

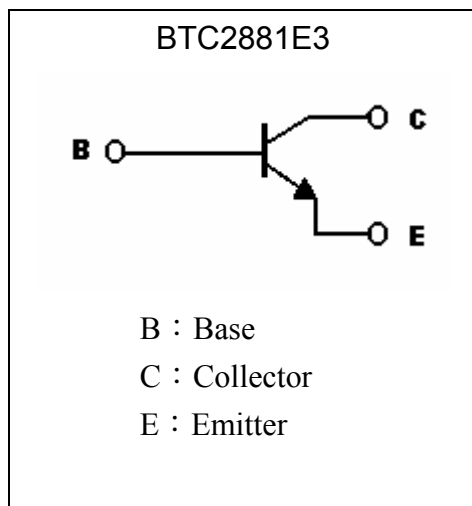
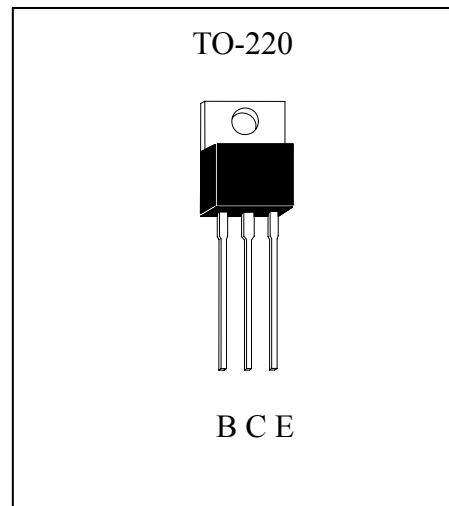
Silicon NPN Epitaxial Planar Transistor

BTC2881E3

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

Description

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

Symbol

Outline

Absolute Maximum Ratings ($T_a=25^\circ C$)

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 @ $T_A=25^\circ C$	P_D	2	W
Power Dissipation @ $T_C=25^\circ C$		20	W
Operating Junction Temperature and Storage Temperature Range	$T_j ; T_{stg}$	-55~+150	$^\circ C$

**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)

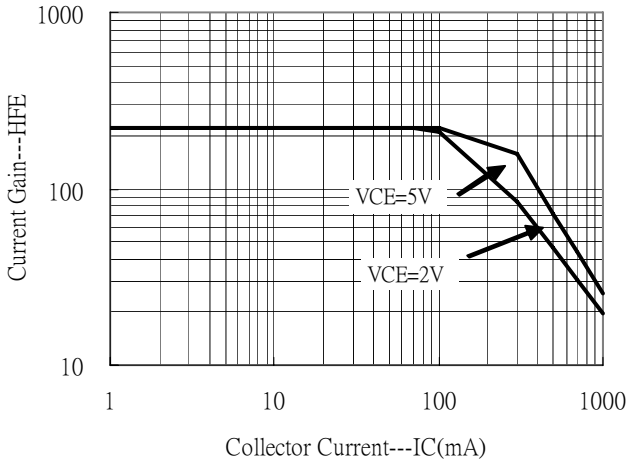
Symbol	Min.	Typ.	Max.	Unit	Test Conditions
BV_{CBO}	300	-	-	V	$I_C=10\mu A$
BV_{CEO}	200	-	-	V	$I_C=10mA$
BV_{EBO}	6	-	-	V	$I_E=10\mu A$
I_{CBO}	-	-	100	nA	$V_{CB}=300V$
I_{EBO}	-	-	100	nA	$V_{EB}=6V$
* $V_{CE(sat)}$	-	0.2	0.4	V	$I_C=500mA, I_B=50mA$
* $V_{CE(sat)}$	-	-	0.6	V	$I_C=700mA, I_B=35mA$
* $V_{BE(sat)}$	-	-	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 $\leq 300\mu s$, Duty Cycle $\leq 2\%$ **Ordering Information**

