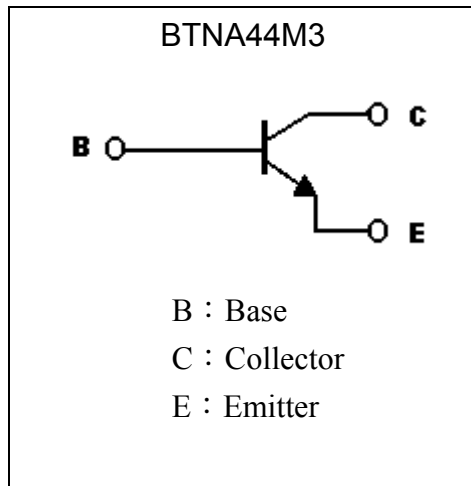
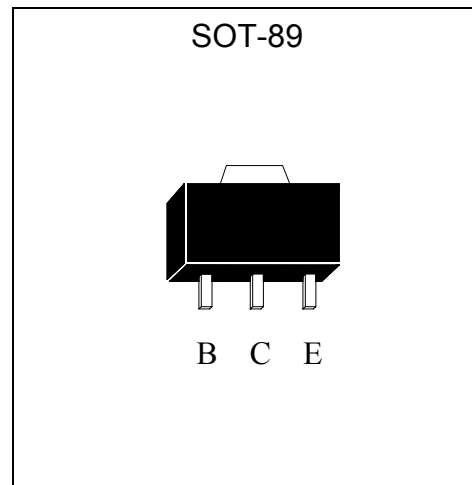


**High Voltage NPN Epitaxial Planar Transistor**

# BTNA44M3

**Features**

- High breakdown voltage. ( $BV_{CEO} = 400V$ )
- Low saturation voltage, typically  $V_{CE(sat)} = 0.1V$  at  $I_C/I_B=10mA/1mA$ .
- Complementary to BTPA94M3

**Symbol**

**Outline**

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

| Parameter                               | Symbol          | Limit    | Unit          |
|---|-----------------|----------|---------------|
| Collector-Base Voltage                  | $V_{CB0}$       | 400      | V             |
| Collector-Emitter Voltage               | $V_{CEO}$       | 400      | V             |
| Emitter-Base Voltage                    | $V_{EB0}$       | 6        | V             |
| Collector Current                       | $I_C$           | 300      | mA            |
| Power Dissipation                       | $P_d$           | 600      | mW            |
| Thermal Resistance, Junction to Ambient | $R_{\theta JA}$ | 208      | $^{\circ}C/W$ |
| Junction Temperature                    | $T_j$           | 150      | $^{\circ}C$   |
| Storage Temperature                     | $T_{stg}$       | -55~+150 | $^{\circ}C$   |

**Characteristics** (Ta=25°C)

| Symbol                  | Min. | Typ. | Max. | Unit | Test Conditions                                      |
|-------------------------|------|------|------|------|--|
| BV <sub>CBO</sub>       | 400  | -    | -    | V    | I <sub>C</sub> =50μA, I <sub>E</sub> =0              |
| BV <sub>CEO</sub>       | 400  | -    | -    | V    | I <sub>C</sub> =1mA, I <sub>B</sub> =0               |
| BV <sub>EBO</sub>       | 6    | -    | -    | V    | I <sub>E</sub> =50μA, I <sub>C</sub> =0              |
| I <sub>CBO</sub>        | -    | -    | 10   | μA   | V <sub>CB</sub> =400V, I <sub>E</sub> =0             |
| I <sub>EBO</sub>        | -    | -    | 10   | μA   | V <sub>EB</sub> =6V, I <sub>C</sub> =0               |
| V <sub>CE(sat)</sub> 1  | -    | -    | 0.4  | V    | I <sub>C</sub> =1mA, I <sub>B</sub> =0.1mA           |
| *V <sub>CE(sat)</sub> 2 | -    | 0.1  | 0.5  | V    | I <sub>C</sub> =10mA, I <sub>B</sub> =1mA            |
| *V <sub>CE(sat)</sub> 3 | -    | -    | 0.75 | V    | I <sub>C</sub> =50mA, I <sub>B</sub> =5mA            |
| *V <sub>BE(sat)</sub>   | -    | -    | 1.5  | V    | I <sub>C</sub> =10mA, I <sub>B</sub> =1mA            |
| h <sub>FE</sub> 1       | 40   | -    | -    | -    | V <sub>CE</sub> =10V, I <sub>C</sub> =1mA            |
| h <sub>FE</sub> 2       | 52   | -    | 270  | -    | V <sub>CE</sub> =10V, I <sub>C</sub> =10mA           |
| *h <sub>FE</sub> 3      | 45   | -    | -    | -    | V <sub>CE</sub> =10V, I <sub>C</sub> =50mA           |
| *h <sub>FE</sub> 4      | 40   | -    | -    | -    | V <sub>CE</sub> =10V, I <sub>C</sub> =100mA          |
| f <sub>T</sub>          | 20   | -    | -    | MHz  | V <sub>CE</sub> =10V, I <sub>C</sub> =10mA, f=100MHz |
| C <sub>ob</sub>         | -    | -    | 7    | pF   | V <sub>CB</sub> =20V, f=1MHz                         |

