

## TO-126 Plastic-Encapsulate Transistors

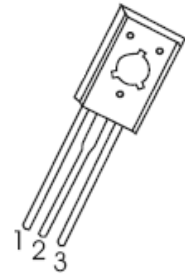
### TIP29 Series TRANSISTOR (NPN)

#### FEATURES

- Designed for Use in General Purpose Amplifier and Switching Applications

TO - 126

- BASE
- COLLECTOR
- EMITTER



#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{CBO}$	Collector-Base Voltage	TIP29	40
		TIP29A	60
		TIP29B	80
		TIP29C	100
$V_{CEO}$	Collector-Emitter Voltage	TIP29	40
		TIP29A	60
		TIP29B	80
		TIP29C	100
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current(DC)	1	A
$I_{CP}$	Collector Current(Pulse)	3	A
$P_C$	Collector Power Dissipation	1.25	W
$R_{\theta JA}$	Thermal Resistance From Junction To Ambient	100	$^{\circ}\text{C}/\text{W}$
$T_j$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{stg}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$

#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(BR)CBO}$	$I_C=100\mu\text{A}, I_E=0$	TIP29	40		V
			TIP29A			
			TIP29B			
			TIP29C			
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=30\text{mA}, I_B=0$	TIP29	40		V
			TIP29A	60		
			TIP29B	80		
			TIP29C	100		
Emitter-base breakdown voltage	$V_{(BR)EBO}$	$I_E=100\mu\text{A}, I_C=0$	5			V
Collector cut-off current	$I_{CEO}$	$V_{CE}=30\text{V}, I_B=0$	TIP29/29A		0.3	mA
		$V_{CE}=60\text{V}, I_B=0$	TIP29B/29C			
Collector cut-off current	$I_{CES}$	$V_{CE}=40\text{V}, V_{EB}=0$	TIP29		200	$\mu\text{A}$
		$V_{CE}=60\text{V}, V_{EB}=0$	TIP29A		200	
		$V_{CE}=80\text{V}, V_{EB}=0$	TIP29B		200	
		$V_{CE}=100\text{V}, V_{EB}=0$	TIP29C		200	

<b>Emitter cut-off current</b>	$I_{EBO}$	$V_{EB}=5V, I_C=0$			1	mA
<b>DC current gain</b>	$h_{FE(1)}^*$	$V_{CE}=4V, I_C=0.2A$	40			
	$h_{FE(2)}^*$	$V_{CE}=4V, I_C=1A$	15		75	
<b>Collector-emitter voltage</b>	$V_{CE(sat)}^*$	$I_C=1A, I_B=125mA$			0.7	V
<b>Base-emitter saturation voltage</b>	$V_{BE}^*$	$V_{CE}=4V, I_C=1A$			1.3	V
<b>Transition frequency</b>	$f_T$	$V_{CE}=10V, I_C=200mA$	3			MHz

\*Pulse test: pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2.0\%$ .