Silicon NPN Epitaxial Planar Transistor

BTC2881E3

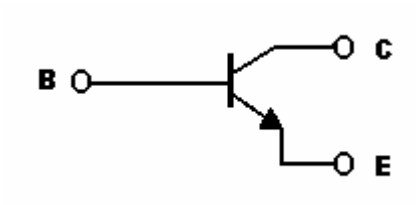
BV_{CEO}	200V
I_C	1A
$R_{CESAT(MAX)}$	0.86Ω

Description

- High breakdown voltage, $BV_{CEO} \geq$ 200V
- Large continuous collector current capability
- Low collector saturation voltage
- RoHS compliant package

Symbol

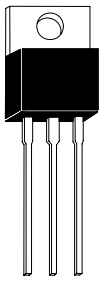
BTC2881E3



B：Base
C：Collector
E：Emitter

Outline

TO-220



B C E

Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Limits	Unit
Collector-Base Voltage	V_{CBO}	300	V
Collector-Emitter Voltage	V_{CEO}	200	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	1	A
Base Current	I_B	0.2	A
Power Dissipation @T_A=25℃	P_D	2	W
Power Dissipation @T_C=25℃		20	W
Operating Junction Temperature and Storage Temperature Range	Tj ; Tstg	-55~+150	°C

Thermal Data

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-case, max	$R_{th,j-c}$	6.25	°C/W
Thermal Resistance, Junction-to-ambient, max	$R_{th,j-a}$	62.5	°C/W

Characteristics (Ta=25°C)

Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	300	-	-	V	I_C=10μA
BV_{CEO}	200	-	-	V	I_C=10mA
BV_{EBO}	6	-	-	V	I_E=10μA
I_{CBO}	-	-	100	nA	V_{CB}=300V
I_{EBO}	-	-	100	nA	V_{EB}=6V
*$V_{CE(sat)}$	-	0.2	0.4	V	I_C=500mA, I_B=50mA
*$V_{CE(sat)}$	-	-	0.6	V	I_C=700mA, I_B=35mA
*$V_{BE(sat)}$	-	-	1	V	I_C=500mA, I_B=50mA
*$V_{BE(on)}$	-	-	1	V	V_{CE}=5V, I_C=500mA
*h_{FE} 1	140	-	-	-	V_{CE}=5V, I_C=50mA
*h_{FE} 2	160	-	320	-	V_{CE}=5V, I_C=100mA
*h_{FE} 3	30	-	-	-	V_{CE}=5V, I_C=700mA
f_T	-	120	-	MHz	V_{CE}=5V, I_C=100mA
Cob	-	-	30	pF	V_{CB}=10V, I_E=0A,f=1MHz

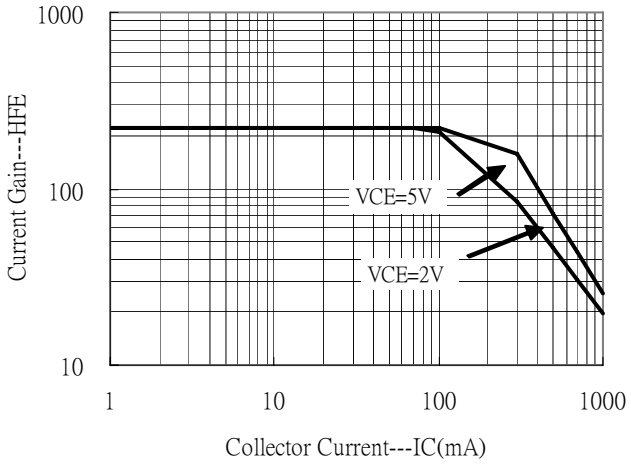
*Pulse Test: Pulse Width ≤300μs, Duty Cycle≤2%

