

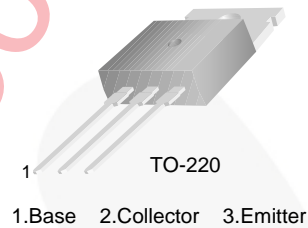


November 2014

TIP29 / TIP29A / TIP29C NPN Epitaxial Silicon Transistor

Features

- Medium Power Linear Switching Applications
- Complementary to TIP30 Series



Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP29	TIP29	TO-220 3L (Single Gauge)	Bulk
TIP29A	TIP29A	TO-220 3L (Single Gauge)	Bulk
TIP29C	TIP29C	TO-220 3L (Single Gauge)	Bulk
TIP29CTU	TIP29C	TO-220 3L (Single Gauge)	Rail

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	TIP29	40
		TIP29A	60
		TIP29C	100
V_{CEO}	Collector-Emitter Voltage	TIP29	40
		TIP29A	60
		TIP29C	100
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
T_J	Junction Temperature	150	$^\circ\text{C}$
T_{STG}	Storage Temperature Range	-65 to 150	$^\circ\text{C}$

TIP29 / TIP29A / TIP29C — NPN Epitaxial Silicon Transistor

Thermal Characteristics

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Value	Unit
P_C	Collector Dissipation ($T_A = 25^\circ\text{C}$)	2	W
	Collector Dissipation ($T_C = 25^\circ\text{C}$)	30	

Electrical Characteristics

Values are at $T_C = 25^\circ\text{C}$ unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{CE(sus)}$	Collector-Emitter Sustaining Voltage ⁽¹⁾	TIP29	$I_C = 30\text{ mA}, I_B = 0$	40	V
		TIP29A		60	
		TIP29C		100	
I_{CEO}	Collector Cut-Off Current	TIP29 / TIP29A	$V_{CE} = 30\text{ V}, I_B = 0$	0.3	mA
		TIP29C	$V_{CE} = 60\text{ V}, I_B = 0$	0.3	
I_{CES}	Collector Cut-Off Current	TIP29	$V_{CE} = 40\text{ V}, V_{EB} = 0$	200	μA
		TIP29A	$V_{CE} = 60\text{ V}, V_{EB} = 0$	200	
		TIP29C	$V_{CE} = 100\text{ V}, V_{EB} = 0$	200	
I_{EBO}	Emitter Cut-Off Current	$V_{EB} = 5\text{ V}, I_C = 0$		1.0	mA
h_{FE}	DC Current Gain ⁽¹⁾	$V_{CE} = 4\text{ V}, I_C = 0.2\text{ A}$	40		
		$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$	15	75	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ⁽¹⁾	$I_C = 1\text{ A}, I_B = 125\text{ mA}$		0.7	V
$V_{BE(on)}$	Base-Emitter On Voltage ⁽¹⁾	$V_{CE} = 4\text{ V}, I_C = 1\text{ A}$		1.3	V
f_T	Current Gain Bandwidth Product	$V_{CE} = 10\text{ V}, I_C = 200\text{ mA}$	3.0		MHz

Note:

1. Pulse test: $p_w \leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.

Typical Performance Characteristics

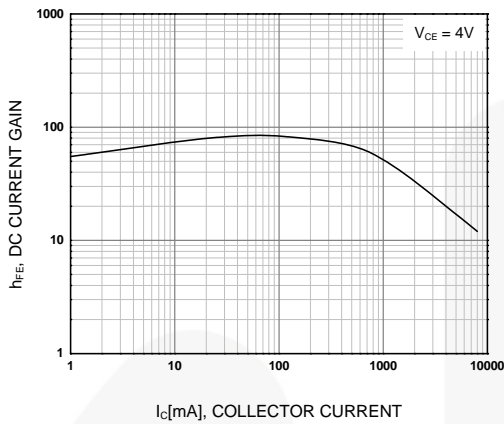


Figure 1. DC Current Gain

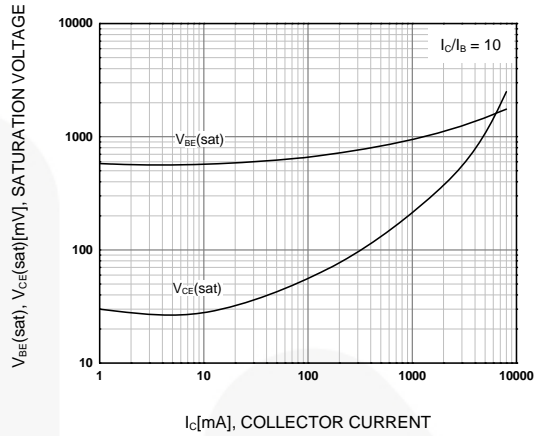


Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

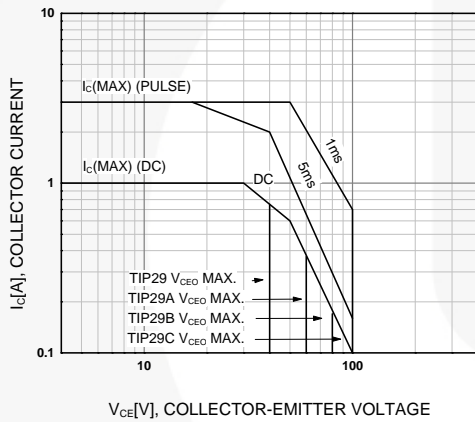


Figure 3. Safe Operating Area

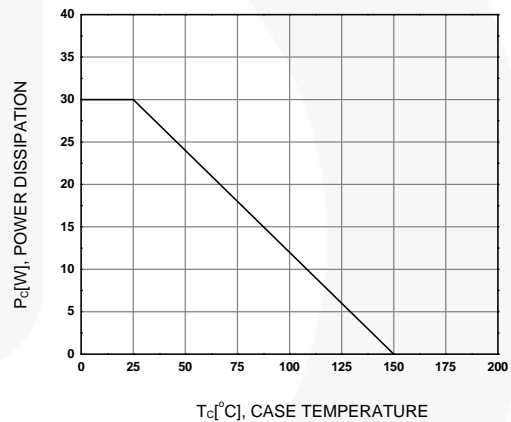







Figure 4. Power Derating



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