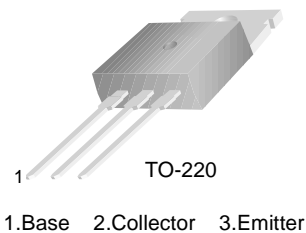


## TIP42 SERIES(TIP42/42A/42B/42C)

### Medium Power Linear Switching Applications

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



### 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	- 40	V
	: TIP42A	- 60	V
	: TIP42B	- 80	V
	: TIP42C	- 100	V
$V_{CEO}$	Collector-Emitter Voltage : TIP42	- 40	V
	: TIP42A	- 60	V
	: TIP42B	- 80	V
	: TIP42C	- 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	$I_C = -30\text{mA}, I_B = 0$	-40		V
	: TIP42A		-60		V
	: TIP42B		-80		V
	: TIP42C		-100		V
$I_{CEO}$	Collector Cut-off Current : TIP42/42A	$V_{CE} = -30\text{V}, I_B = 0$		-0.7	mA
	: TIP42B/42C	$V_{CE} = -60\text{V}, I_B = 0$		-0.7	mA
$I_{CES}$	Collector Cut-off Current : TIP42	$V_{CE} = -40\text{V}, V_{EB} = 0$		-400	$\mu\text{A}$
	: TIP42A	$V_{CE} = -60\text{V}, V_{EB} = 0$		-400	$\mu\text{A}$
	: TIP42B	$V_{CE} = -80\text{V}, V_{EB} = 0$		-400	$\mu\text{A}$
	: TIP42C	$V_{CE} = -100\text{V}, V_{EB} = 0$		-400	$\mu\text{A}$
$I_{EBO}$	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

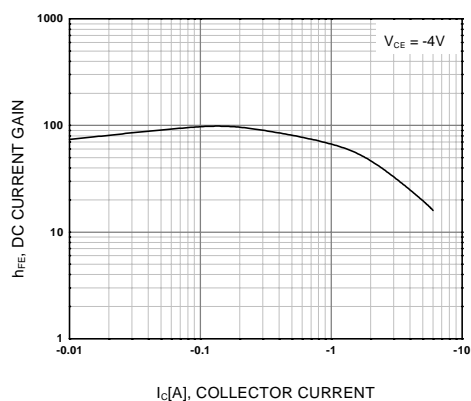


Figure 1. DC current Gain

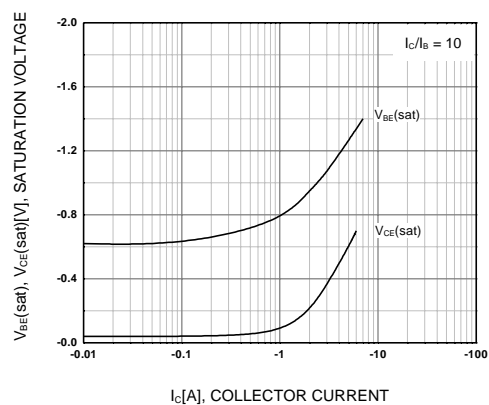


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

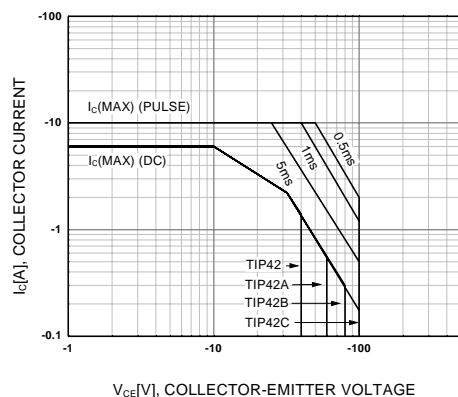


Figure 3. Safe Operating Area

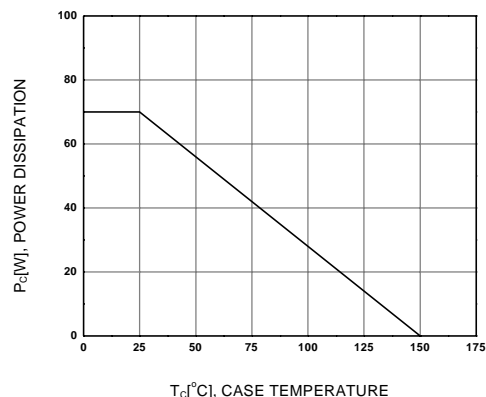
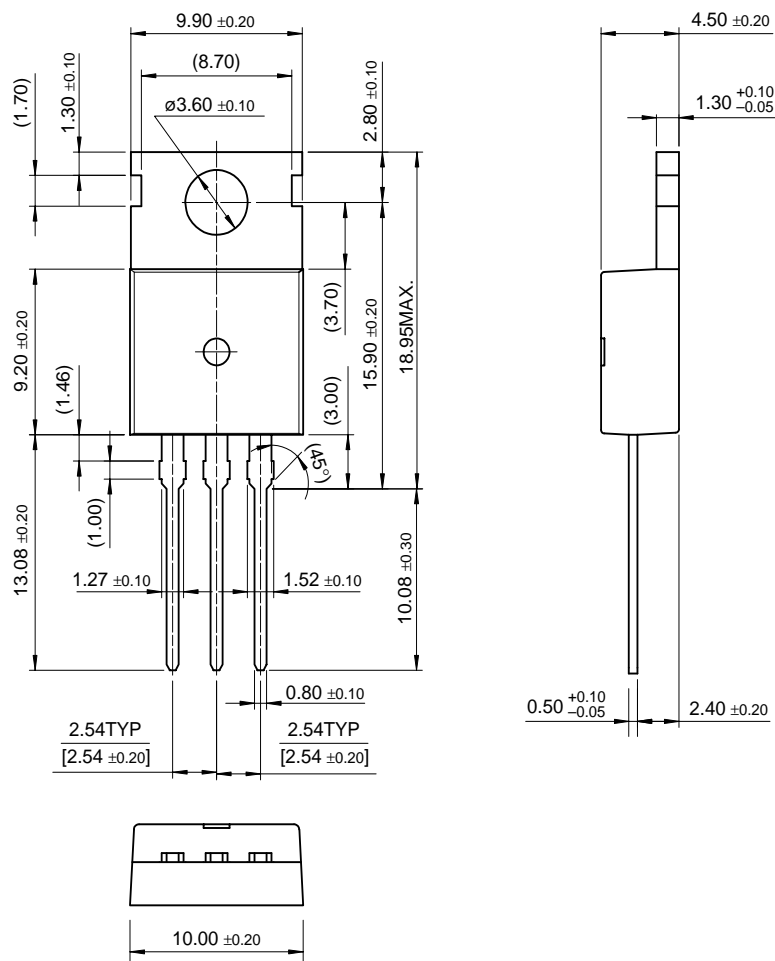


Figure 4. Power derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

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