA}$		-1.5	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$V_{CE} = -4\text{V}, I_C = -6\text{A}$		-2.0	V
f_T	Current Gain Bandwidth Product	$V_{CE} = -10\text{V}, I_C = -500\text{mA}$	3.0		MHz

* Pulse Test: $PW \leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$

Typical Characteristics

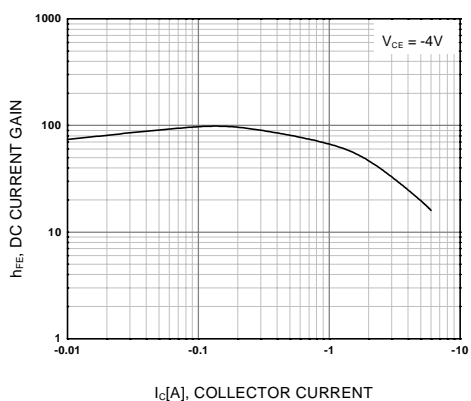


Figure 1. DC current Gain

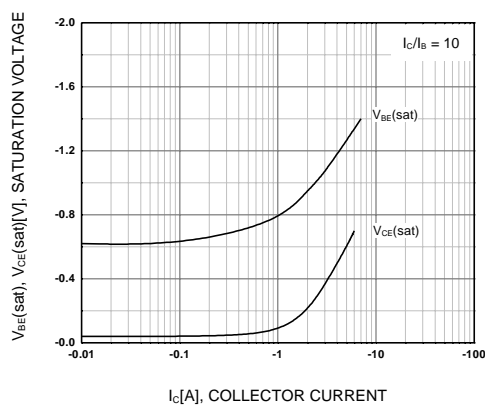


Figure 2. Base-Emitter Saturation Voltage
Collector-Emitter Saturation Voltage

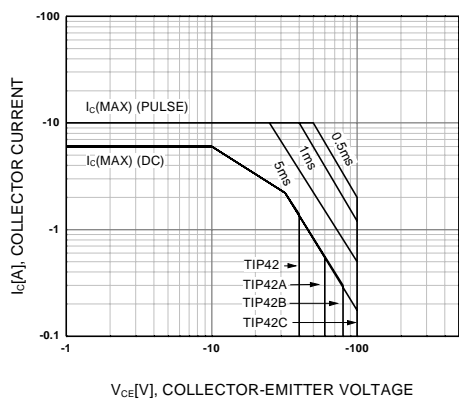


Figure 3. Safe Operating Area

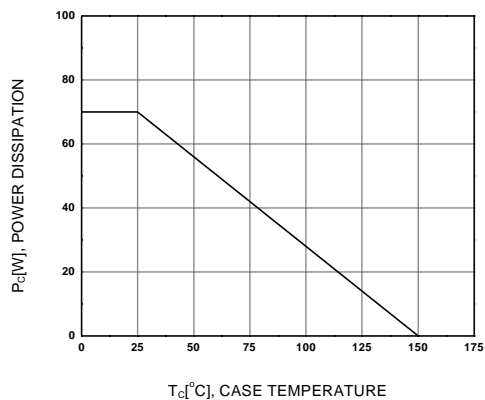
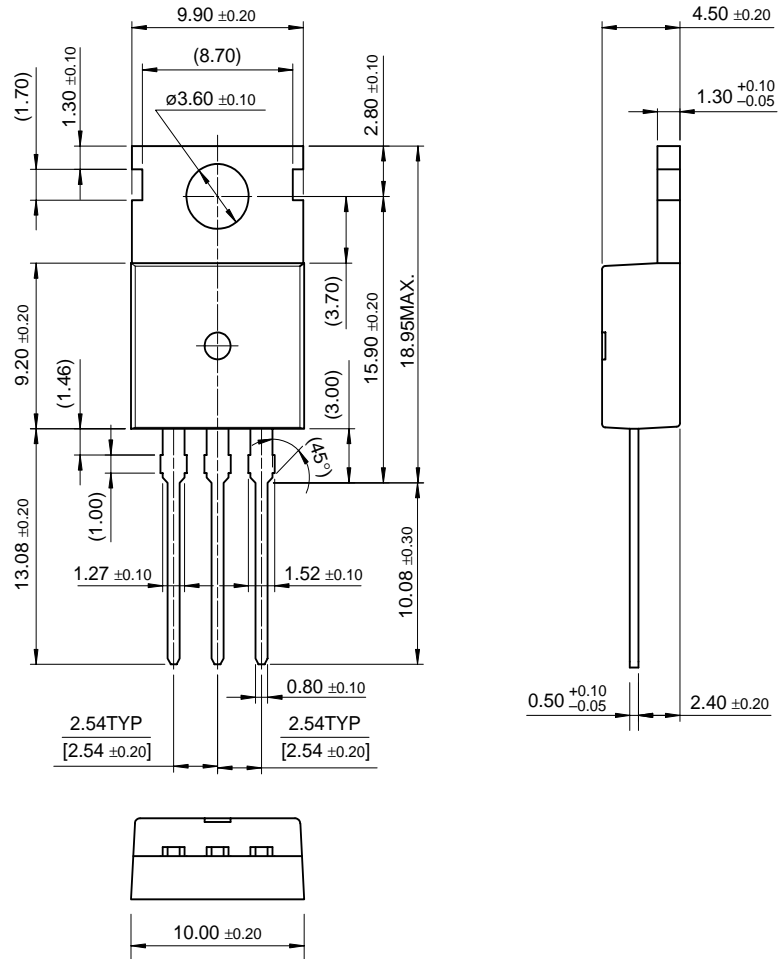


Figure 4. Power derating

Package Dimensions

TO-220



TIP42 SERIES(TIP42/42A/42B/42C)

Dimensions in Millimeters

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