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

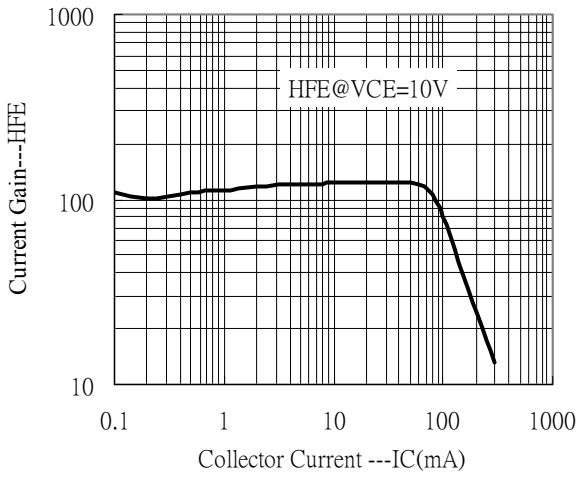
**Classification Of h<sub>FE</sub> 2**

| Rank  | K      | P      | Q       |
|-------|--------|--------|---------|
| Range | 52~120 | 82~180 | 120~270 |

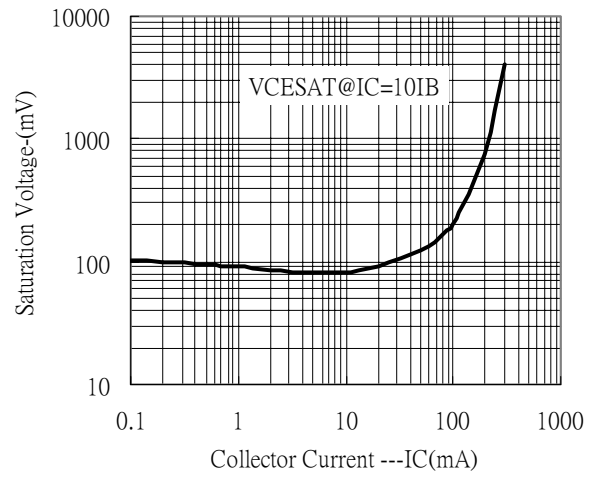


### Characteristic Curves

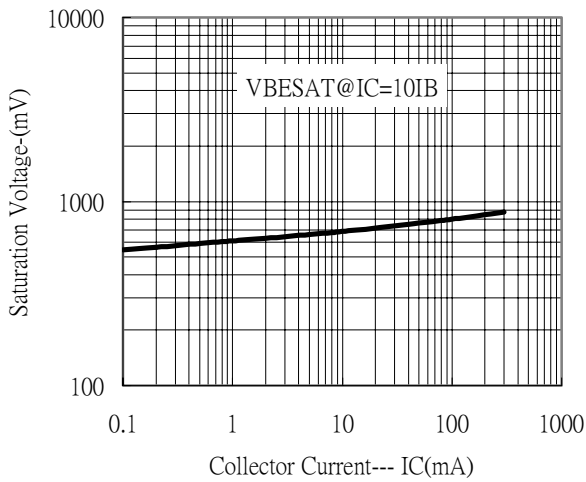
