

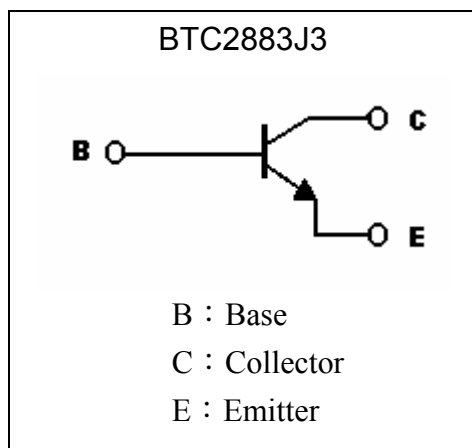
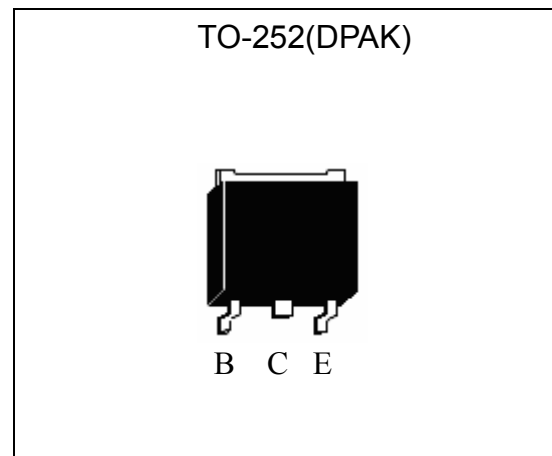
**General Purpose NPN Epitaxial Planar Transistor**

# BTC2883J3

|                  |              |
|------------------|--------------|
| $BV_{CEO}$       | 240V         |
| $I_C$            | 1.2A         |
| $R_{CESAT(MAX)}$ | 0.6 $\Omega$ |

**Features**

- High breakdown voltage,  $BV_{CEO} \geq 240V$
- Large continuous collector current capability
- Low collector saturation voltage
- Pb-free lead plating and halogen-free package

**Symbol**

**Outline**

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

| Parameter                            | Symbol    | Limits   | Unit       |
|--------------------------------------|-----------|----------|------------|
| Collector-Base Voltage               | $V_{CB0}$ | 300      | V          |
| Collector-Emitter Voltage            | $V_{CEO}$ | 240      | V          |
| Emitter-Base Voltage                 | $V_{EBO}$ | 7        | V          |
| Collector Current                    | $I_C$     | 1.2      | A          |
| Base Current                         | $I_B$     | 200      | mA         |
| Power Dissipation @ $T_A=25^\circ C$ | $P_D$     | 1        | W          |
| Power Dissipation @ $T_C=25^\circ C$ |           | 10       | W          |
| Junction Temperature                 | $T_j$     | 150      | $^\circ C$ |
| Storage Temperature                  | $T_{stg}$ | -55~+150 | $^\circ C$ |

**Thermal Data**

| Parameter                                    | Symbol       | Value | Unit          |
|--|--------------|-------|---------------|
| Thermal Resistance, Junction-to-case, max    | $R_{th,j-c}$ | 12.5  | $^{\circ}C/W$ |
| Thermal Resistance, Junction-to-ambient, max | $R_{th,j-a}$ | 125   | $^{\circ}C/W$ |

