

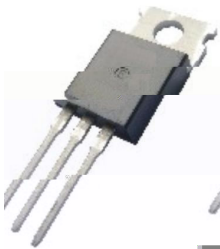
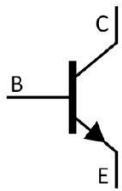
TIP31

Rev. H Oct.-2018

Silicon NPN transistor in a TO-220 Plastic Package.

Complement to TIP32.

Medium power linear switching applications.



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

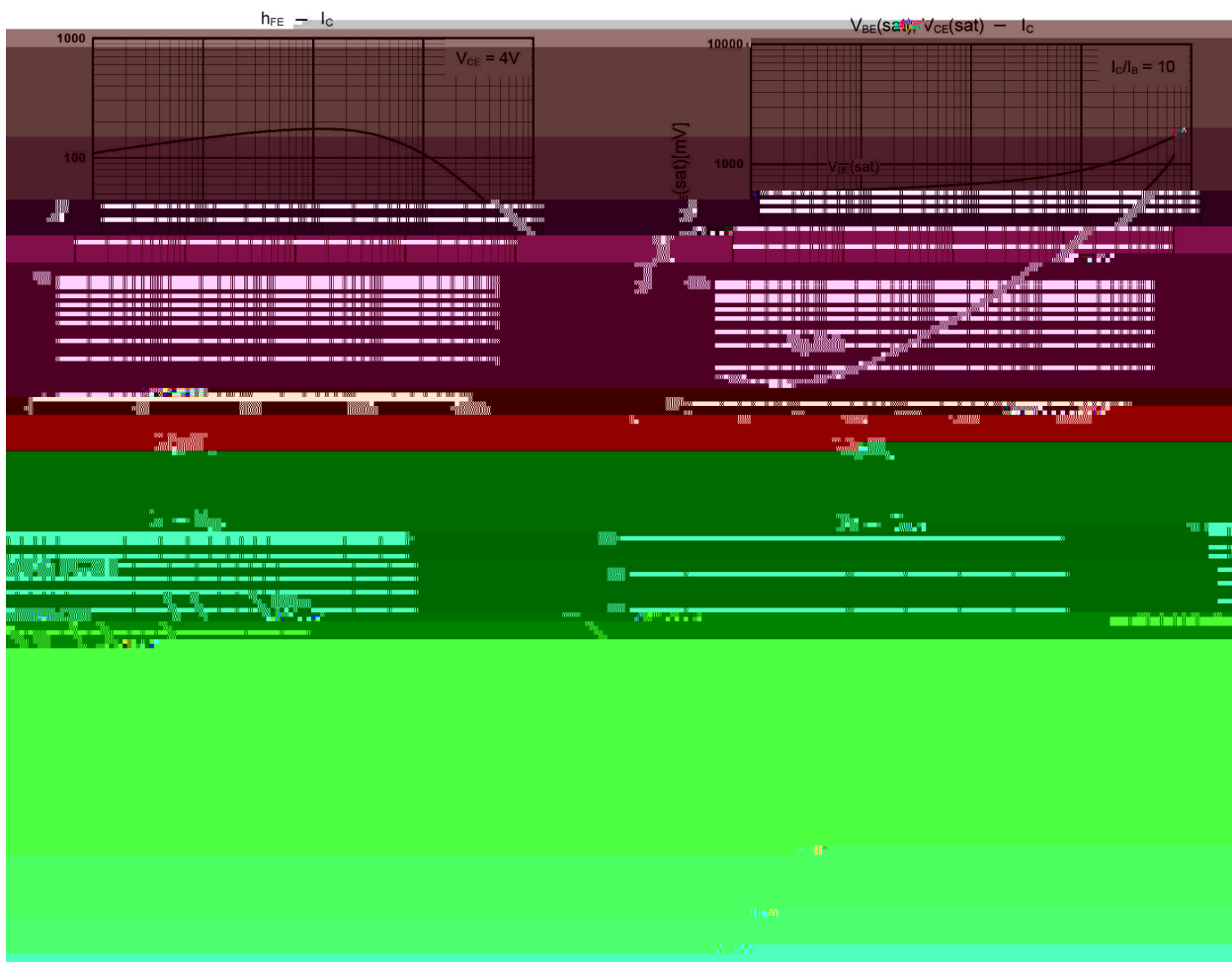
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating				Unit
		TIP31	TIP31A	TIP31B	TIP31C	
Collector to Base Voltage	V_{CBO}	40	60	80	100	V
Collector to Emitter Voltage	V_{CEO}	40	60	80	100	V
Emitter to Base Voltage	V_{EBO}	5.0				V
Collector Current - Continuous	I_C	3.0				A
Peak Collector Current	I_{CP}	5.0				A
Base Current - Continuous	I_B	1.0				A
Collector Power Dissipation	P_C	2.0				W
Collector Power Dissipation	$P_C(T_C=25^\circ\text{C})$	40				W
Junction Temperature	T_j	150				
Storage Temperature Range	T_{sag}	-55 150				