Ordering Information

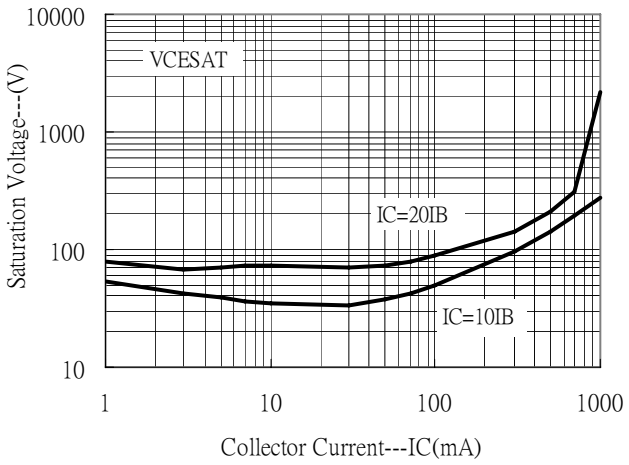
Device	Package	Shipping
BTC2881E3	TO-220 (RoHS compliant package)	50 pcs / tube , 40 tubes/box

Typical Characteristics

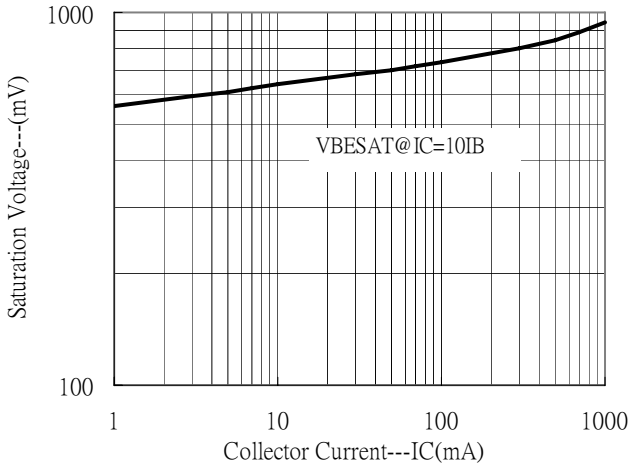
Current Gain vs Collector Current



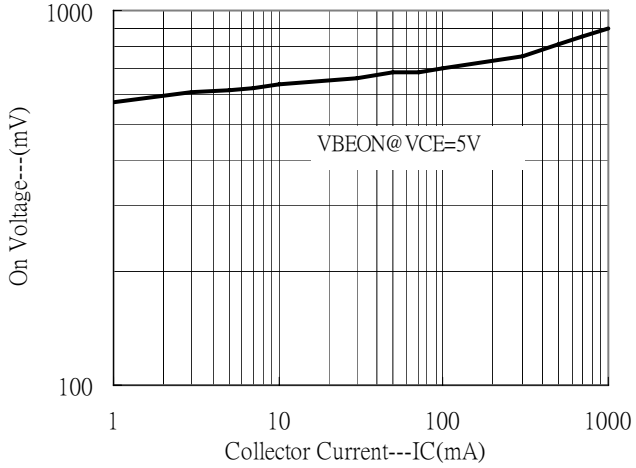
Saturation Voltage vs Collector Current



