



Micro Commercial Components



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

### Features

- 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

#### Absolute Maximum Ratings @ $T_A = 25^\circ\text{C}$ (unless otherwise noted)

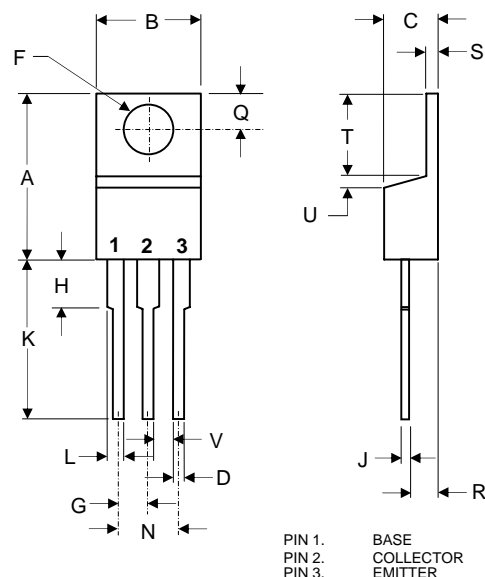
Symbol	Parameter	Value	Unit
$V_{CB0}$ TIP31 TIP31A TIP31B TIP31C	Collector-base voltage (Open emitter)	40 60 80 100	V
$V_{CE0}$ TIP31 TIP31A TIP31B TIP31C	Collector-emitter voltage (Open base)	40 60 80 100	V
$V_{EBO}$	Emitter-base Voltage (Open collector)	5	V
$I_C$	Collector Current	3	A
$I_{CM}$	Collector Current Pulse	5	A
$I_B$	Base Current	1	A
$P_C$	Total Device Dissipation( $T_A=25^\circ\text{C}$ )	2	W
	Total Device Dissipation( $T_C=25^\circ\text{C}$ )	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-65 to +150	$^\circ\text{C}$

#### Electrical Characteristics @ $25^\circ\text{C}$ Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
$V_{CE0(SUS)}$ TIP31 TIP31A TIP31B TIP31C	Collector-emitter sustaining voltage ( $I_C=30\text{mA}$ ; $I_B=0$ )	40 60 80 100		V
$V_{CE(sat)}$	Collector-emitter Saturation Voltage ( $I_C=3A$ ; $I_B=0.375A$ )		1.2	V
$V_{BE}$	Base-emitter Voltage ( $I_C=3A$ ; $V_{CE}=4V$ )		1.8	V
$I_{CES}$ TIP31 TIP31A TIP31B TIP31C	Collector cut-off current ( $V_{CE}=40V$ ; $V_{EB}=0$ ) ( $V_{CE}=60V$ ; $V_{EB}=0$ ) ( $V_{CE}=80V$ ; $V_{EB}=0$ ) ( $V_{CE}=100V$ ; $V_{EB}=0$ )		0.2	mA
$I_{CEO}$ TIP31/31A TIP31B/C	Collector cut-off current ( $V_{CE}=30V$ ; $V_{EB}=0$ ) ( $V_{CE}=60V$ ; $V_{EB}=0$ )		0.3	mA
$I_{EBO}$	Emitter cut-off current ( $V_{EB}=5V$ ; $I_C=0$ )		1.0	mA
$H_{fe}$	DC current gain ( $I_C=1A$ ; $V_{CE}=4V$ ) ( $I_C=3A$ ; $V_{CE}=4V$ )	25 10	50	
$f_T$	Transition frequency ( $I_C=0.5A$ ; $V_{CE}=10V$ )	3		MHZ

### Silicon NPN Power Transistors

#### TO-220AB



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
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	Ø
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

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