

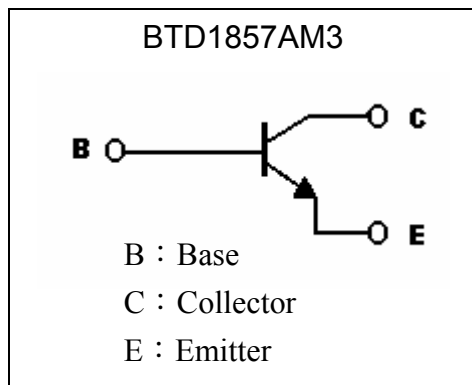
Silicon NPN Epitaxial Planar Transistor

BTD1857AM3

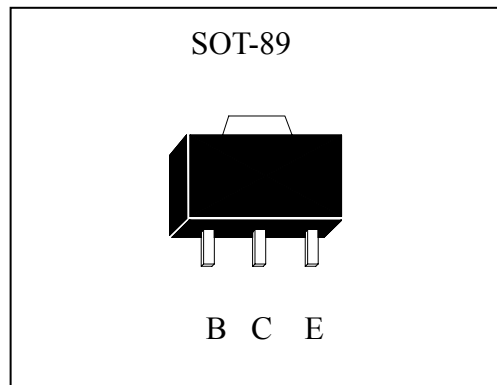
Description

- High V_{CEO}
- High current capability
- Complementary to BTB1236AM3

Symbol



Outline



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

| Parameter | Symbol | Limits | Unit |
|---------------------------|-----------|------------|-------------|
| Collector-Base Voltage | V_{CB0} | 180 | V |
| Collector-Emitter Voltage | V_{CEO} | 160 | V |
| Emitter-Base Voltage | V_{EBO} | 5 | V |
| Collector Current (DC) | I_C | 1.5 | A |
| Collector Current (Pulse) | I_{CP} | 3 | A |
| Power Dissipation | P_D | 0.6 | W |
| | | 1 (Note 1) | |
| | | 2 (Note 2) | |
| Junction Temperature | T_j | 150 | $^{\circ}C$ |
| Storage Temperature | T_{stg} | -55~+150 | $^{\circ}C$ |

Note : 1. When mounted on FR-4 PCB with area measuring $10 \times 10 \times 1$ mm
 2 . When mounted on ceramic with area measuring $40 \times 40 \times 1$ mm

Thermal Characteristics

| Parameter | Symbol | Value | Unit |
|---|------------------|---------------|------|
| Thermal Resistance, Junction to Ambient | R _{θJA} | 208 | °C/W |
| | | 125 (Note 1) | |
| | | 62.5 (Note 2) | |
| Thermal Resistance, Junction to Case | R _{θJC} | 105 | °C/W |
| | | 60 | |
| | | 39.3 | |

Note : 1. When mounted on FR-4 PCB with area measuring 10×10×1 mm
 2. When mounted on ceramic with area measuring 40×40×1 mm

Characteristics (Ta=25°C)

| Symbol | Min. | Typ. | Max. | Unit | Test Conditions |
|-----------------------|------|------|------|------|---|
| BV _{CBO} | 180 | - | - | V | I _C =50μA, I _E =0 |
| BV _{CEO} | 160 | - | - | V | I _C =1mA, I _B =0 |
| BV _{EBO} | 5 | - | - | V | I _E =50μA, I _C =0 |
| I _{CBO} | - | - | 1 | μA | V _{CB} =160V, I _E =0 |
| I _{EBO} | - | - | 1 | μA | V _{EB} =4V, I _C =0 |
| *V _{CE(sat)} | - | - | 0.6 | V | I _C =1A, I _B =100mA |
| *V _{BE(on)} | - | - | 1.5 | V | V _{CE} =5V, I _C =150mA |
| h _{FE1} | 82 | - | 320 | - | V _{CE} =5V, I _C =150mA |
| h _{FE2} | 30 | - | - | - | V _{CE} =5V, I _C =500mA |
| f _T | - | 140 | - | MHz | V _{CE} =5V, I _C =150mA |
| C _{ob} | - | 27 | - | pF | V _{CB} =10V, I _E =0, f=1MHz |

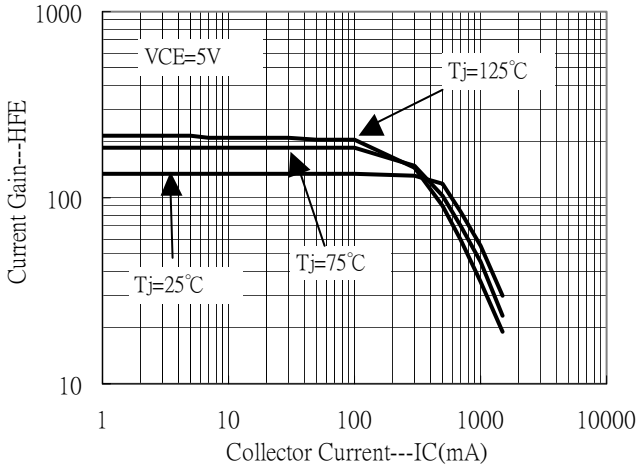
*Pulse Test: Pulse Width ≤380μs, Duty Cycle≤2%