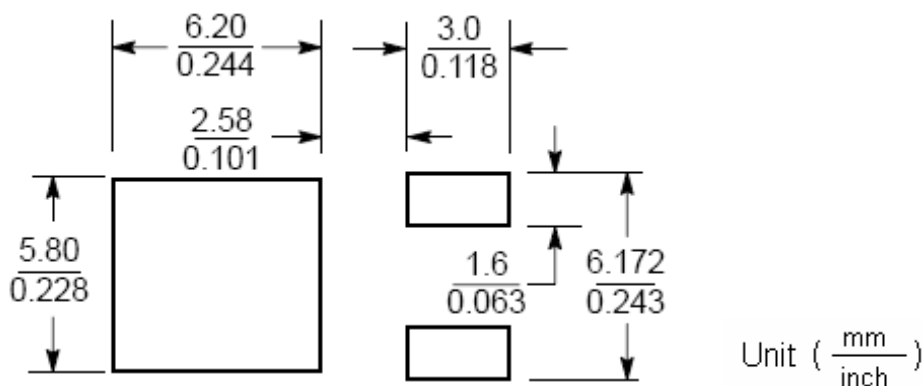
**Characteristics (Ta=25°C)**

| Symbol          | Min. | Typ. | Max. | Unit | Test Conditions              |
|-----------------|------|------|------|------|------------------------------|
| $BV_{CBO}$      | 300  | -    | -    | V    | $I_C=10\mu A$                |
| $BV_{CEO}$      | 240  | -    | -    | V    | $I_C=10mA$                   |
| $BV_{EBO}$      | 7    | -    | -    | 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  | 0.3  | V    | $I_C=500mA, I_B=50mA$        |
| * $V_{CE(sat)}$ | -    | 0.3  | 0.5  | V    | $I_C=700mA, I_B=35mA$        |
| * $V_{BE(sat)}$ | -    | 0.93 | 1    | V    | $I_C=500mA, I_B=50mA$        |
| * $V_{BE(on)}$  | -    | 0.67 | 0.8  | V    | $V_{CE}=2V, I_C=100mA$       |
| * $h_{FE 1}$    | 160  | -    | -    | -    | $V_{CE}=2V, I_C=50mA$        |
| * $h_{FE 2}$    | 160  | -    | 320  | -    | $V_{CE}=2V, I_C=100mA$       |
| * $h_{FE 3}$    | 120  | -    | -    | -    | $V_{CE}=2V, I_C=200mA$       |
| * $h_{FE 4}$    | 50   | -    | -    | -    | $V_{CE}=5V, I_C=700mA$       |
| $f_T$           | -    | 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  $\leq 2\%$

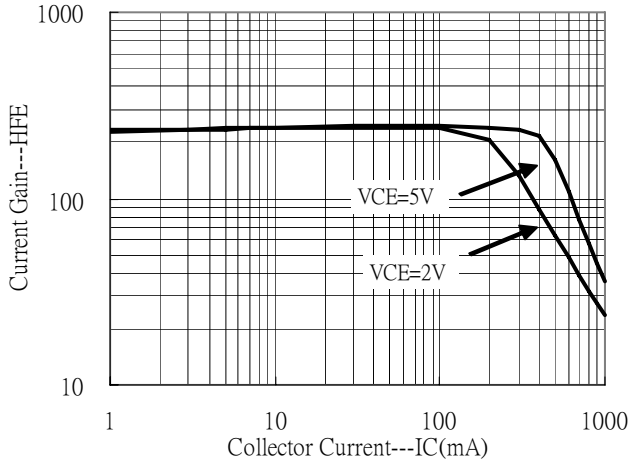
**Ordering Information**

| Device           | Package   | Shipping               |
|------------------|---|------------------------|
| BTC2883J3-0-T3-G | TO-252<br>(Pb-free lead plating and halogen-free package) | 2500 pcs / Tape & Reel |

