

NPN Epitaxial Planar Transistor

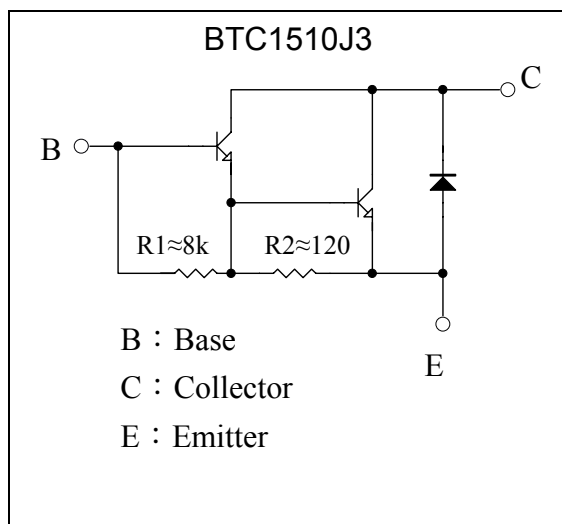
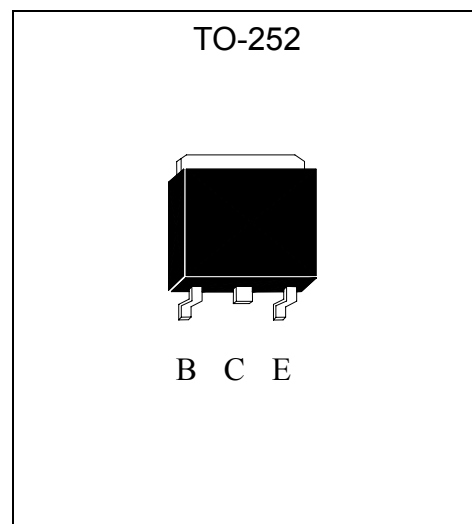
BTC1510J3

Description

The BTC1510J3 is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

Features:

- High BV_{CEO}
- Low $V_{CE(SAT)}$
- High current gain
- Monolithic construction with built-in base-emitter shunt resistors
- TO-252 surface mount package
- Pb-free package

Equivalent Circuit**Outline**



Absolute Maximum Ratings (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---------------------------|--------------------------|----------|------|
| Collector-Base Voltage | V _{CBO} | 150 | V |
| Collector-Emitter Voltage | V _{CEO} | 150 | V |
| Emitter-Base Voltage | V _{EBO} | 5 | V |
| Collector Current | I _C (DC) | 10 | A |
| | I _C (Pulse) | 15 *1 | |
| Power Dissipation | Pd(T _A =25°C) | 1.75 | W |
| | Pd(T _C =25°C) | 20 | |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55~+150 | °C |

Note : *1. Single Pulse Pw=100ms

Characteristics (Ta=25°C)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-------------------------|------|------|------|------|--|
| BV _{CBO} | 150 | - | - | V | I _C =100μA, I _E =0 |
| BV _{CEO} | 150 | - | - | V | I _C =1mA, I _B =0 |
| I _{CEO} | - | - | 200 | μA | V _{CE} =150V, I _E =0 |
| I _{CBO} | - | - | 200 | μA | V _{CB} =150V, I _E =0 |
| I _{EBO} | - | - | 2 | mA | V _{EB} =5V, I _C =0 |
| *V _{CE(sat) 1} | - | - | 1.5 | V | I _C =5A, I _B =10mA |
| *V _{CE(sat) 2} | - | - | 3 | V | I _C =10A, I _B =100mA |
| *V _{CE(sat) 3} | - | - | 1.5 | V | I _C =5A, I _B =2.5mA |
| *V _{BE(sat)} | - | - | 2 | V | I _C =5A, I _B =5mA |
| *V _{BE(on) 1} | - | - | 2.8 | V | V _{CE} =3V, I _C =5A |
| *V _{BE(on) 2} | - | - | 4.5 | V | V _{CE} =3V, I _C =10A |
| *V _{FEC} | - | - | 3 | V | I _C =5A |
| *h _{FE1} | 2 | - | 20 | K | V _{CE} =3V, I _C =5A |
| *h _{FE2} | 100 | - | - | - | V _{CE} =3V, I _C =10A |

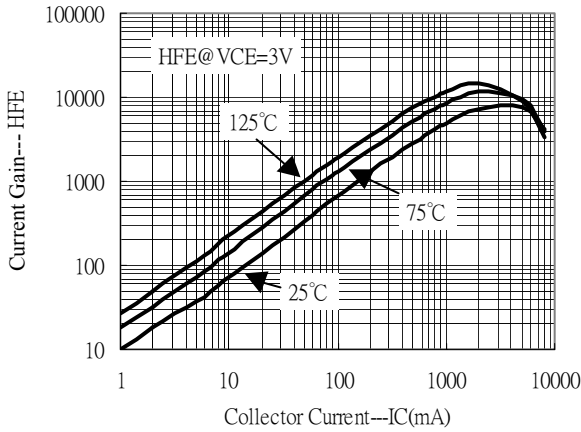
*Pulse Test : Pulse Width ≤380μs, Duty Cycle ≤2%

