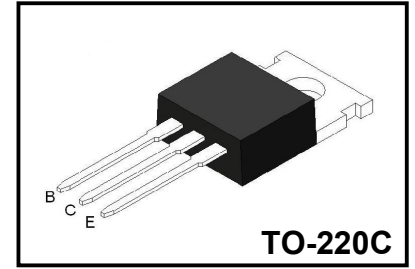


Plastic-Encapsulate Transistors
NPN Epitaxial Silicon Transistor



Medium Power Linear Switching Applications

†Complementary to TIP32/32A/32B/32C

Absolute Maximum Rating (Ta=25°C)

Parameter	Symbol	Value				Unit
		TIP31	TIP31A	TIP31B	TIP31C	
Collector-Base Voltage	V _{CB0}	40	60	80	100	V
Collector-Emitter Voltage	V _{CEO}	40	60	80	100	V
Emitter-Base Voltage	V _{EBO}	5				V
Collector Current(DC)	I _C	3				A
Collector Dissipation	P _C	2				W
		40				
Junction Temperature	T _J	150				°C
Storage Temperature	T _{stg}	-65~150				°C

Electrical Characteristics (Ta=25°C)

Parameter		Symbol	Conditions	Value			Unit
				Min	Typ	Max	
Collector-Emitter Sustaining Voltage	TIP31	V _{CEO(sus)}	I _C = 30mA, I _B = 0	40			V
	TIP31A			60			
	TIP31B			80			
	TIP31C			100			
Collector cut-off current	TIP31	I _{CBO}	V _{CE} =40V, I _E =0 V _{CE} =60V, I _E =0 V _{CE} =80V, I _E =0 V _{CE} =100V, I _E =0			200	μA
	TIP31A						
	TIP31B						
	TIP31C						
Collector cut-off current	TIP31/31A TIP31B/31C	I _{CEO}	V _{CB} =30V, I _E =0 V _{CB} =60V, I _E =0			0.3	mA
Emitter cut-off current			V _{EB} = 5V, I _C = 0			1	mA
* DC current gain		h _{FE}	V _{CE} =4V, I _C =1A V _{CE} =4V, I _C =3A	25 10		50	
*Collector-emitter saturation voltage		V _{CE(sat)}	I _C = 3A, I _B =375mA			1.2	V
* Base-Emitter ON Voltage		V _{BE (on)}	V _{CE} =4V, I _C =3A			1.8	V
Current Gain Bandwidth Product		f _T	V _{CE} =10V, I _C =500mA	3.0			MHz

* Pulse Test : PW≤300μs, Duty cycle≤2%

Package Dimensions

TO-220C

Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.34	4.67	0.171	0.184
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

Summary of Packing Options

Package	Packing Description	Packing Quantity	Industry Standard
TO-220C	Tube	50/1000/5000	EIA-481-1