Elektronische Bauelemente

TIP31 / TIP31A / TIP31B / TIP31C

NPN Plastic-Encapsulate Transistor

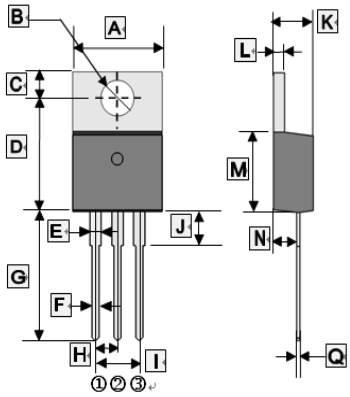
RoHS Compliant Product

A suffix of “-C” specifies halogen and lead free

FEATURES

- Medium Power Linear Switching Applications

TO-220J



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	10.010	10.350	I	4.980	5.180
B	3.735	3.935	J	3.560	3.960
C	2.590	2.890	K	4.470	4.670
D	12.060	12.460	L	1.200	1.400
E	1.170	1.370	M	8.500	8.900
F	0.710	0.910	N	2.520	2.820
G	13.400	13.800	Q	0.330	0.650
H	2.540 TYP.				

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Ratings				Unit
		TIP31	TIP31A	TIP31B	TIP31C	
Collector - Base Voltage	V_{CBO}	40	60	80	100	V
Collector - Emitter Voltage	V_{CEO}	40	60	80	100	V
Emitter - Base Voltage	V_{EBO}	5				V
Collector Current -Continuous	I_C	3				A
Cpllector Power Dissipation	P_C	2				W
Maximum Junction to Ambient	$R_{\theta JA}$	62.5				℃ / W
Junction, Storage Temperature	T_J, T_{STG}	150, -55~150				℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Parameter		Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Collector - Base Breakdown Voltage	TIP31	$V_{(BR)CBO}$	40	-	-	V	I_C=1mA, I_E=0
	TIP31A		60	-	-		
	TIP31B		80	-	-		
	TIP31C		100	-	-		
Collector - Emitter Breakdown Voltage[1]	TIP31	$V_{(BR)CEO}$	40	-	-	V	I_C=30mA, I_B=0
	TIP31A		60	-	-		
	TIP31B		80	-	-		
	TIP31C		100	-	-		
Emitter - Base Breakdown Voltage		$V_{(BR)EBO}$	5	-	-	V	I_E=1mA, I_C=0
Collector Cut - Off Current	TIP31	I_{CBO}	-	-	200	μA	V_{CB}=40V, I_E=0
	TIP31A						V_{CB}=60V, I_E=0
	TIP31B						V_{CB}=80V, I_E=0
	TIP31C						V_{CB}=100V, I_E=0
Collector Cut-Off Current	TIP31 / TIP31A	I_{CEO}	-	-	0.3	mA	V_{CE}=30V, I_B=0
	TIP31B / TIP31C						V_{CE}=60V, I_B=0
Emitter Cut-Off Current		I_{EBO}	-	-	1	mA	V_{EB}=5V, I_C=0
DC Current Gain		h_{FE}	25	-	-		V_{CE}=4V, I_C=1A
			15	-	75		V_{CE}=4V, I_C=3A
Collector - Emitter Saturation Voltage		$V_{CE(sat)}$	-	-	1.2	V	I_C=3A, I_B=0.375A
Base – Emitter Voltage		V_{BE}	-	-	1.8	V	V_{CE}=4V, I_C=3A
Transition Frequency		f_T	3	-	-	MHz	V_{CE}=10V, I_C=0.5A

Notes：

1. Pulse Test: PW≦300μs, Duty Cycle≦2%.