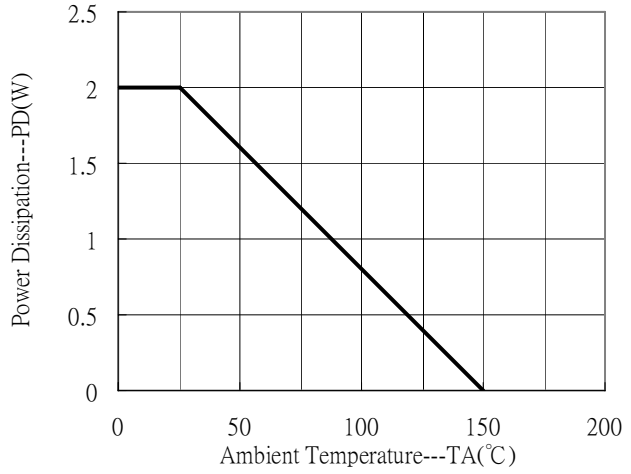
Saturation Voltage vs Collector Current



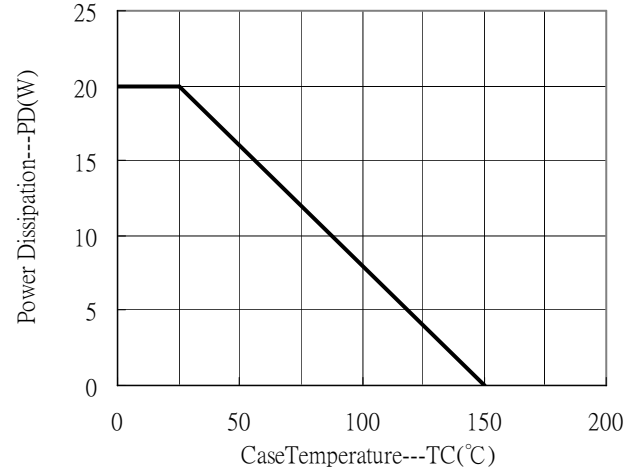
On Voltage vs Collector Current



Power Derating Curve



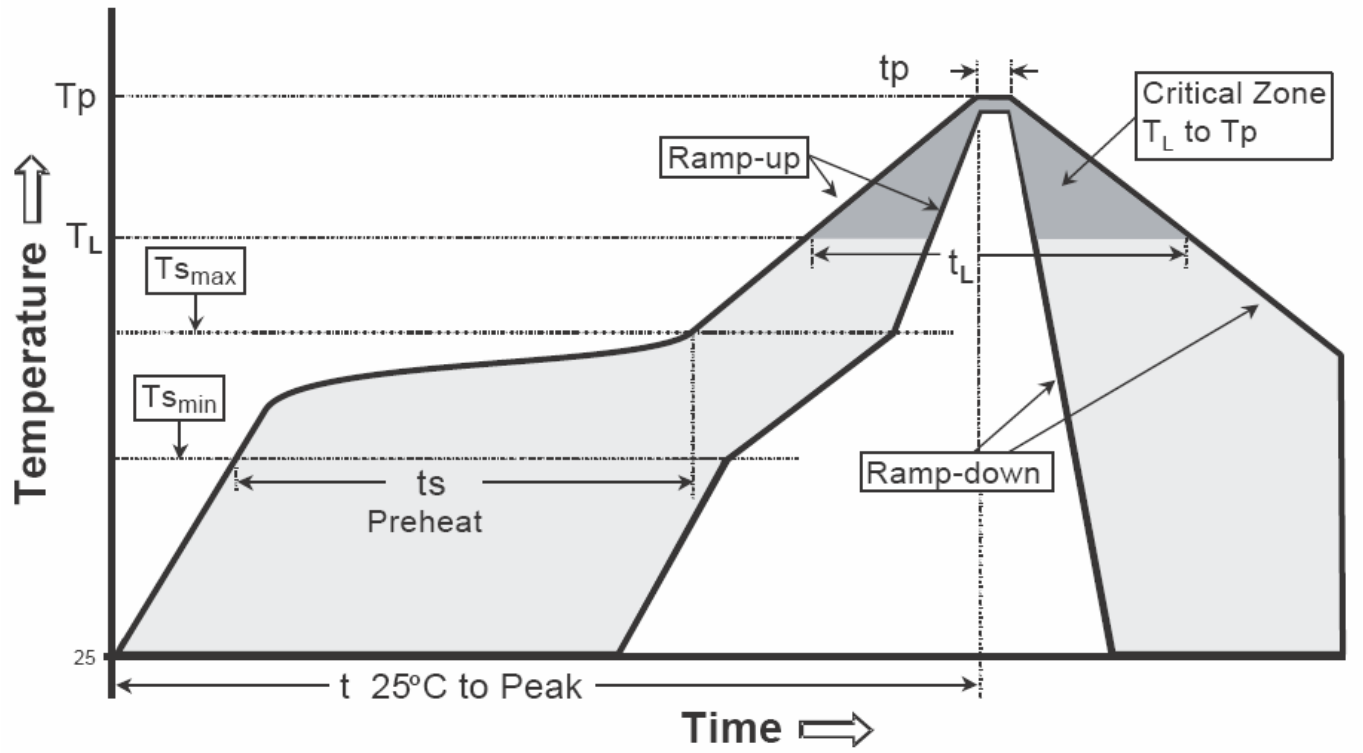
Power Derating Curve



Recommended wave soldering condition

Product	Peak Temperature	Soldering Time
Pb-free devices	260 +0/-5 °C	5 +1/-1 seconds