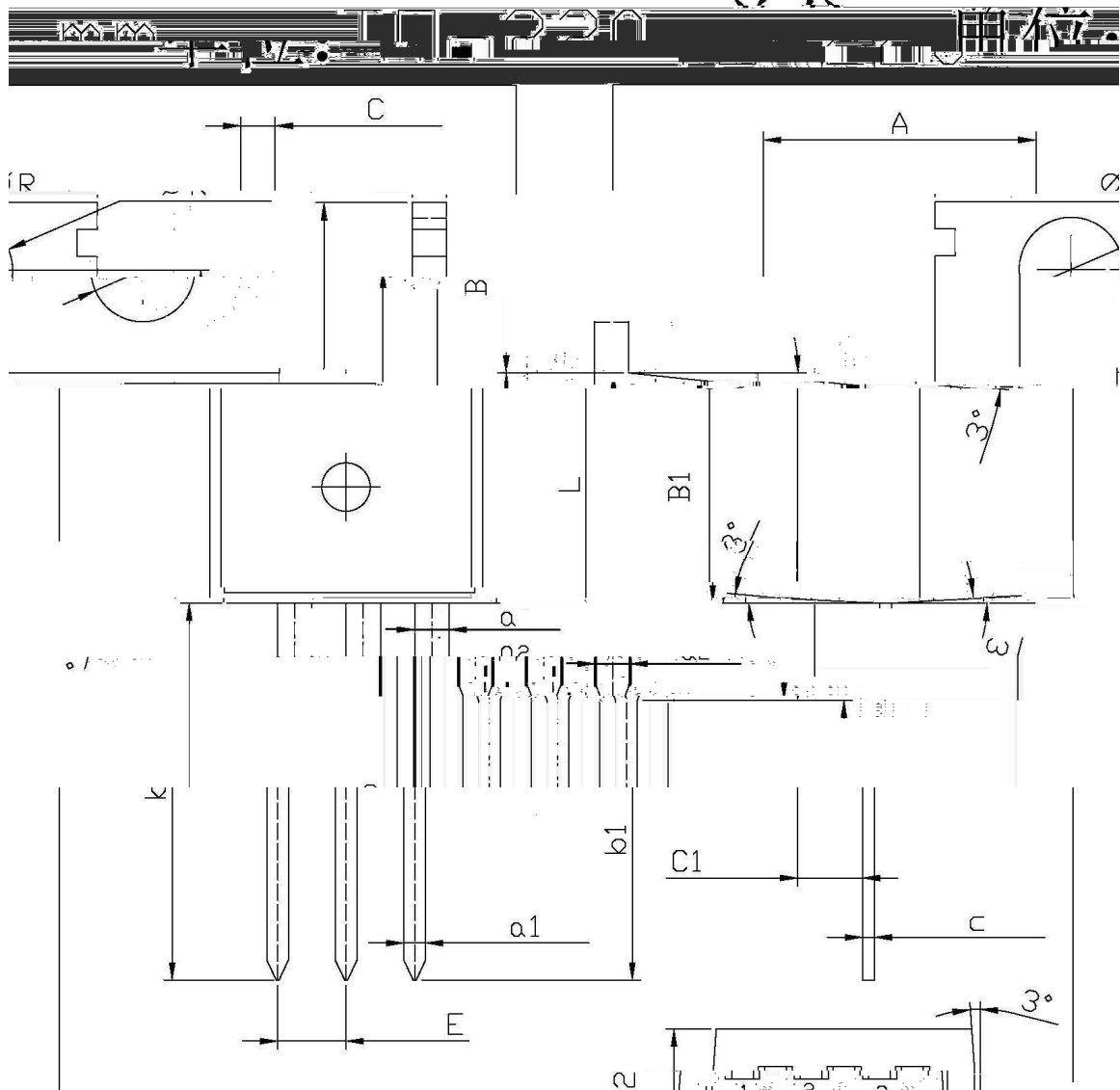
/ Electrical Characteristics(Ta=25)

