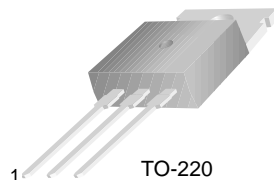


## TIP29 Series(TIP29/29A/29B/29C)

### Medium Power Linear Switching Applications

- Complementary to TIP30/30A/30B/30C



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

### NPN Epitaxial Silicon Transistor

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

Symbol	Parameter	Value	Units
$V_{CBO}$	Collector-Base Voltage : TIP29	40	V
	: TIP29A	60	V
	: TIP29B	80	V
	: TIP29C	100	V
$V_{CEO}$	Collector-Emitter Voltage : TIP29	40	V
	: TIP29A	60	V
	: TIP29B	80	V
	: TIP29C	100	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current (DC)	1	A
$I_{CP}$	Collector Current (Pulse)	3	A
$I_B$	Base Current	0.4	A
$P_C$	Collector Dissipation ( $T_C=25^\circ\text{C}$ )	30	W
	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 : TIP29	$I_C = 30\text{mA}, I_B = 0$	40		V
	: TIP29A		60		V
	: TIP29B		80		V
	: TIP29C		100		V
$I_{CEO}$	Collector Cut-off Current : TIP29/29A	$V_{CE} = 30\text{V}, I_B = 0$ $V_{CE} = 60\text{V}, I_B = 0$		0.3	mA
	: TIP29B/29C			0.3	mA
$I_{CES}$	Collector Cut-off Current : TIP29	$V_{CE} = 40\text{V}, V_{EB} = 0$ $V_{CE} = 60\text{V}, V_{EB} = 0$ $V_{CE} = 80\text{V}, V_{EB} = 0$ $V_{CE} = 100\text{V}, V_{EB} = 0$		200	$\mu\text{A}$
	: TIP29A			200	$\mu\text{A}$
	: TIP29B			200	$\mu\text{A}$
	: TIP29C			200	$\mu\text{A}$
$I_{EBO}$	Emitter Cut-off Current	$V_{EB} = 5\text{V}, I_C = 0$		1.0	mA
$h_{FE}$	*DC Current Gain	$V_{CE} = 4\text{V}, I_C = 0.2\text{A}$	40		
		$V_{CE} = 4\text{V}, I_C = 1\text{A}$	15	75	
$V_{CE(sat)}$	*Collector-Emitter Saturation Voltage	$I_C = 1\text{A}, I_B = 125\text{mA}$		0.7	V
$V_{BE(sat)}$	*Base-Emitter Saturation Voltage	$V_{CE} = 4\text{V}, I_C = 1\text{A}$		1.3	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = 10\text{V}, I_C = 200\text{mA}$	3.0		MHz

