

NPN Epitaxial Planar Transistor

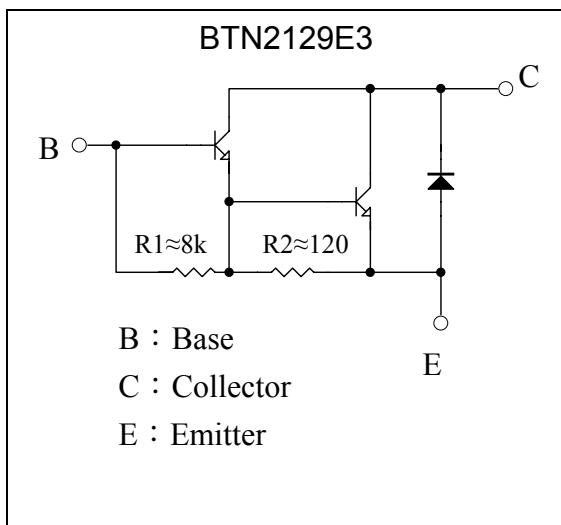
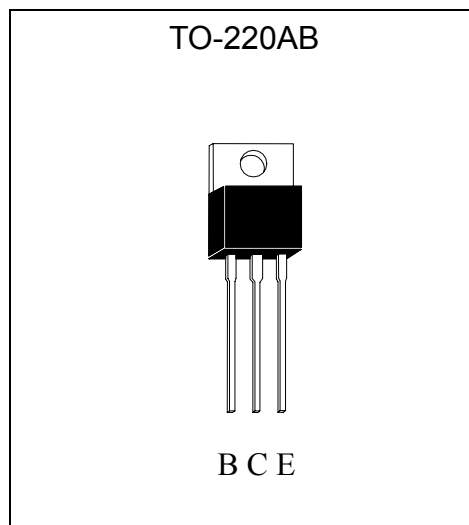
BTN2129E3

Description

The BTN2129E3 is a NPN Darlington transistor, designed for general purpose amplifier and low speed switching application.

Features:

- High current capability
- Low $V_{CE(SAT)}$
- High current gain
- Monolithic construction with built-in base-emitter shunt resistors

Equivalent Circuit**Outline**

**Absolute Maximum Ratings** (Ta=25°C)

| Parameter | Symbol | Limits | Unit |
|---------------------------|--------------------------|----------|------|
| Collector-Base Voltage | V _{CB0} | 80 | V |
| Collector-Emitter Voltage | V _{CE0} | 50 | V |
| Emitter-Base Voltage | V _{EBO} | 5 | V |
| Collector Current (DC) | I _C | 8 | A |
| Collector Current (Pulse) | I _{CP} | 12 *1 | |
| Power Dissipation | Pd(T _A =25°C) | 2 | W |
| | Pd(T _C =25°C) | 50 | |
| Junction Temperature | T _j | 150 | °C |
| Storage Temperature | T _{stg} | -55~+150 | °C |

Note : *1. Single Pulse Pw=100ms

Characteristics (Ta=25°C)

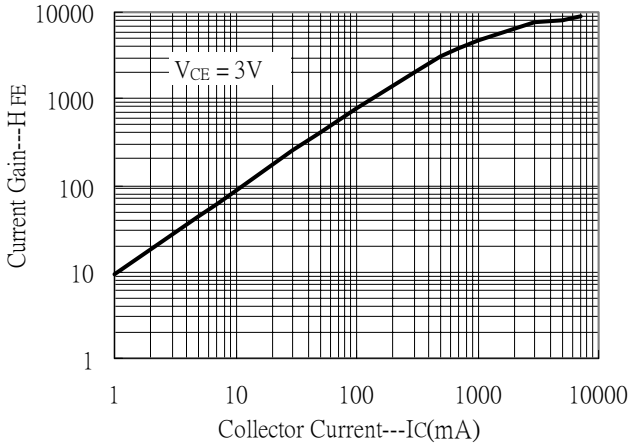
| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-------------------------|------|------|------|------|--|
| BV _{CE0} | 50 | - | - | V | I _C =1mA, I _B =0 |
| I _{CE0} | - | - | 10 | μA | V _{CE} =40V, I _E =0 |
| I _{CB0} | - | - | 10 | μA | V _{CB} =80V, I _E =0 |
| I _{EBO} | - | - | 2 | mA | V _{EB} =5V, I _C =0 |
| *V _{CE(sat)} 1 | - | - | 1.3 | V | I _C =3A, I _B =12mA |
| *V _{CE(sat)} 2 | - | - | 1.5 | V | I _C =5A, I _B =20mA |
| *V _{BE(sat)} | - | - | 2.1 | V | I _C =3A, I _B =12mA |
| *V _{BE(on)} 1 | - | - | 2 | V | V _{CE} =3V, I _C =3A |
| *V _{BE(on)} 2 | - | - | 2.1 | V | V _{CE} =4V, I _C =4A |
| *h _{FE} 1 | 500 | - | - | - | V _{CE} =3V, I _C =500mA |
| *h _{FE} 2 | 2 | - | 20 | K | V _{CE} =3V, I _C =3A |
| *h _{FE} 3 | 2 | - | - | K | V _{CE} =4V, I _C =4A |

