



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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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>EBO</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

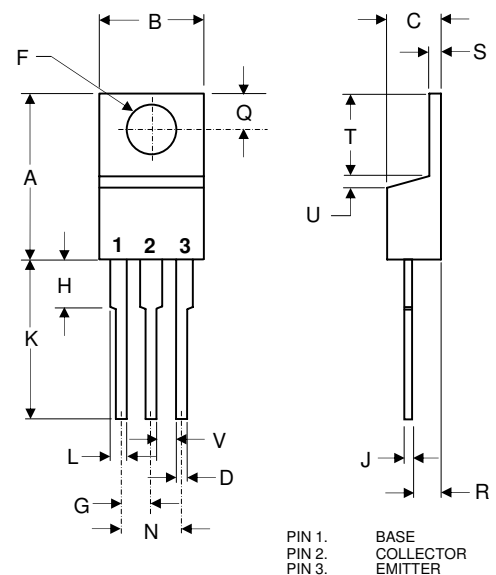
## Electrical Characteristics @ 25°C Unless Otherwise Specified

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

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

## 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	----	



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### Ordering Information :

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

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

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