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

# Typical Characteristics

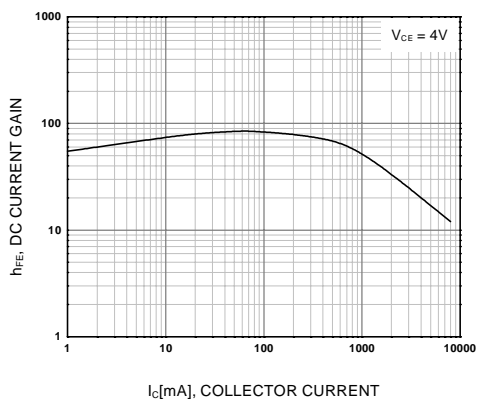


Figure 1. DC current Gain

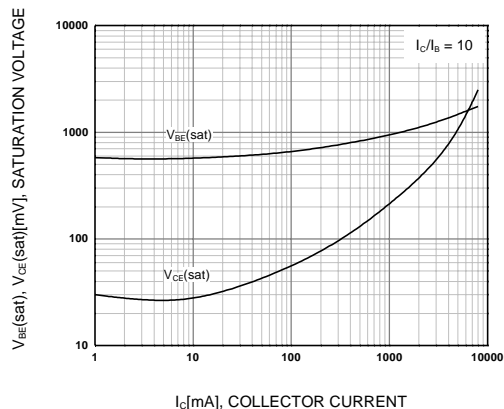


Figure 2. Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

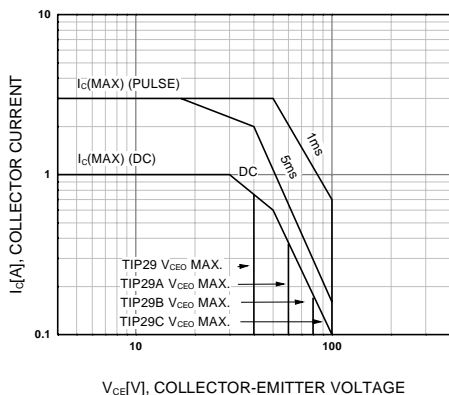


Figure 3. Safe Operating Area

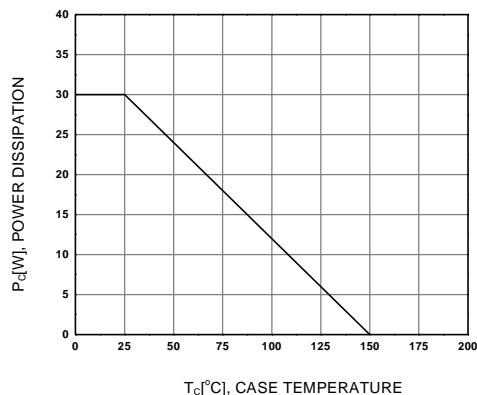
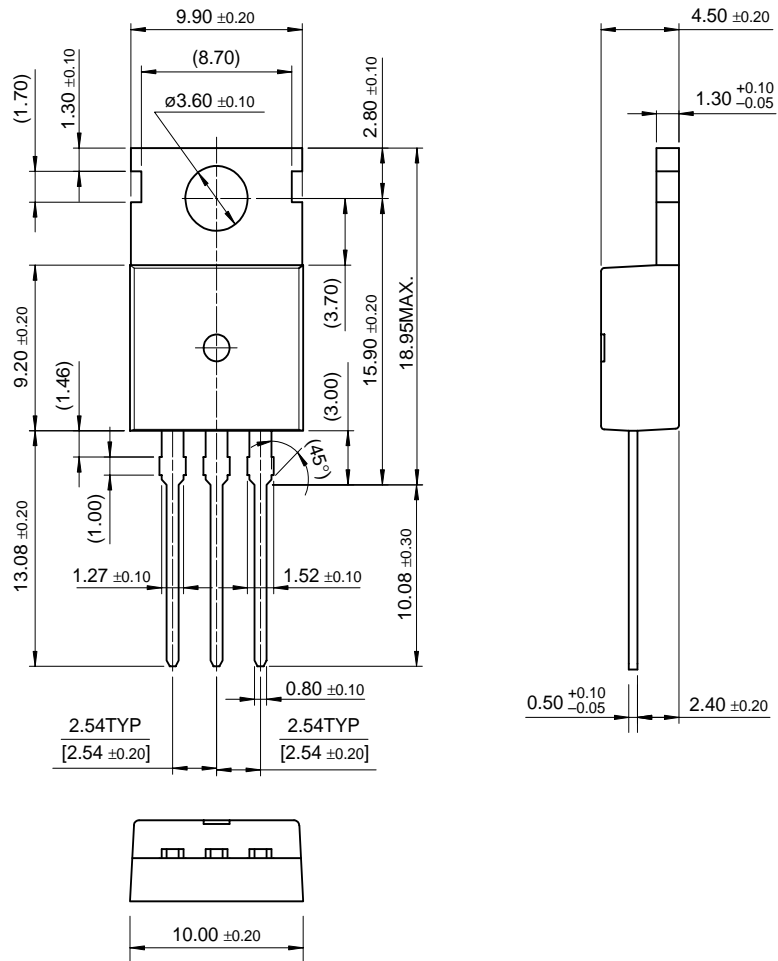


Figure 4. Power Derating

# Package Dimensions

## TO-220



Dimensions in Millimeters

TIP29 Series (TIP29/29A/29B/29C)

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