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

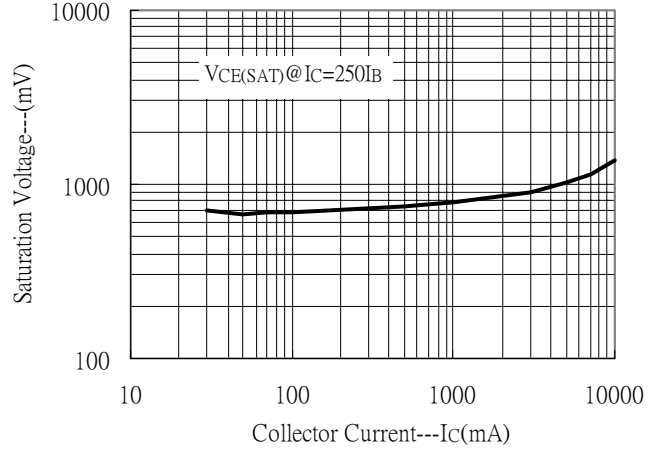


Characteristic Curves

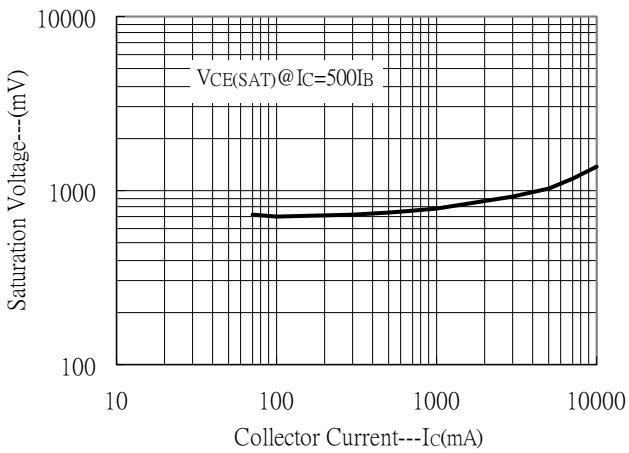
Current Gain vs Collector Current



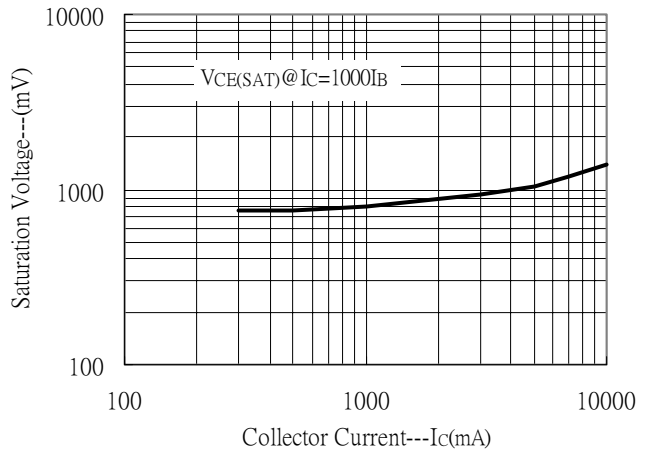
Saturation Voltage vs Collector Current



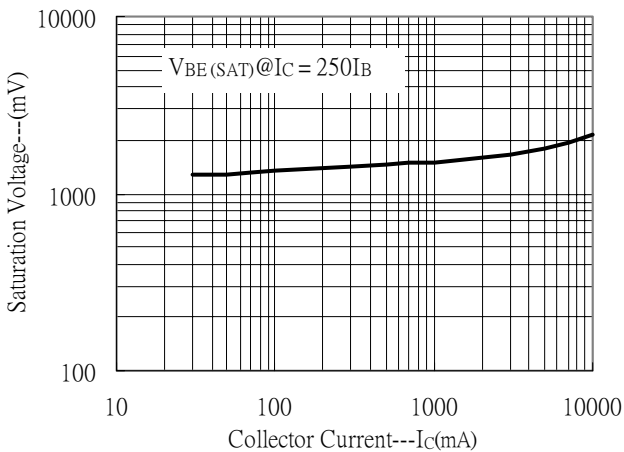
