



# THE DATASHEET OF TIP31B-BP





Micro Commercial Components



Micro Commercial Components  
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# TIP31/31A/31B/31C

## Features

- Halogen free available upon request by adding suffix "-HF"
- Lead Free Finish/RoHS Compliant(Note 1) ("P" Suffix designates RoHS Compliant. See ordering information)
- The complementary PNP types are the TIP32 respectively
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Marking : Part Number
- Mounting Torque: 5 in-lbs Maximum

**Absolute Maximum Ratings @ T<sub>j</sub> = 25°C (unless otherwise noted)**

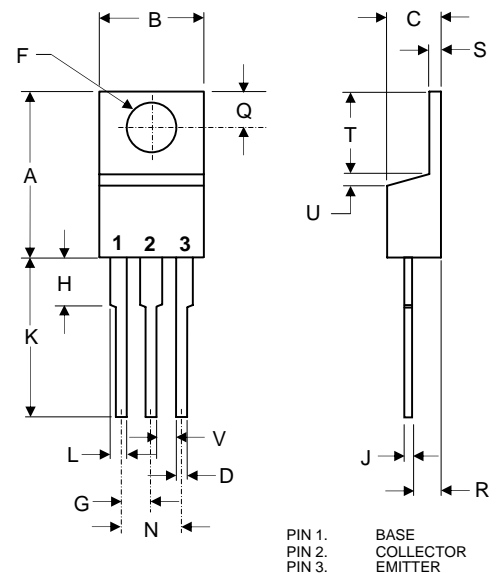
Symbol	Parameter	Value	Unit
V <sub>CB0</sub> TIP31 TIP31A TIP31B TIP31C	Collector-base voltage (Open emitter)	40 60 80 100	V
V <sub>CE0</sub> TIP31 TIP31A TIP31B TIP31C	Collector-emitter voltage (Open base)	40 60 80 100	V
V <sub>EB0</sub>	Emitter-base Voltage (Open collector)	5	V
I <sub>C</sub>	Collector Current	3	A
I <sub>CM</sub>	Collector Current Pulse	5	A
I <sub>B</sub>	Base Current	1	A
P <sub>C</sub>	Total Device Dissipation(Ta=25°C)	2	W
	Total Device Dissipation(Tc=25°C)	40	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>STG</sub>	Storage Temperature Range	-65 to +150	°C

## Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
V <sub>CE0(SUS)</sub> TIP31 TIP31A TIP31B TIP31C	Collector-emitter sustaining voltage (I <sub>C</sub> =30mA; I <sub>B</sub> =0)	40 60 80 100		V
V <sub>CE(sat)</sub>	Collector-emitter Saturation Voltage (I <sub>C</sub> =3A; I <sub>B</sub> =0.375A)		1.2	V
V <sub>BE</sub>	Base-emitter Voltage (I <sub>C</sub> =3A; V <sub>CE</sub> =4V)		1.8	V
I <sub>CES</sub> TIP31 TIP31A TIP31B TIP31C	Collector cut-off current (V <sub>CE</sub> =40V; V <sub>EB</sub> =0) (V <sub>CE</sub> =60V; V <sub>EB</sub> =0) (V <sub>CE</sub> =80V; V <sub>EB</sub> =0) (V <sub>CE</sub> =100V; V <sub>EB</sub> =0)		0.2	mA
I <sub>CEO</sub> TIP31/31A TIP31B/C	Collector cut-off current (V <sub>CE</sub> =30V; V <sub>EB</sub> =0) (V <sub>CE</sub> =60V; V <sub>EB</sub> =0)		0.3	mA
I <sub>EBO</sub>	Emitter cut-off current (V <sub>EB</sub> =5V; I <sub>C</sub> =0)		1.0	mA
H <sub>fe</sub>	DC current gain (I <sub>C</sub> =1A; V <sub>CE</sub> =4V) (I <sub>C</sub> =3A; V <sub>CE</sub> =4V)	25 10	50	
f <sub>T</sub>	Transition frequency (I <sub>C</sub> =0.5A; V <sub>CE</sub> =10V)	3		MHZ

## Silicon NPN Power Transistors

### TO-220AB



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.560	.625	14.22	15.88	
B	.380	.420	9.65	10.67	
C	.140	.190	3.56	4.82	
D	.020	.045	0.51	1.14	
F	.139	.161	3.53	4.09	∅
G	.190	.110	2.29	2.79	
H	---	.250	---	6.35	
J	.012	.025	0.30	0.64	
K	.500	.580	12.70	14.73	
L	.045	.060	1.14	1.52	
N	.190	.210	4.83	5.33	
Q	.100	.135	2.54	3.43	
R	.080	.115	2.04	2.92	
S	.045	.055	1.14	1.39	
T	.230	.270	5.84	6.86	
U	----	.050	----	1.27	
V	.045	----	1.15	----	

Notes:1.High Temperature Solder Exemption Applied, see EU Directive Annex 7.



## Ordering Information :

Device	Packing
Part Number-BP	Bulk; 1Kpcs/Box

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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