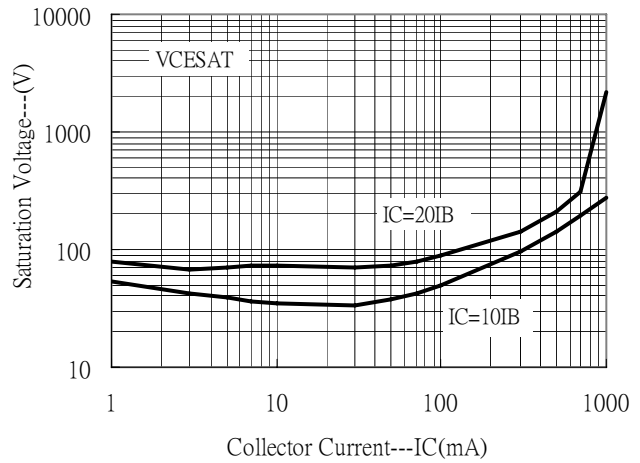
Device	Package	Shipping
BTC2881E3	TO-220 (RoHS compliant package)	50 pcs / tube , 40 tubes/box

Typical Characteristics

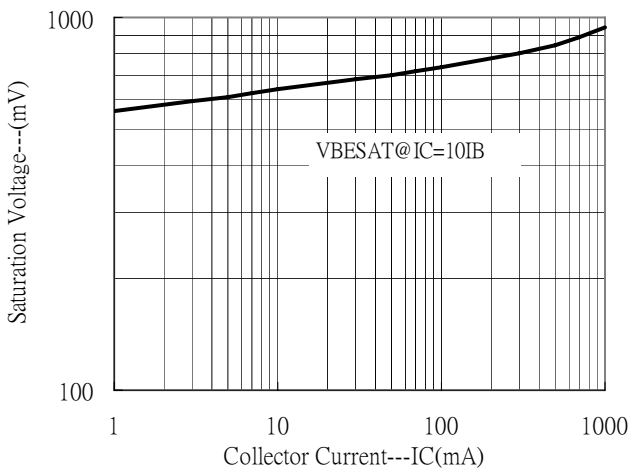
Current Gain vs Collector Current



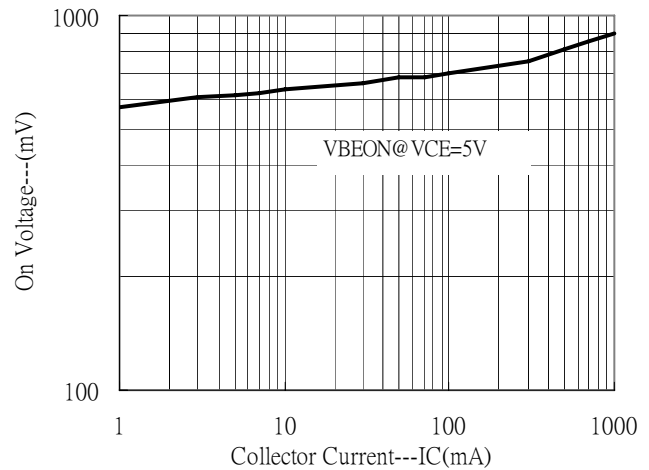
Saturation Voltage vs Collector Current



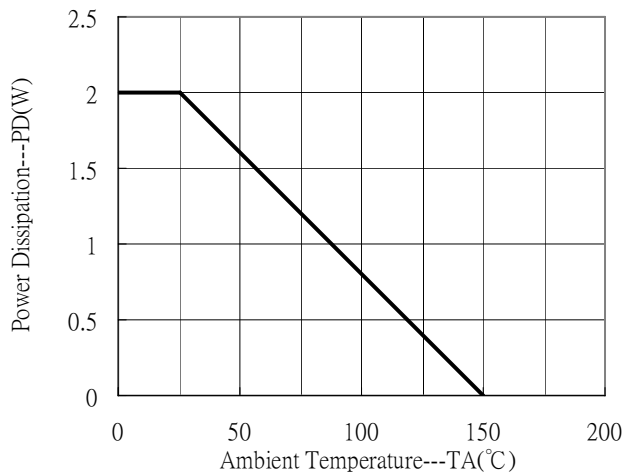
Saturation Voltage vs Collector Current



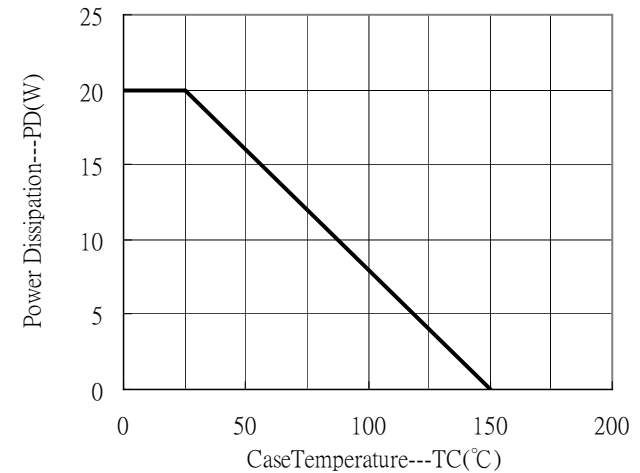