Parameter	Symbol		Test Conditions	Min	Typ	Max	Unit
Collector to Emitter Breakdown Voltage	V_{CEO}	TIP31	$I_C=30\text{mA}$ $I_B=0$	40			V
		TIP31A		60			
		TIP31B		80			
		TIP31C		100			
Collector Cut-Off Current	I_{CEO}	TIP31 TIP31A	$V_{CE}=30\text{V}$ $I_B=0$			0.3	mA
		TIP31B TIP31C	$V_{CE}=60\text{V}$ $I_B=0$			0.3	
Collector Cut-Off Current	I_{CES}	TIP31	$V_{CE}=40\text{V}$ $V_{EB}=0$			200	μA
		TIP31A	$V_{CE}=60\text{V}$ $V_{EB}=0$			200	
		TIP31B	$V_{CE}=80\text{V}$ $V_{EB}=0$			200	
		TIP31C	$V_{CE}=100\text{V}$ $V_{EB}=0$			200	
Emitter Cut-Off Current	I_{EBO}		$V_{EB}=5.0\text{V}$ $I_C=0$			1.0	mA
DC Current Gain	$h_{FE(1)}$		$V_{CE}=4.0\text{V}$ $I_C=3.0\text{A}$	10		70	
	$h_{FE(2)}$		$V_{CE}=4.0\text{V}$ $I_C=1.0\text{A}$	25			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$		$I_C=3.0\text{A}$ $I_B=375\text{mA}$			1.2	V
Base to Emitter Voltage	V_{BE}		$I_C=3.0\text{A}$ $V_{CE}=4.0\text{V}$			1.8	V
Transition Frequency	f_T		$V_{CE}=10\text{V}$ $I_C=500\text{mA}$	3.0			MHz

/ Electrical Characteristic Curve



/ Package Dimensions

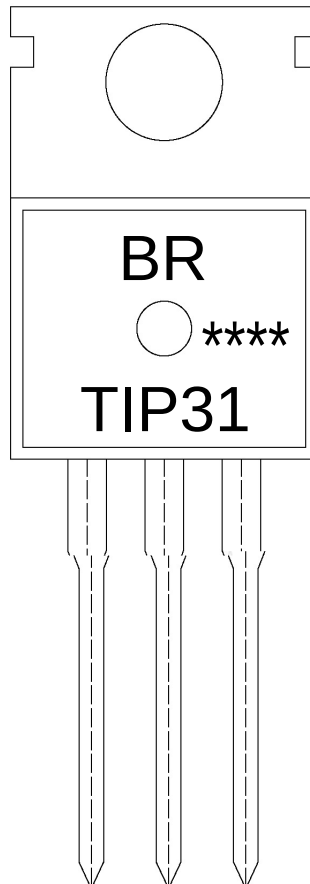


Dimensions in Millimeters			Dimensions in Millimeters		
Symbol	Min	Max	Symbol	Min	Max
A	15.7	16.1	B	9.0	9.4
C	2.2	2.6	E	1.2	1.6
A1	9.8	10.2	B1	2.2	2.6
C1	1.2	1.6	E1	1.2	1.6
a	2.2	2.6	a1	1.2	1.6
b1	2.2	2.6	k	1.2	1.6
R	0.2	0.3			

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/ Marking Instructions



BR

TIP31

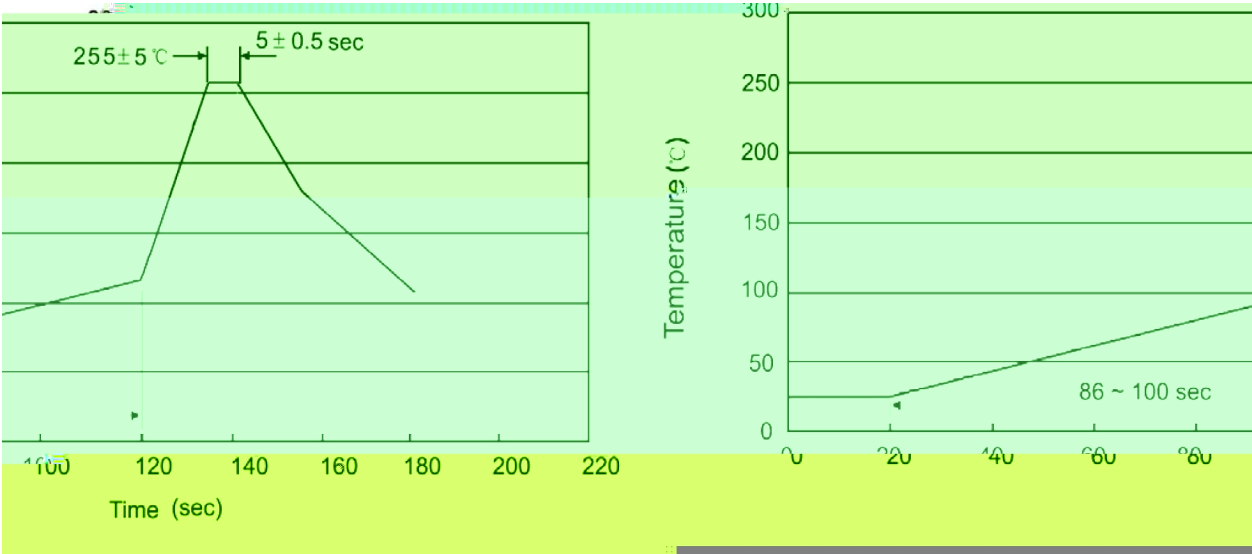
Note:

BR: Company Code

TIP31: Product Type.

****: Lot No. Code, code change with Lot No.

() / Temperature Profile for Dip Soldering(Pb-Free)



1 25 150 60 90sec;

Note:
1.Preheating:25~150