3A NPN Epitaxial Planar Power Transistor

TIP31CE3

Description

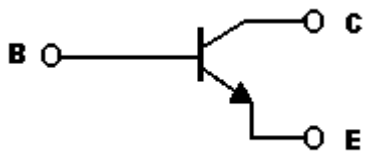
TIP31CE3 is designed for use in general purpose amplifier and switching applications.

Features

- Low collector-emitter saturation voltage, $V_{CE(sat)}$ = 1.2V(max) @ I_C = 3A
- High collector-emitter sustaining voltage, $BV_{CEO(SUS)}$ = 100V(min)
- High current gain-bandwidth product , f_T = 3MHz(min) @ I_C = 500mA

Symbol

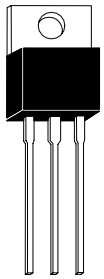
TIP31CE3



B：Base
C：Collector
E：Emitter

Outline

TO-220AB



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CEO}	100	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	3	A
Collector Current (Pulse)	I_{CP}	5 (Note 1)	
Base Current	I_B	1	A
Power Dissipation @ T_A=25℃	P_D	2	W
Power Dissipation @ T_C=25℃	P_D	40	
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.125	°C/W
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C

Note : 1. Single Pulse , Pw≦380μs, Duty≦2%.

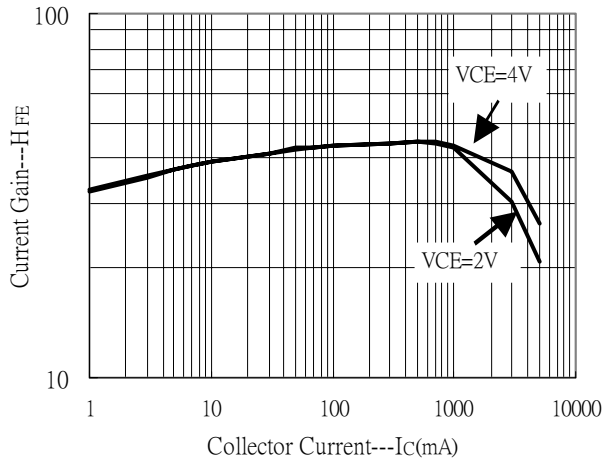
Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
*$BV_{CEO(SUS)}$	100	-	-	V	I_C=30mA, I_B=0
I_{CEO}	-	-	300	μA	V_{CE}=60V, I_B=0
I_{CES}	-	-	200	μA	V_{CE}=100V, V_{BE}=0
I_{EBO}	-	-	1	mA	V_{EB}=5V, I_C=0
*$V_{CE(sat)}$	-	-	1.2	V	I_C=3A, I_B=375mA
*$V_{BE(on)}$	-	-	1.8	V	V_{CE}=4V, I_C=3A
*h_{FE}	25	-	-	-	V_{CE}=4V, I_C=1A
*h_{FE}	10	-	50	-	V_{CE}=4V, I_C=3A
f_T	3	-	-	MHz	V_{CE}=10V, I_C=500mA, f=1MHz

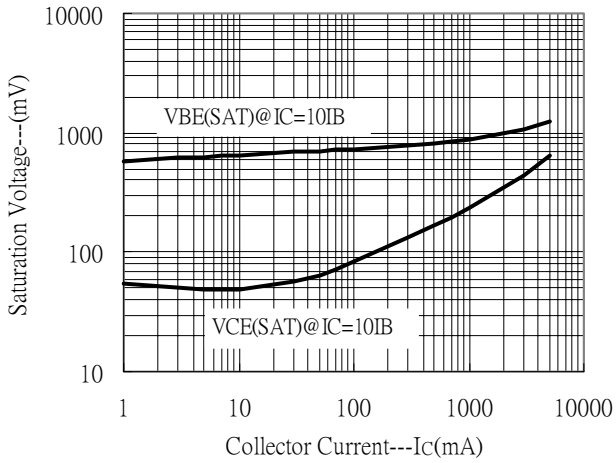
*Pulse Test : Pulse Width ≤380μs, Duty Cycle≤2%