Classification of V_{CE(sat) 1}

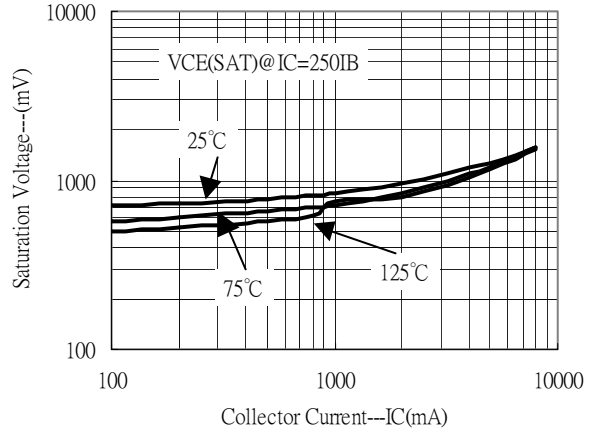
| Rank | KA | N |
|-------|-------|----------|
| Range | <1.1V | 1.1~1.5V |

Characteristic Curves

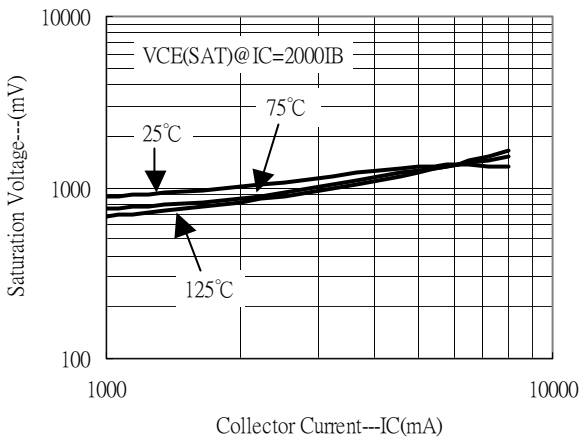
Current Gain vs Collector Current



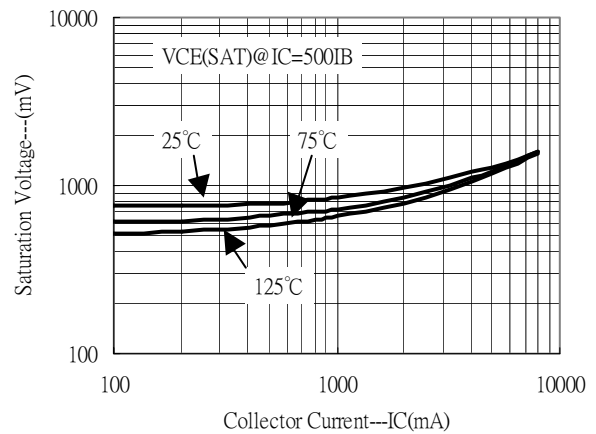
Saturation Voltage vs Collector Current



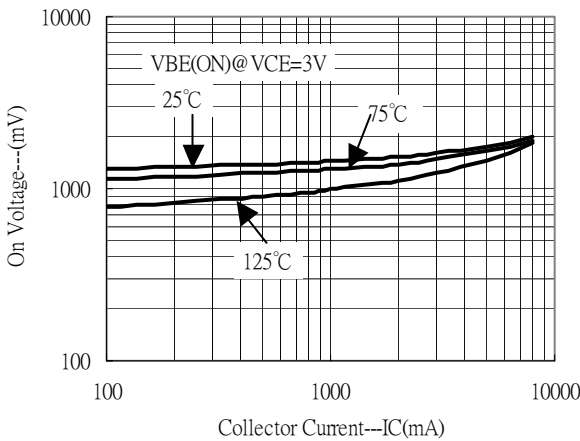
Saturation Voltage vs Collector Current



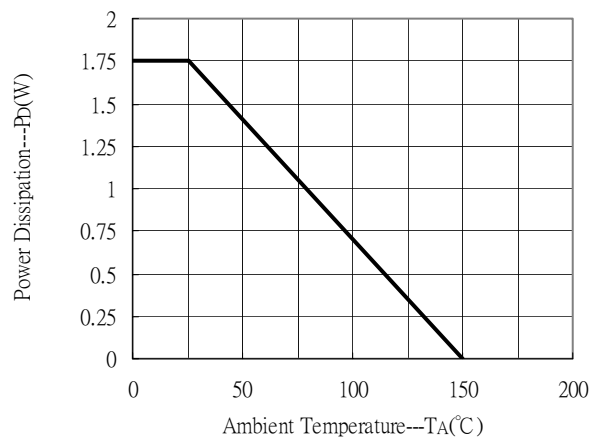
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current