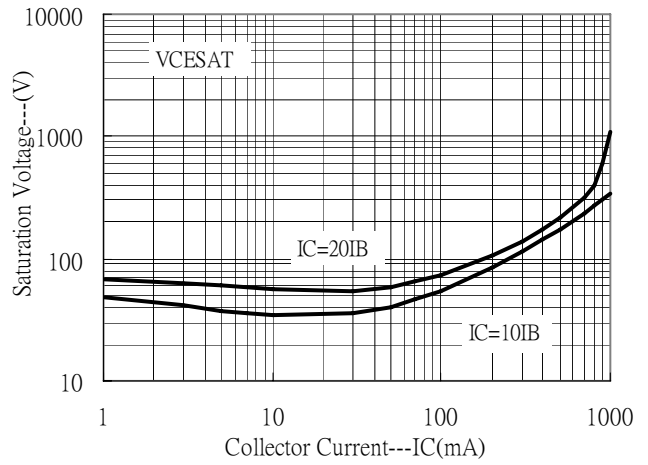
**Recommended soldering footprint**


**Typical Characteristics**

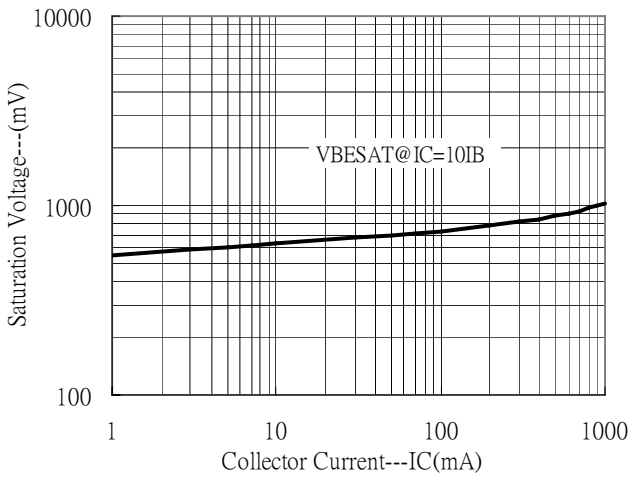
Current Gain vs Collector Current



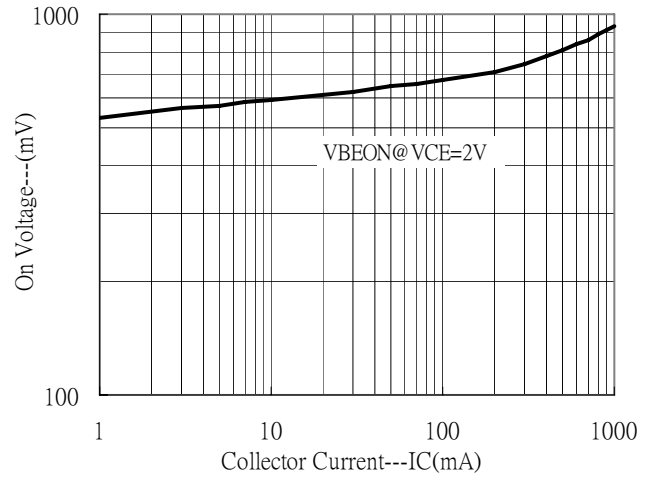
Saturation Voltage vs Collector Current



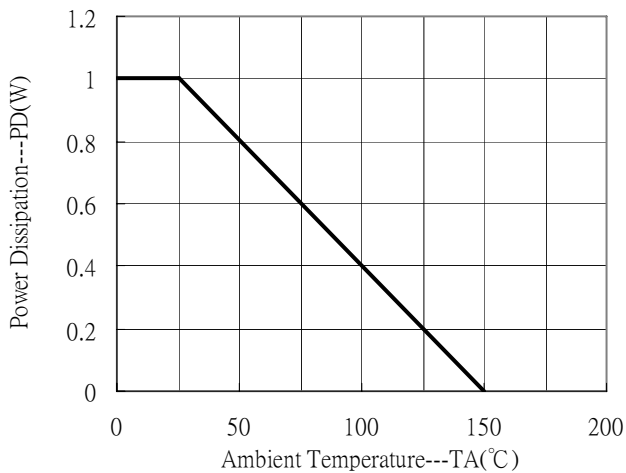
Saturation Voltage vs Collector Current



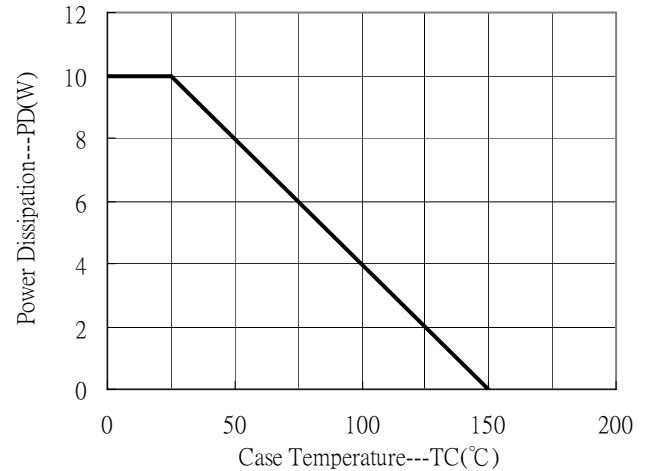
On Voltage vs Collector Current



Power Derating Curve



Power Derating Curve

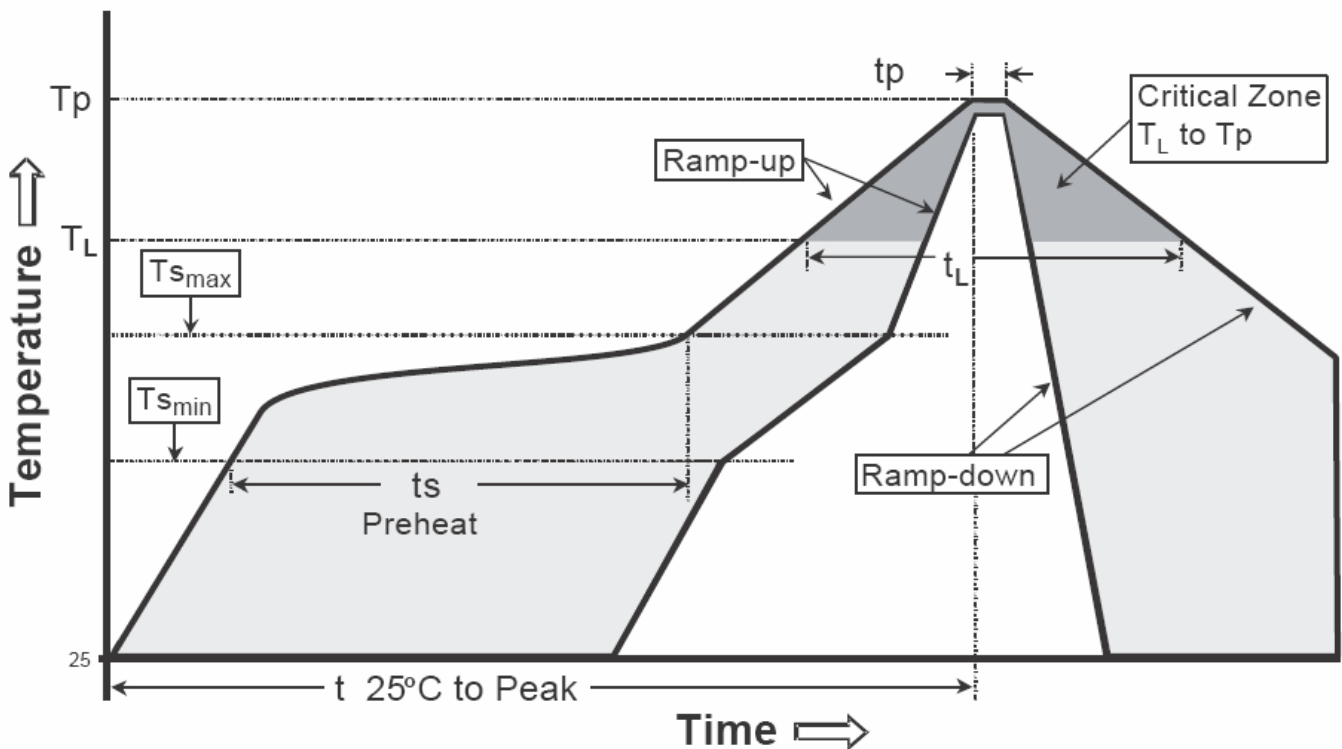




**Recommended wave soldering condition**

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

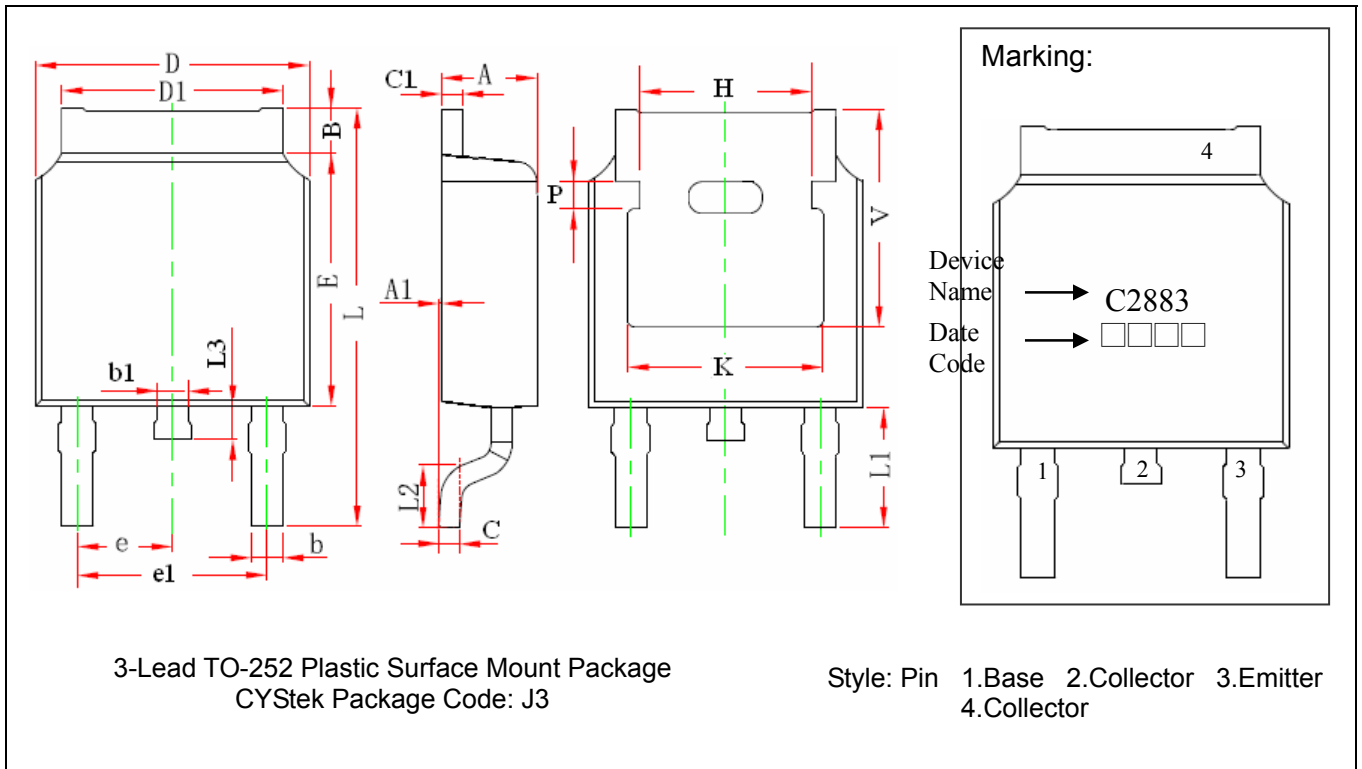
**Recommended temperature profile for IR reflow**



| Profile feature   | Sn-Pb eutectic Assembly | Pb-free Assembly |
|---|-------------------------|------------------|
| Average ramp-up rate (T <sub>smax</sub> to T <sub>p</sub> ) | 3°C/second max.         | 3°C/second max.  |
| Preheat   |                         |                  |
