

# TIP32C

### Power transistor

## Applications

■ Linear and swithing industrial equipment

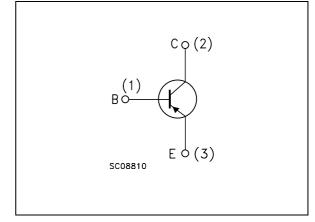
## Description

The TIP32C is a silicon Epitaxial-base PNP power transistor in Jedec TO-220 plastic package. It is intented for use in medium power linear and switching applications.

The complementary NPN type is TIP31C.



### Internal schematic diagram



#### **Order codes**

Part number	Marking	Package	Packing
TIP32C	TIP32C	TO-220	Tube

## 1 Absolute maximum ratings

Table 1.	Absolute maximum ratings

Symbol	Parameter	Value	Unit
V <sub>CBO</sub>	Collector-base voltage (I <sub>E</sub> = 0)	-100	V
V <sub>CEO</sub>	Collector-emitter voltage ( $I_B = 0$ )	-100	V
V <sub>EBO</sub>	Emitte-base voltage (I <sub>C</sub> = 0)	-5	V
۱ <sub>C</sub>	Collector current	-3	А
I <sub>CM</sub>	Collector peak current (t <sub>P</sub> < 5ms)	-5	А
Ι <sub>Β</sub>	Base current	-1	А
P <sub>TOT</sub>	Total dissipation at $T_{case} = 25^{\circ}C$ $T_{amb} = 25^{\circ}C$	40 2	W W
T <sub>stg</sub>	Storage temperature	-65 to 150	°C
TJ	Max. operating junction temperature	150	°C

## 2 Electrical characteristics

 $(T_{case} = 25^{\circ}C; unless otherwise specified)$ 

Symbol	Parameter	Test Conditions		Min.	Тур.	Max.	Unit
I <sub>CEO</sub>	Collector cut-off current $(I_B = 0)$	V <sub>CB</sub> =-60V				-0.3	mA
I <sub>CES</sub>	Collector cut-off current $(V_{BE} = 0)$	V <sub>CB</sub> =-100V				-0.2	mA
I <sub>EBO</sub>	Emitter cut-off current (I <sub>C</sub> = 0)	V <sub>EB</sub> =-5V				-1	mA
V <sub>CEO(sus</sub> (1)	Collector-emitter sustaining voltage (I <sub>B</sub> = 0)	I <sub>C</sub> = -30mA		-100			V
V <sub>CE(sat)</sub> <sup>(1)</sup>	Collector-emitter saturation voltage	I <sub>C</sub> = -3A I <sub>B</sub> =	375mA			-1.2	v
V <sub>BE(on)</sub> <sup>(1)</sup>	Base-emitter voltage	I <sub>C</sub> = -3A V <sub>CE</sub>	=-4V			-1.8	V
h <sub>FE</sub> <sup>(1)</sup>	DC current gain	$I_{C} = -1A \qquad V_{CE}$ $I_{C} = -3A \qquad V_{CE}$	=-4V =-4V	25 10		50	

 Table 2.
 Electrical characteristics

1. Pulsed duration = 300 ms, duty cycle  $\ge 1.5\%$ .

57

GC57291

T<sub>C</sub> (℃)

∣<sub>S/B</sub>

### 2.1 Typical characteristic

Figure 1. Safe operating area

#### Figure 2. Derating Curves

P<sub>tot</sub> (%)

100

50

0

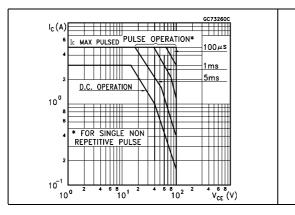


Figure 3. DC current gain

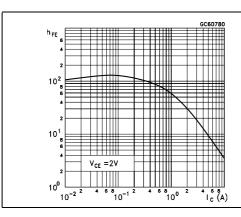


Figure 5. Base-emitter saturation voltage

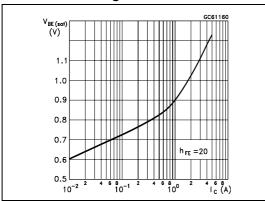
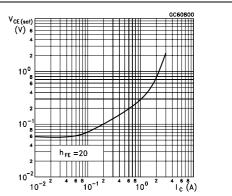


Figure 4. Collector-emitter saturation voltage

50

Ptot

100





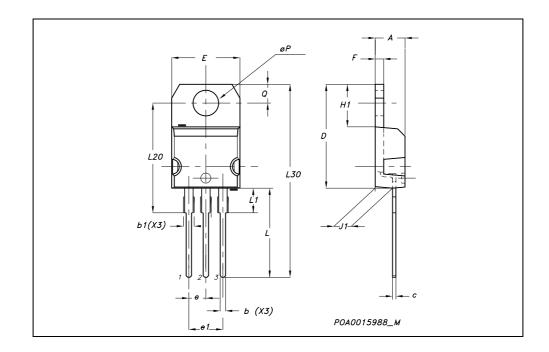
## **3** Package Mechanical Data

In order to meet environmental requirements, ST offers these devices in ECOPACK® packages. These packages have a Lead-free second level interconnect . The category of second level interconnect is marked on the package and on the inner box label, in compliance with JEDEC Standard JESD97. The maximum ratings related to soldering conditions are also marked on the inner box label. ECOPACK is an ST trademark. ECOPACK specifications are available at: www.st.com



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	TO-220 MECHANICAL DATA						
		mm.			inch	h	
DIM.	MIN.	TYP	MAX.	MIN.	TYP.	MAX.	
А	4.40		4.60	0.173		0.181	
b	0.61		0.88	0.024		0.034	
b1	1.15		1.70	0.045		0.066	
С	0.49		0.70	0.019		0.027	
D	15.25		15.75	0.60		0.620	
Е	10		10.40	0.393		0.409	
е	2.40		2.70	0.094		0.106	
e1	4.95		5.15	0.194		0.202	
F	1.23		1.32	0.048		0.052	
H1	6.20		6.60	0.244		0.256	
J1	2.40		2.72	0.094		0.107	
L	13		14	0.511		0.551	
L1	3.50		3.93	0.137		0.154	
L20		16.40			0.645		
L30		28.90			1.137		
øР	3.75		3.85	0.147		0.151	
Q	2.65		2.95	0.104		0.116	





## 4 Revision History

Table 3. Revision history

Date	Revision	Changes		
10-Oct-1999	1	Initial Release		
15-Nov-2006	2	The document has been reformatted		



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