Current Gain vs Collector Current



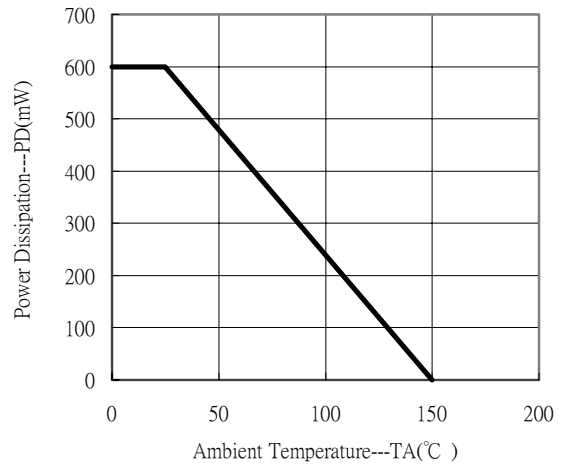
Saturation Voltage vs Collector Current



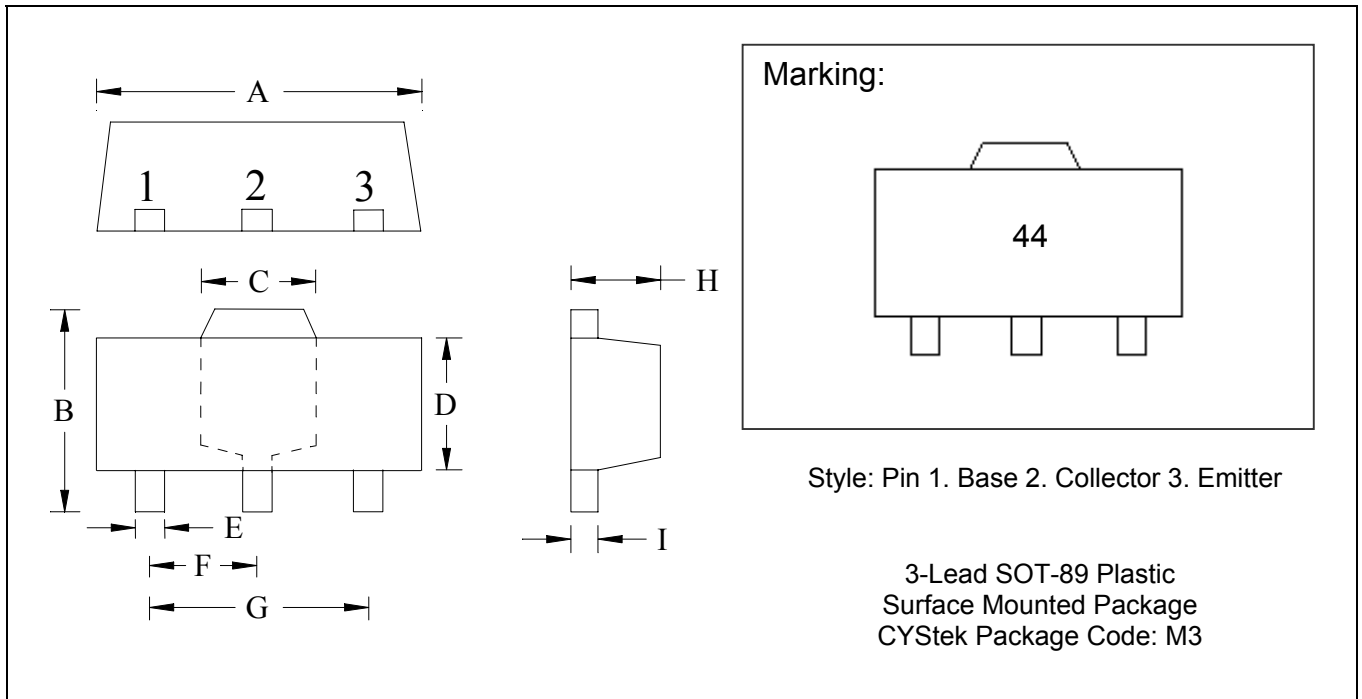
Saturation Voltage vs Collector Current



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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