Saturation Voltage vs Collector Current



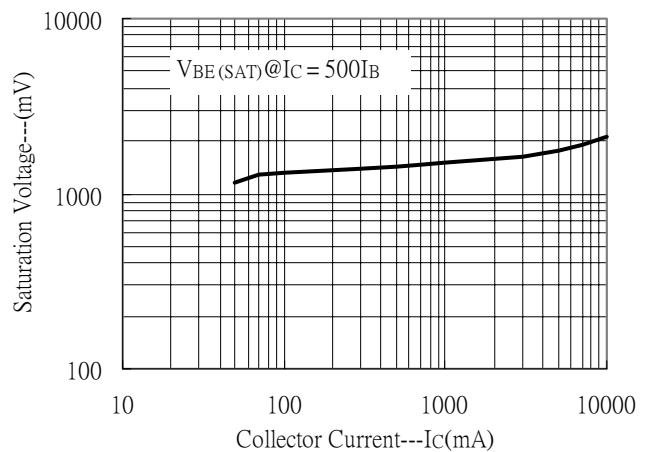
Saturation Voltage vs Collector Current



Saturation Voltage vs Collector Current



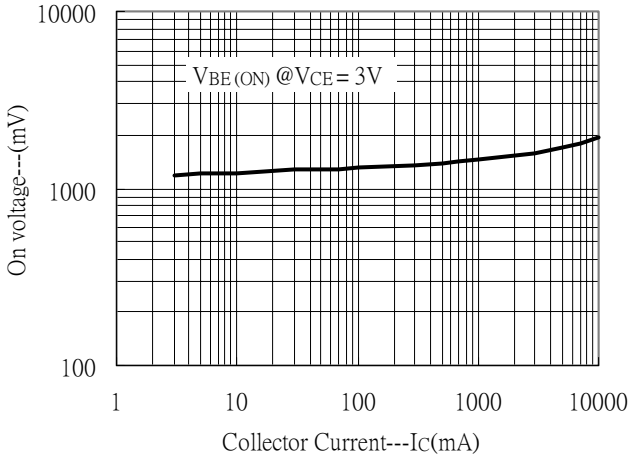
Saturation Voltage vs Collector Current



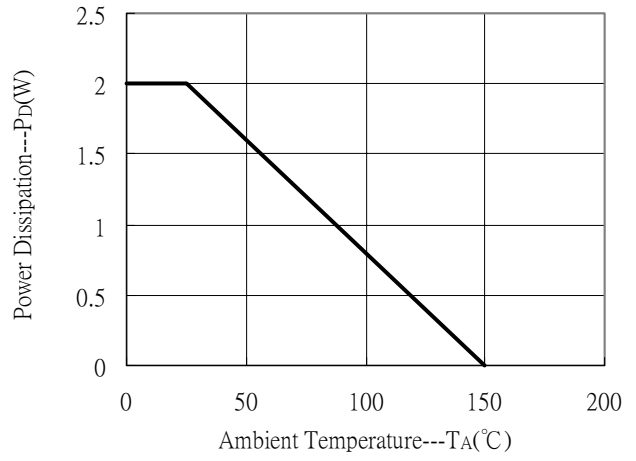


Characteristic Curves(Cont.)