On Voltage vs Collector Current



Power Derating Curve



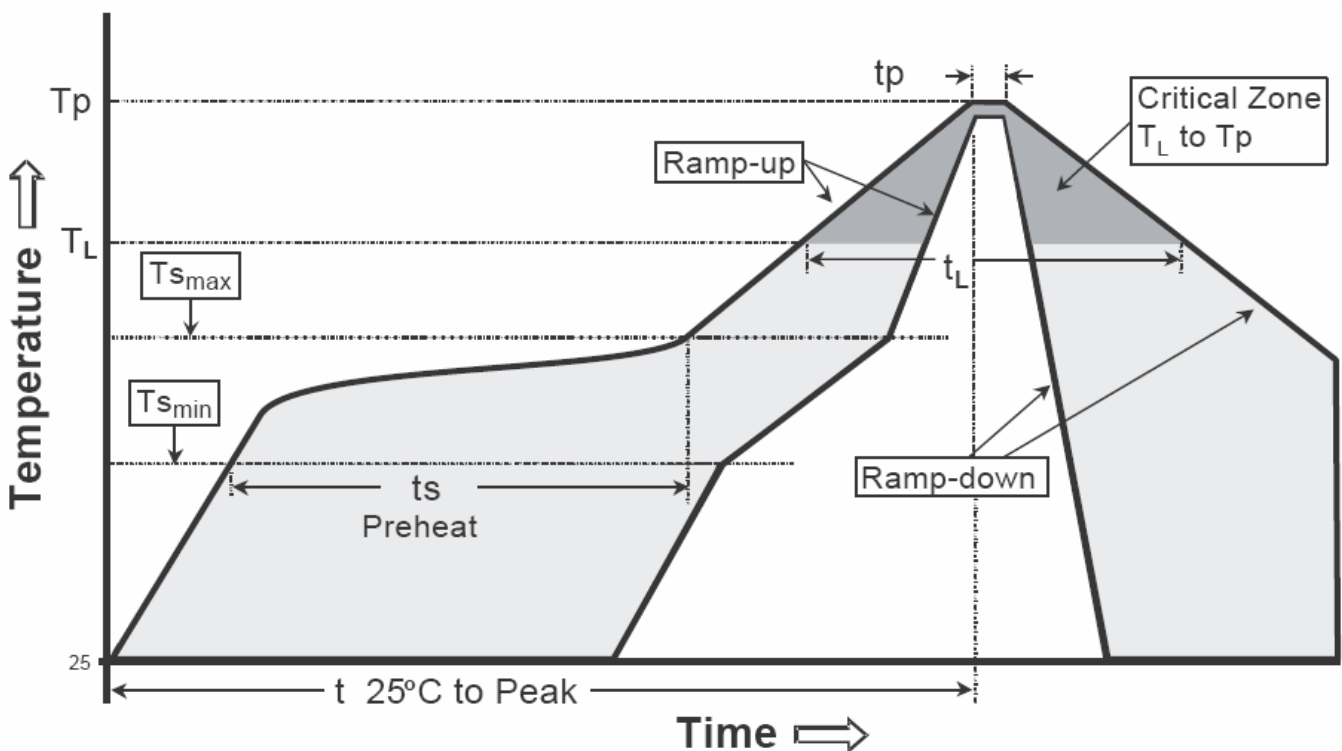
Power Derating Curve



Recommended wave soldering condition

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

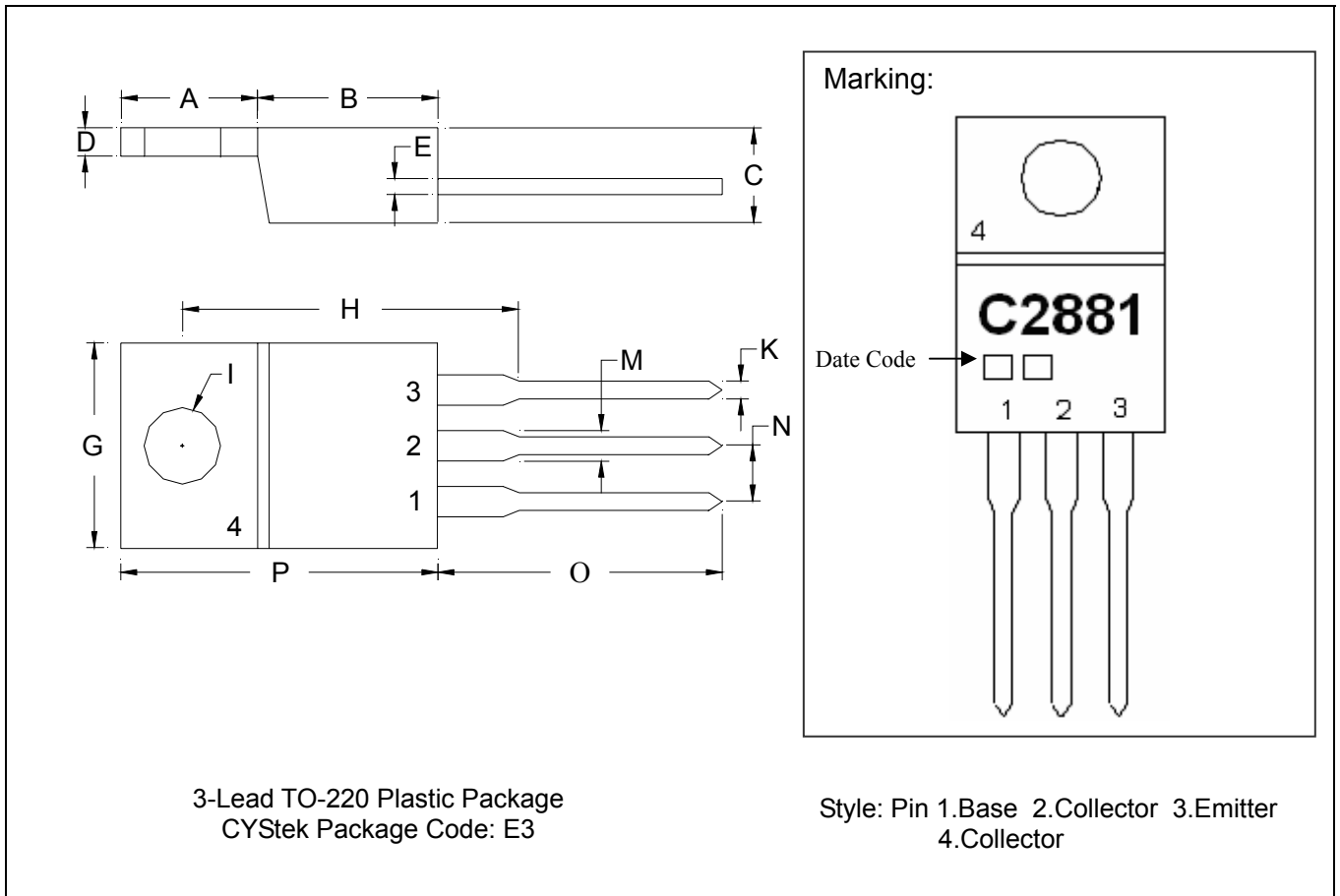
Recommended temperature profile for IR reflow



Profile feature	Sn-Pb eutectic Assembly	Pb-free Assembly
Average ramp-up rate (T _{smax} to T _p)	3°C/second max.	3°C/second max.
Preheat		
-Temperature Min(T _{s min})	100°C	150°C
-Temperature Max(T _{s max})	150°C	200°C
-Time(t _{s min} to t _{s max})	60-120 seconds	60-180 seconds
Time maintained above:		
-Temperature (T _L)	183°C	217°C
- Time (t _L)	60-150 seconds	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



*: 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.

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