Classification of hFE 1

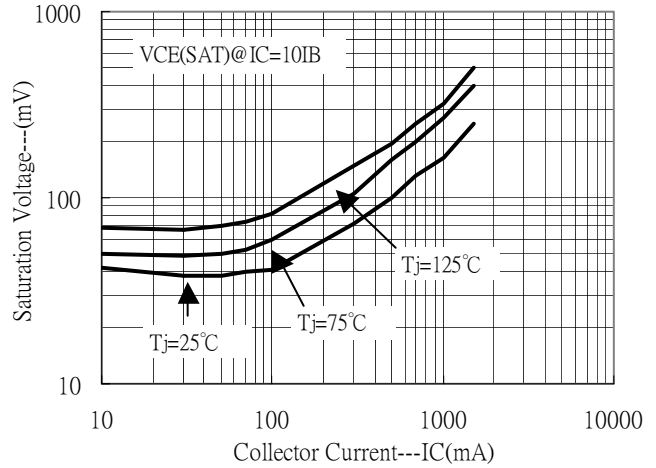
| Rank | P | Q | R |
|-------|--------|---------|---------|
| Range | 82~190 | 120~200 | 180~320 |

Characteristic Curves

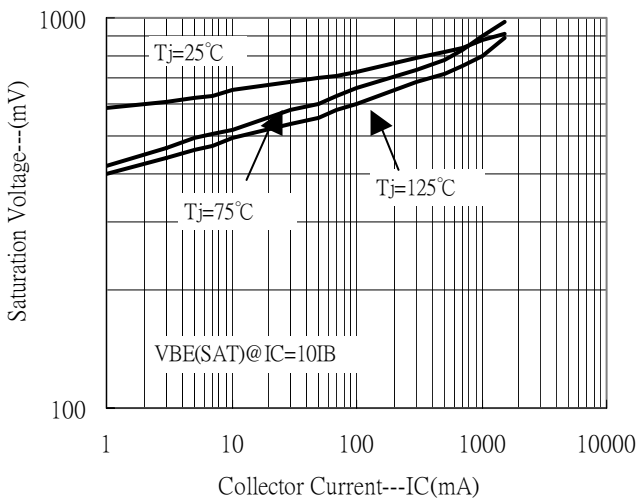
Current Gain vs Collector Current



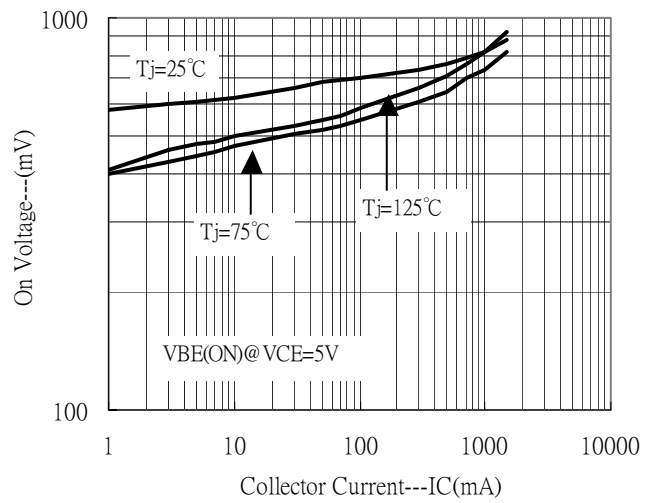
Saturation Voltage vs Collector Current



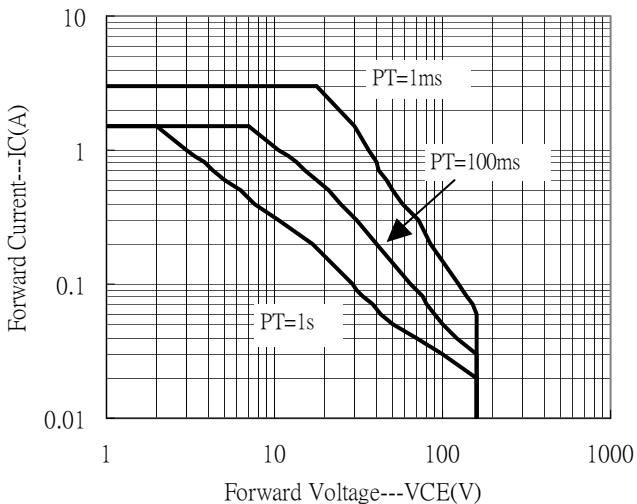
Saturation Voltage vs Collector Current



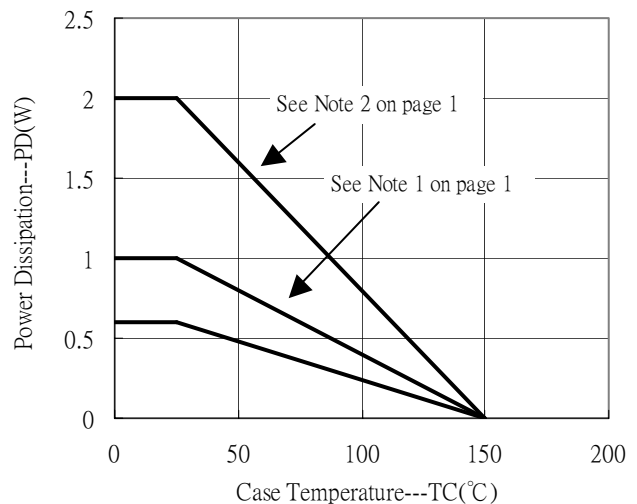
On Voltage vs Collector Current



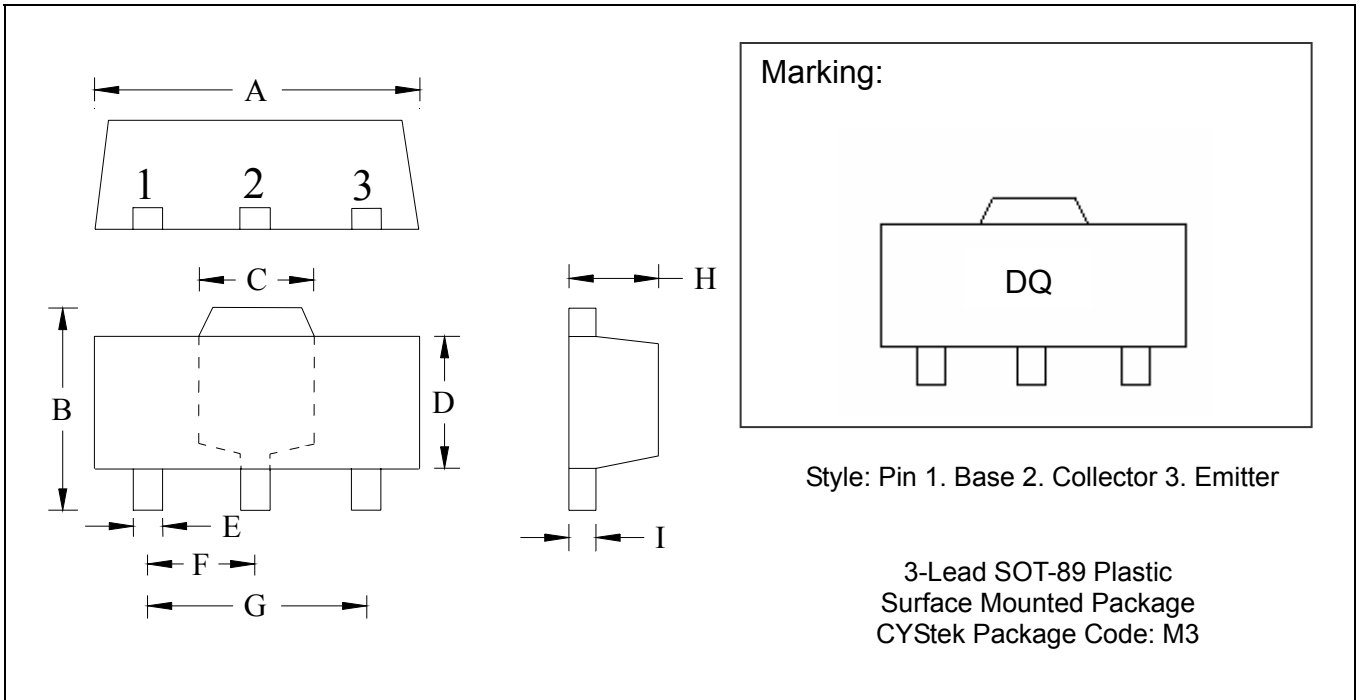
Safe Operating Area



Power Derating Curve



SOT-89 Dimension



*: Typical

| DIM | Inches | | Millimeters | | DIM | Inches | | Millimeters | |
|-----|---------|--------|-------------|------|-----|--------|--------|-------------|-------|
| | Min. | Max. | Min. | Max. | | Min. | Max. | Min. | Max. |
| A | 0.1732 | 0.1811 | 4.40 | 4.60 | F | 0.0583 | 0.0598 | 1.48 | 1.527 |
| B | 0.1594 | 0.1673 | 4.05 | 4.25 | G | 0.1165 | 0.1197 | 2.96 | 3.04 |
| C | 0.0591 | 0.0663 | 1.50 | 1.70 | H | 0.0551 | 0.0630 | 1.40 | 1.60 |
| D | 0.0945 | 0.1024 | 2.40 | 2.60 | I | 0.0138 | 0.0161 | 0.35 | 0.41 |
| E | 0.01417 | 0.0201 | 0.36 | 0.51 | | | | | |

- 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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