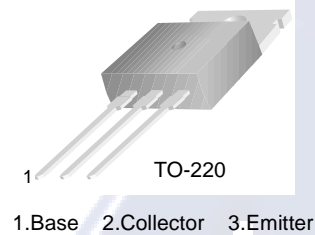




## TIP32 Series(TIP32/32A/32B/32C)

### Medium Power Linear Switching Applications

- Complement to TIP31/31A/31B/31C



### 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 : TIP32 : TIP32A : TIP32B : TIP32C	- 40	V
		- 60	V
		- 80	V
		- 100	V
$V_{CEO}$	Collector-Emitter Voltage : TIP32 : TIP32A : TIP32B : TIP32C	- 40	V
		- 60	V
		- 80	V
		-100	V
$V_{EBO}$	Emitter-Base Voltage	- 5	V
$I_C$	Collector Current (DC)	- 3	A
$I_{CP}$	Collector Current (Pulse)	- 5	A
$I_B$	Base Current	- 3	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	40	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 : TIP32 : TIP32A : TIP32B : TIP32C	$I_C = - 30\text{mA}, I_B = 0$	-40		V
			-60		V
			-80		V
			-100		V
$I_{CEO}$	Collector Cut-off Current : TIP32/32A : TIP32B/32C	$V_{CE} = - 30\text{V}, I_B = 0$		- 0.3	mA
		$V_{CE} = - 60\text{V}, I_B = 0$		- 0.3	mA
$I_{CES}$	Collector Cut-off Current : TIP32 : TIP32A : TIP32B : TIP32C	$V_{CE} = - 40\text{V}, V_{EB} = 0$		- 200	$\mu\text{A}$
		$V_{CE} = - 60\text{V}, V_{EB} = 0$		- 200	$\mu\text{A}$
		$V_{CE} = - 80\text{V}, V_{EB} = 0$		- 200	$\mu\text{A}$
		$V_{CE} = - 100\text{V}, V_{CE} = 0$		- 200	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = - 5\text{V}, I_C = 0$		- 1	mA
$h_{FE}$	* DC Current Gain	$V_{CE} = - 4\text{V}, I_C = - 1\text{A}$	25		
		$V_{CE} = - 4\text{V}, I_C = - 3\text{A}$	10	50	
$V_{CE(sat)}$	* Collector-Emitter Saturation Voltage	$I_C = - 3\text{A}, I_B = - 375\text{mA}$		- 1.2	V
$V_{BE(sat)}$	* Base-Emitter Saturation Voltage	$V_{CE} = - 4\text{V}, I_C = - 3\text{A}$		- 1.8	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