| -Temperature Min(T <sub>s min</sub> )                       | 100°C                   | 150°C            |
| -Temperature Max(T <sub>s max</sub> )                       | 150°C                   | 200°C            |
| -Time(t <sub>s min</sub> to t <sub>s max</sub> )            | 60-120 seconds          | 60-180 seconds   |
| Time maintained above:                                      |                         |                  |
| -Temperature (T <sub>L</sub> )                              | 183°C                   | 217°C            |
| - Time (t <sub>L</sub> )                                    | 60-150 seconds          | 60-150 seconds   |
| Peak Temperature(T <sub>P</sub> )                           | 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-252 Dimension**



| DIM | Inches |       | Millimeters |       | DIM | Inches |       | Millimeters |        |
|-----|--------|-------|-------------|-------|-----|--------|-------|-------------|--------|
|     | Min.   | Max.  | Min.        | Max.  |     | Min.   | Max.  | Min.        | Max.   |
| A   | 0.087  | 0.094 | 2.200       | 2.400 | e   | 0.086  | 0.094 | 2.186       | 2.386  |
| A1  | 0.000  | 0.005 | 0.000       | 0.127 | e1  | 0.172  | 0.188 | 4.372       | 4.772  |
| B   | 0.039  | 0.048 | 0.990       | 1.210 | H   | 0.163  | REF   | 4.140       | REF    |
| b   | 0.026  | 0.034 | 0.660       | 0.860 | K   | 0.190  | REF   | 4.830       | REF    |
| b1  | 0.026  | 0.034 | 0.660       | 0.860 | L   | 0.386  | 0.409 | 9.800       | 10.400 |
| C   | 0.018  | 0.023 | 0.460       | 0.580 | L1  | 0.114  | REF   | 2.900       | REF    |
| C1  | 0.018  | 0.023 | 0.460       | 0.580 | L2  | 0.055  | 0.067 | 1.400       | 1.700  |
| D   | 0.256  | 0.264 | 6.500       | 6.700 | L3  | 0.024  | 0.039 | 0.600       | 1.000  |
| D1  | 0.201  | 0.215 | 5.100       | 5.460 | P   | 0.030  | REF   | 0.750       | REF    |
| E   | 0.236  | 0.244 | 6.000       | 6.200 | V   | 0.211  | REF   | 5.350       | REF    |

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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