

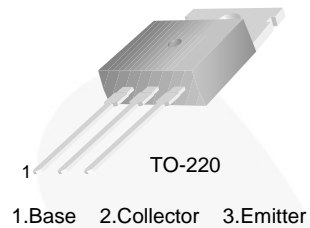


November 2014

# TIP32 / TIP32A / TIP32C PNP Epitaxial Silicon Transistor

## Features

- Medium Power Linear Switching Applications
- Complementary to TIP31 Series



## Ordering Information

Part Number	Top Mark	Package	Packing Method
TIP32	TIP32	TO-220 3L (Single Gauge)	Bulk
TIP32A	TIP32A	TO-220 3L (Single Gauge)	Bulk
TIP32ATU	TIP32A	TO-220 3L (Single Gauge)	Rail
TIP32C	TIP32C	TO-220 3L (Single Gauge)	Bulk
TIP32CTU	TIP32C	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	TIP32	-40
		TIP32A	-60
		TIP32C	-100
$V_{CEO}$	Collector-Emitter Voltage	TIP32	-40
		TIP32A	-60
		TIP32C	-100
$V_{EBO}$	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
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-65 to 150	$^\circ\text{C}$

TIP32 / TIP32A / TIP32C — PNP 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 ( $T_C = 25^\circ\text{C}$ )	40	

## Electrical Characteristics

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

Symbol	Parameter	Conditions	Min.	Max.	Unit
$V_{CEO(sus)}$	Collector-Emitter Sustaining Voltage <sup>(1)</sup>	TIP32	$I_C = -30\text{ mA}, I_B = 0$	-40	V
		TIP32A		-60	
		TIP32C		-100	
$I_{CEO}$	Collector Cut-Off Current	TIP32 / TIP32A	$V_{CE} = -30\text{ V}, I_B = 0$	-0.3	mA
		TIP32C	$V_{CE} = -60\text{ V}, I_B = 0$	-0.3	
$I_{CES}$	Collector Cut-Off Current	TIP32	$V_{CE} = -40\text{ V}, V_{EB} = 0$	-200	$\mu\text{A}$
		TIP32A	$V_{CE} = -60\text{ V}, V_{EB} = 0$	-200	
		TIP32C	$V_{CE} = -100\text{ V}, V_{EB} = 0$	-200	
$I_{EBO}$	Emitter Cut-Off Current	$V_{EB} = -5\text{ V}, I_C = 0$		-1	mA
$h_{FE}$	DC Current Gain <sup>(1)</sup>	$V_{CE} = -4\text{ V}, I_C = -1\text{ A}$	25		
		$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$	10	50	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage <sup>(1)</sup>	$I_C = -3\text{ A}, I_B = -375\text{ mA}$		-1.2	V
$V_{BE(on)}$	Base-Emitter On Voltage <sup>(1)</sup>	$V_{CE} = -4\text{ V}, I_C = -3\text{ A}$		-1.8	V
$f_T$	Current Gain Bandwidth Product	$V_{CE} = -10\text{ V}, I_C = -500\text{ mA}, f = 1\text{ MHz}$	3.0		MHz

### Note:

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

## Typical Performance Characteristics

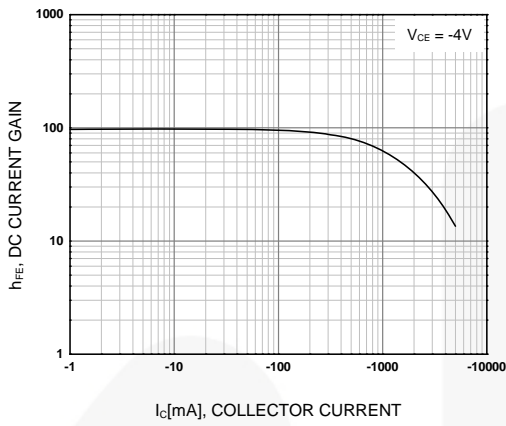


Figure 1. DC Current Gain

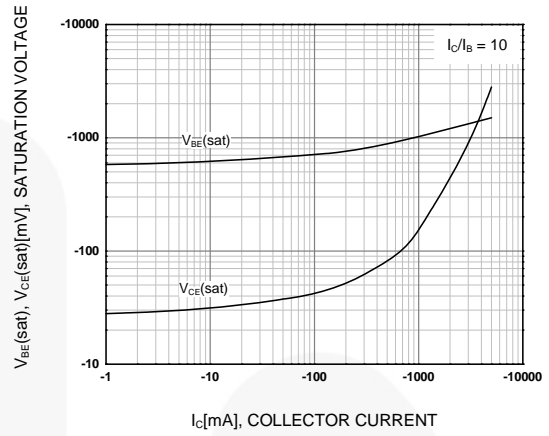


Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

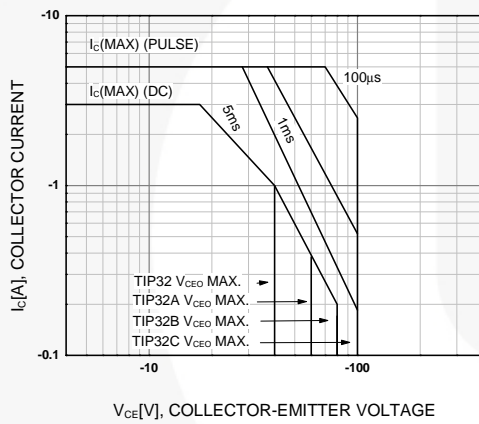


Figure 3. Safe Operating Area

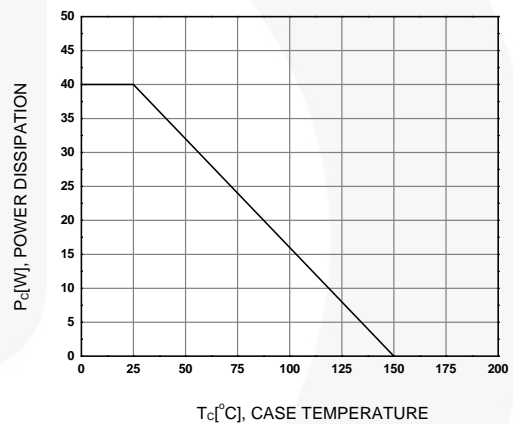


Figure 4. Power Derating

Physical Dimensions



Figure 5. TO-220, MOLDED, 3LEAD, JEDEC VARIATION AB



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