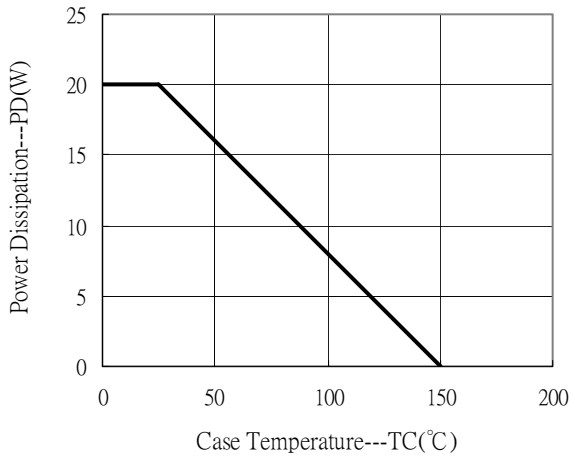


Power Derating Curve

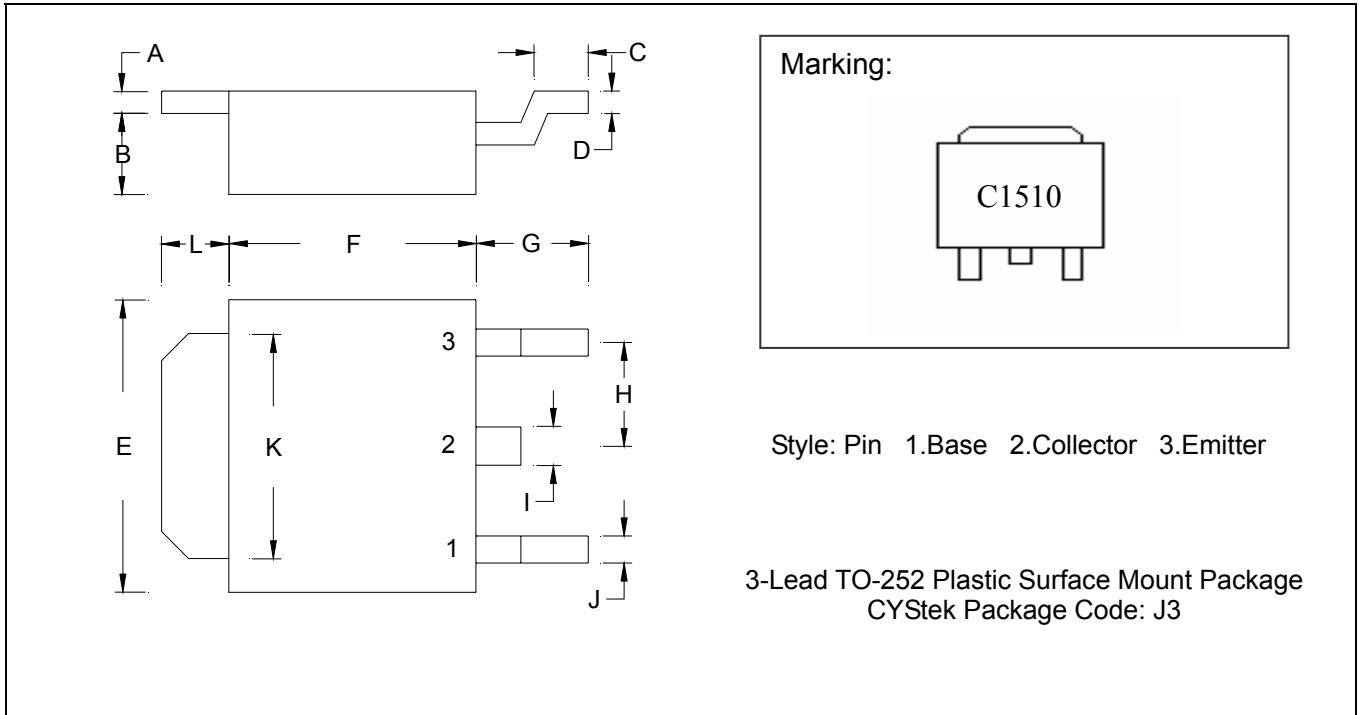




Power Derating Curve



TO-252 Dimension



*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|--------|--------|-------------|------|-----|--------|---------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.0177 | 0.0217 | 0.45 | 0.55 | G | 0.0866 | 0.1102 | 2.20 | 2.80 |
| B | 0.0650 | 0.0768 | 1.65 | 1.95 | H | - | *0.0906 | - | *2.30 |
| C | 0.0354 | 0.0591 | 0.90 | 1.50 | I | - | 0.0354 | - | 0.90 |
| D | 0.0177 | 0.0236 | 0.45 | 0.60 | J | - | 0.0315 | - | 0.80 |
| E | 0.2520 | 0.2677 | 6.40 | 6.80 | K | 0.2047 | 0.2165 | 5.20 | 5.50 |
| F | 0.2125 | 0.2283 | 5.40 | 5.80 | L | 0.0551 | 0.0630 | 1.40 | 1.60 |

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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