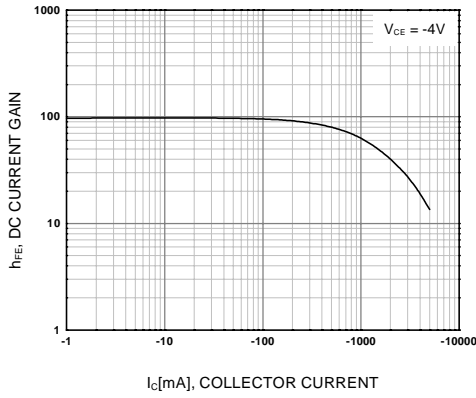


Figure 1. DC current Gain

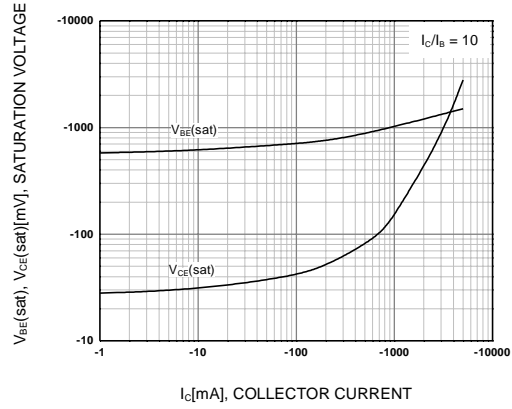


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

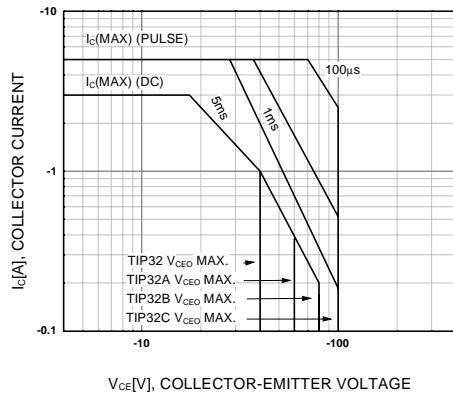


Figure 3. Safe Operating Area

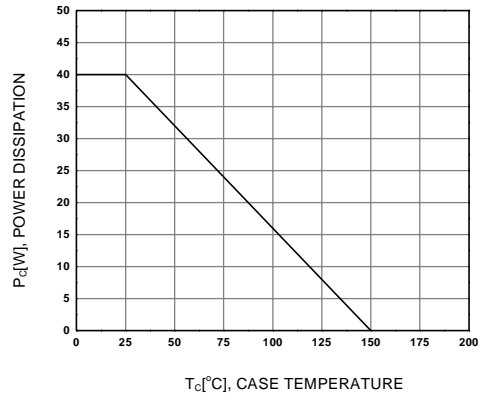
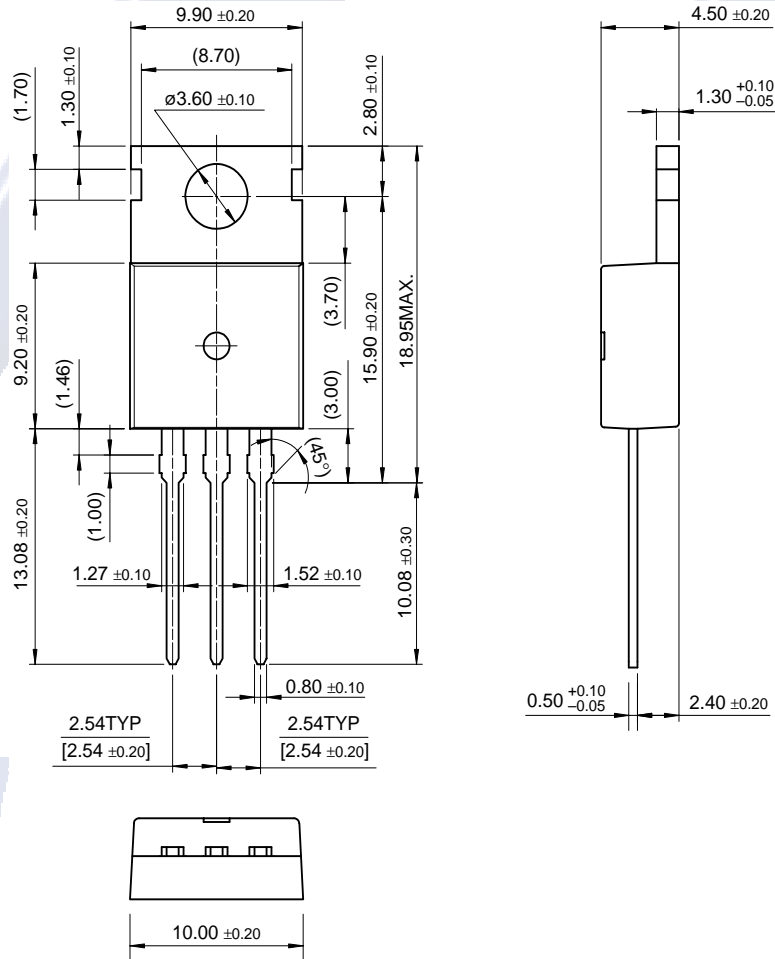


Figure 4. Power Derating

# Package Dimensions

## TO-220

TIP32 Series (TIP32/32A/32B/32C)



Dimensions in Millimeters

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