Characteristic Curves

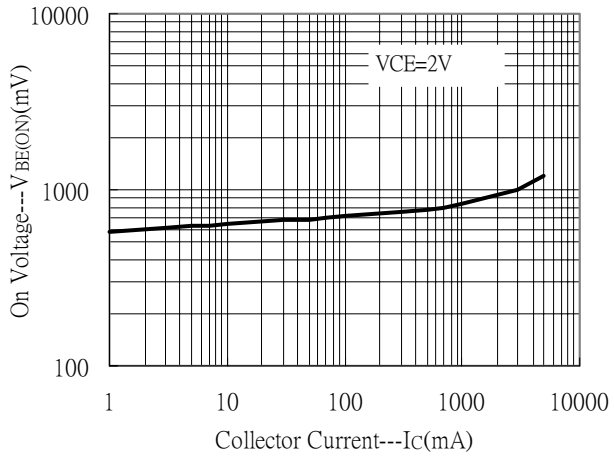
Current Gain vs Collector Current



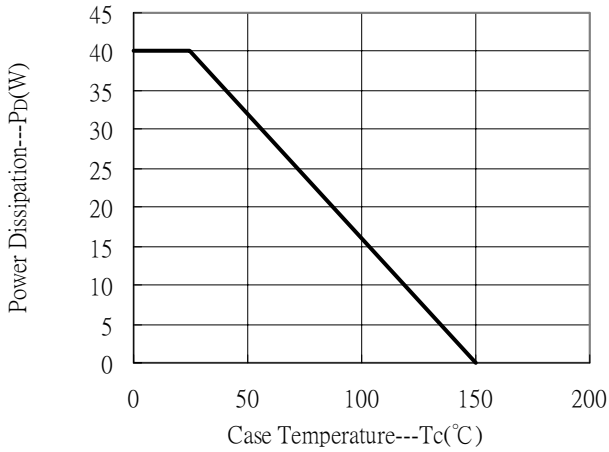
Saturation Voltage vs Collector Current



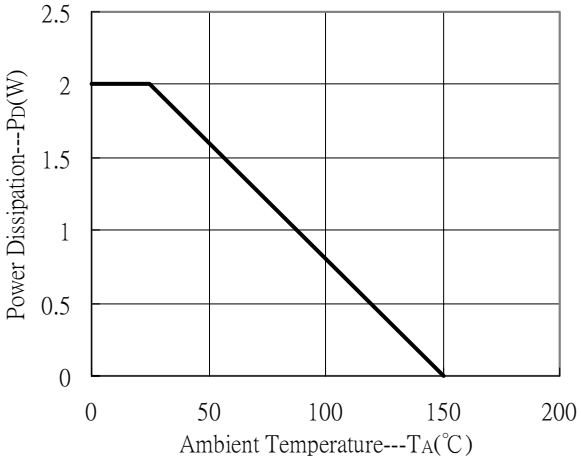
ON Voltage vs Collector Current



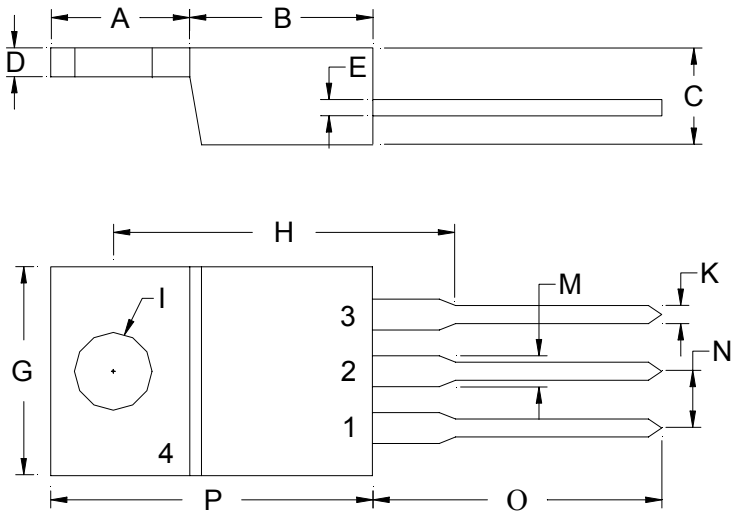
Power Derating Curve



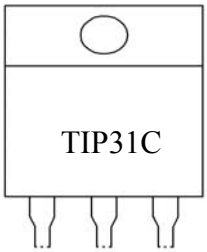
Power Derating Curve



TO-220AB Dimension



Marking:



Style: Pin 1.Base 2.Collector 3.Emitter
4.Collector

3-Lead TO-220AB Plastic Package
CYStek Package Code: E3

*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.2197	0.2949	5.58	7.49	I	-	*0.1508	-	*3.83
B	0.3299	0.3504	8.38	8.90	K	0.0295	0.0374	0.75	0.95
C	0.1732	0.185	4.40	4.70	M	0.0449	0.0551	1.14	1.40
D	0.0453	0.0547	1.15	1.39	N	-	*0.1000	-	*2.54
E	0.0138	0.0236	0.35	0.60	O	0.5000	0.5618	12.70	14.27
G	0.3803	0.4047	9.66	10.28	P	0.5701	0.6248	14.48	15.87
H	-	*0.6398	-	*16.25					

Notes: 1.Controlling dimension: millimeters.
2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.
3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

Material:

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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