



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_a = 25°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 _{CEO} 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°C)	2	W
	Total Device Dissipation(T _c =25°C)	40	W
T _J	Junction Temperature	150	°C
T _{STG}	Storage Temperature Range	-65 to +150	°C

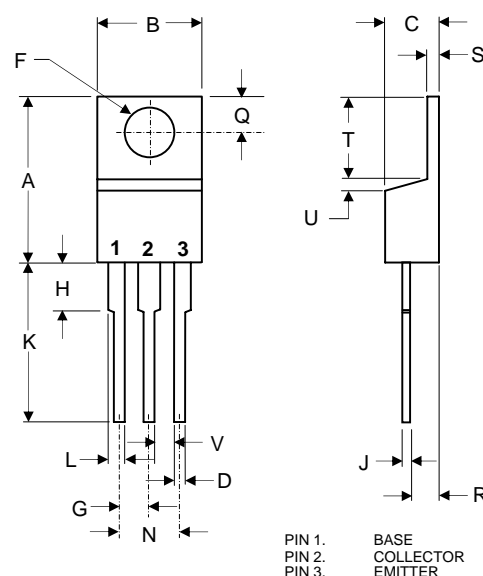
Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
V _{CEO(SUS)} TIP31 TIP31A TIP31B TIP31C	Collector-emitter sustaining voltage (I _C =30mA; 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

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

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	----	

Fig. 1 - DC Current Gain Curve

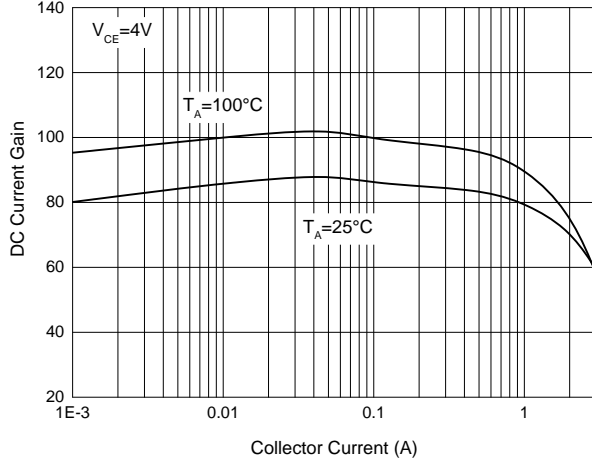


Fig. 2 - Collector-emitter Saturation Voltage Curve

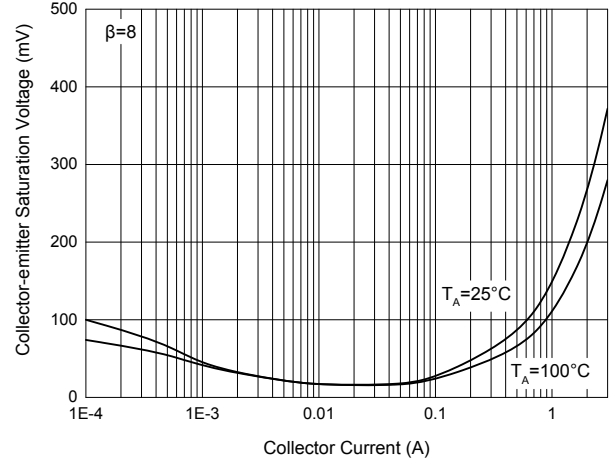


Fig. 3 - Base-emitter Voltage Curve

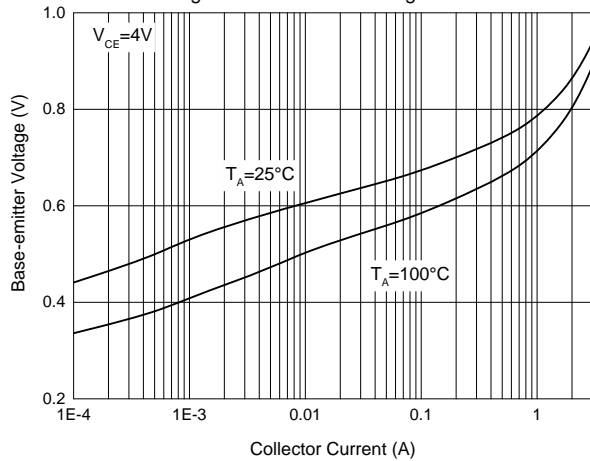
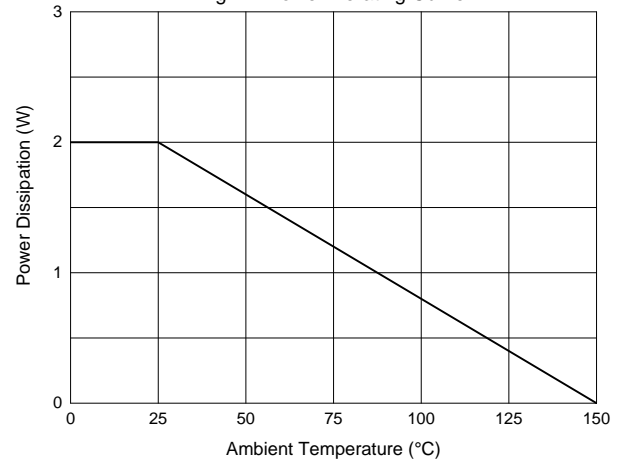


Fig. 4 - Power Derating Curve



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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