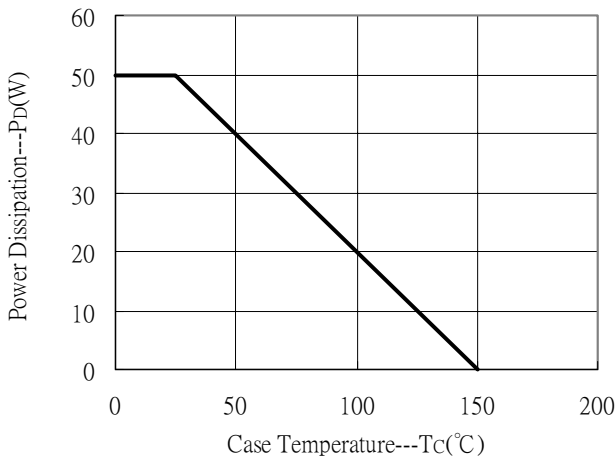
On voltage vs Collector Current



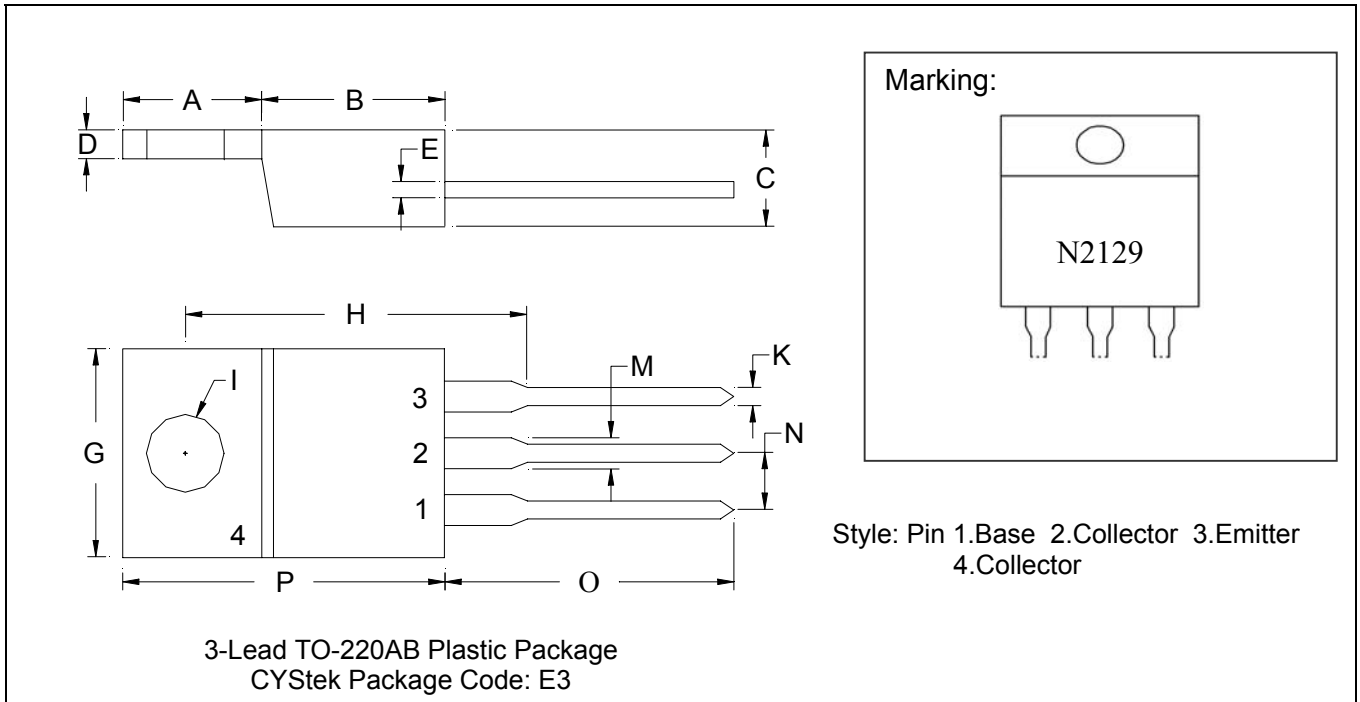
Power Derating Curve



Power Derating Curve



TO-220AB 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: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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