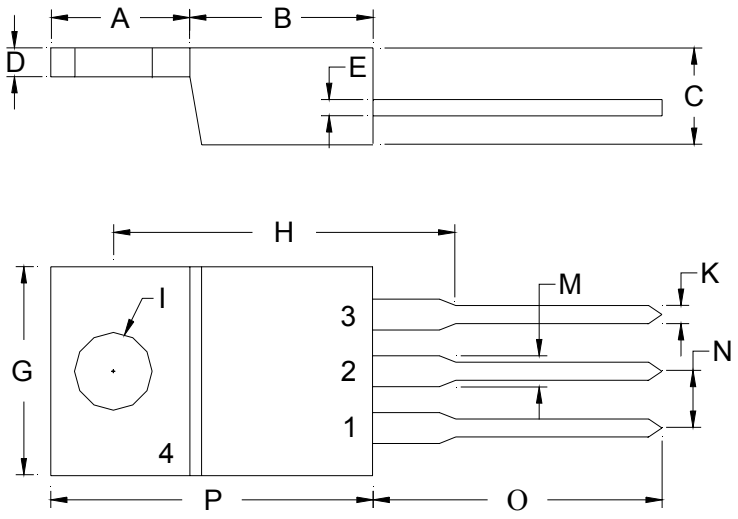
Recommended temperature profile for IR reflow



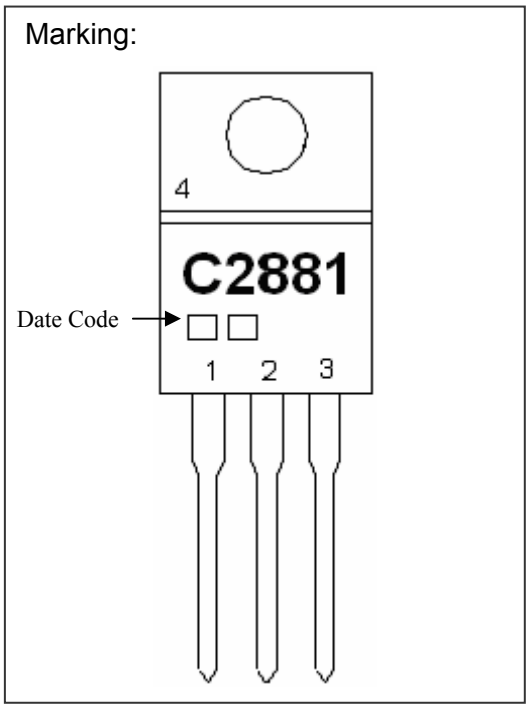
Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (Tsmax to Tp)	3°C/second max.	3°C/second max.
Preheat −Temperature Min(T_S min) −Temperature Max(T_S max) −Time($t_{s\ min}$ to $t_{s\ max}$)	 100°C 150°C 60-120 seconds	 150°C 200°C 60-180 seconds
Time maintained above: −Temperature (T_L) − Time (t_L)	 183°C 60-150 seconds	 217°C 60-150 seconds
Peak Temperature(T_P)	240 +0/-5 °C	260 +0/-5 °C
Time within 5°C of actual peak temperature(tp)	10-30 seconds	20-40 seconds
Ramp down rate	6°C/second max.	6°C/second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Note : All temperatures refer to topside of the package, measured on the package body surface.

TO-220 Dimension



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



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

*: 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: Pure tin plated.
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0.