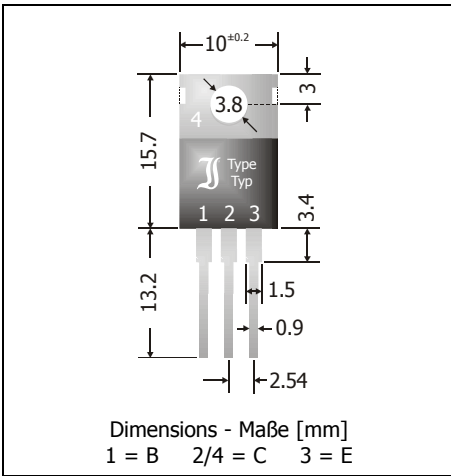


**TIP32 ... TIP32C**  
**General Purpose Silicon Power Transistors**  
**Silizium Leistungs-Transistoren für universellen Einsatz**

**PNP** **PNP**

Version 2006-07-18



Max. power dissipation with cooling  
 Max. Verlustleistung mit Kühlung 40 W

Collector current  
 Kollektorstrom 3 A

Plastic case  
 Kunststoffgehäuse TO-220AB

Weight approx.  
 Gewicht ca. 2.2 g

Plastic material has UL classification 94V-0  
 Gehäusematerial UL94V-0 klassifiziert

Standard packaging in tubes  
 Standard Lieferform in Stangen



**Maximum ratings (T<sub>A</sub> = 25°C)**

**Grenzwerte (T<sub>A</sub> = 25°C)**

			TIP32	TIP32A	TIP32B	TIP32C
Collector-Emitter-voltage	B open	- V <sub>CEO</sub>	40 V	60 V	80 V	100 V
Collector-Emitter-voltage	E open	- V <sub>CES</sub>	40 V	60 V	80 V	100 V
Emitter-Base-voltage	C open	- V <sub>EBO</sub>	5 V			
Power dissipation – Verlustleistung						
without cooling – ohne Kühlung	T <sub>A</sub> = 25°C	P <sub>tot</sub>	2 W <sup>1)</sup>			
with cooling – mit Kühlung	T <sub>C</sub> = 25°C	P <sub>tot</sub>	40 W			
Collector current – Kollektorstrom (dc)		- I <sub>C</sub>	3 A			
Peak Collector current – Kollektor-Spitzenstrom		- I <sub>CM</sub>	5 A			
Base current – Basisstrom		- I <sub>B</sub>	1 A			
Junction temperature – Sperrschichttemperatur		T <sub>j</sub>	-55...+150°C			
Storage temperature – Lagerungstemperatur		T <sub>s</sub>	-55...+150°C			

**Characteristics (T<sub>j</sub> = 25°C)**

**Kennwerte (T<sub>j</sub> = 25°C)**

		Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis <sup>2)</sup>				
- V <sub>CE</sub> = 4 V, - I <sub>C</sub> = 1 A	h <sub>FE</sub>	25	–	–
- V <sub>CE</sub> = 4 V, - I <sub>C</sub> = 3 A	h <sub>FE</sub>	10	–	50
Collector-Emitter saturation volt. – Kollektor-Emitter-Sättigungsspg. <sup>2)</sup>				
- I <sub>C</sub> = 3 A, - I <sub>B</sub> = 375 mA	- V <sub>CEsat</sub>	–	–	1.2 V
Base-Emitter voltage – Basis-Emitter-Spannung <sup>2)</sup>				
- V <sub>CE</sub> = 4 V, - I <sub>C</sub> = 3 A	- V <sub>BE</sub>	–	–	1.8 V

1 Valid, if leads are kept at ambient temperature at a distance of 5 mm from case  
 Gültig wenn die Anschlussdrähte in 5 mm Abstand vom Gehäuse auf Umgebungstemperatur gehalten werden

2 Tested with pulses t<sub>p</sub> = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t<sub>p</sub> = 300 µs, Schaltverhältnis ≤ 2%

**Characteristics (T<sub>j</sub> = 25°C)**
**Kennwerte (T<sub>j</sub> = 25°C)**

		Min.	Typ.	Max.	
<b>Collector-Emitter cutoff current – Kollektor-Emitter-Reststrom</b>					
- V <sub>CE</sub> = 30 V (B open)	TIP32	- I <sub>CE0</sub>	–	–	300 nA
	TIP32A	- I <sub>CE0</sub>	–	–	300 nA
- V <sub>CE</sub> = 60 V (B open)	TIP32B	- I <sub>CE0</sub>	–	–	300 nA
	TIP32C	- I <sub>CE0</sub>	–	–	300 nA
- V <sub>CE</sub> = 40 V (B-E short)	TIP32	- I <sub>CES</sub>	–	–	200 nA
	TIP32A	- I <sub>CES</sub>	–	–	200 nA
- V <sub>CE</sub> = 80 V (B-E short)	TIP32B	- I <sub>CES</sub>	–	–	200 nA
	TIP32C	- I <sub>CES</sub>	–	–	200 nA
- V <sub>CE</sub> = 100 V (B-E short)	TIP32B	- I <sub>CES</sub>	–	–	200 nA
	TIP32C	- I <sub>CES</sub>	–	–	200 nA
<b>Emitter-Base cutoff current</b>					
- V <sub>EB</sub> = 5 V, (C open)		- I <sub>EB0</sub>	–	–	1 mA
<b>Gain-Bandwidth Product – Transitfrequenz</b>					
- V <sub>CE</sub> = 10 V, - I <sub>C</sub> = 0.5 A, f = 1 MHz		f <sub>T</sub>	3 MHz	–	–
<b>Small signal current gain – Kleinsignal-Stromverstärkung</b>					
- V <sub>CE</sub> = 10 V, - I <sub>C</sub> = 0.5 A, f = 1 kHz		h <sub>fe</sub>	20	–	–
	- V <sub>CE</sub> = 10 V, - I <sub>C</sub> = 0.5 A, f = 1 MHz		h <sub>fe</sub>	3	–
<b>Switching times – Schaltzeiten (between 10% and 90% levels)</b>					
turn-on time	- I <sub>Con</sub> = 1 A	t <sub>on</sub>	–	300 ns	–
turn-off time	- I <sub>Bon</sub> = I <sub>Boff</sub> = 100 mA	t <sub>off</sub>	–	1 μs	–
<b>Thermal resistance junction to ambient air</b> Wärmewiderstand Sperrschicht – umgebende Luft		R <sub>thA</sub>	< 63 K/W <sup>1)</sup>		
<b>Thermal resistance junction to case</b> Wärmewiderstand Sperrschicht – Gehäuse		R <sub>thC</sub>	< 3 K/W		
<b>Admissible torque for mounting</b> Zulässiges Anzugsdrehmoment		M4	9 ± 10% lb.in. 1 ± 10% Nm		
<b>Recommended complementary NPN transistors</b> Empfohlene komplementäre NPN-Transistoren		TIP31 ... TIP31C			

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