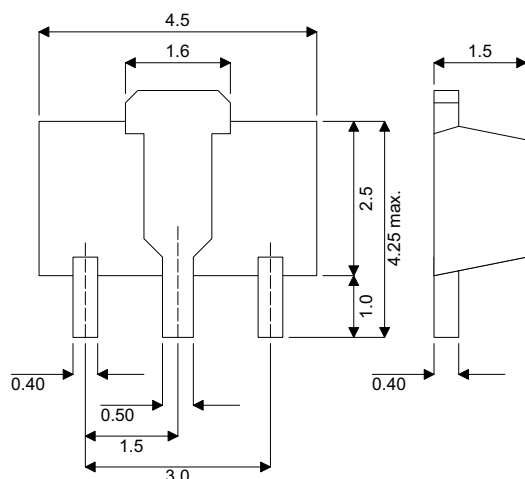


## MECHANICAL DATA

Dimensions in mm



**SOT89**

## NPN/PNP EPITAXIAL PLANAR SILICON TRANSISTOR

**Ideal For High current Switching  
Application**

### FEATURES

- LOW  $V_{CE(SAT)}$
- HIGH CURRENT CAPACITY AND WIDE ASO
- FAST SWITCHING SPEED

### APPLICATIONS

- VOLTAGE REGULATORS
- RELAY DRIVERS
- LAMP DRIVERS
- ELECTRICAL EQUIPMENT

### ABSOLUTE MAXIMUM RATINGS ( $T_{case} = 25^{\circ}C$ unless otherwise stated)

|           |                                                         | <b>BCU86</b> | <b>BCU87</b> |
|-----------|---------------------------------------------------------|--------------|--------------|
| $V_{CBO}$ | Collector – Base voltage                                | 60V          | – 60V        |
| $V_{CEO}$ | Collector – Emitter voltage ( $I_B = 0$ )               | 50V          | – 50V        |
| $V_{EBO}$ | Emitter – Base voltage                                  | 6V           | – 6V         |
| $I_C$     | Collector current                                       | 3A           | – 3A         |
| $I_{CP}$  | Collector Current (Pulse)                               | 6A           | – 6A         |
| $P_C$     | Collector Dissipation                                   | 500mW        |              |
|           | (Mounted on Ceramic Board (250mm <sup>2</sup> x 0.8mm)) | 1.5W         |              |
| $T_j$     | Junction Temperature                                    | 150°C        |              |
| $T_{stg}$ | Storage Temperature                                     | –55 to 150°C |              |

**DYNAMICS CHARACTERISTICS** ( $T_{case} = 25^{\circ}C$  unless otherwise stated)

| Parameter                                                | Test Conditions                             | Min. | Typ. | Max. | Unit.   |
|----------------------------------------------------------|---------------------------------------------|------|------|------|---------|
| $V_{(BR)CEO}$ Collector – Emitter Base Breakdown Voltage | $I_C = 1mA$ <b>BCU86</b><br>$R_{BE} = 0$    | 50   |      |      | V       |
| $V_{(BR)CBO}$ Collector – Base Breakdown Voltage         | $I_C = 10\mu A$ <b>BCU86</b><br>$I_E = 0$   | 60   |      |      | V       |
| $V_{(BR)EBO}$ Emitter Base Breakdown Voltage             | $I_C = 0$ <b>BCU86</b><br>$I_E = 10\mu A$   | 6    |      |      | V       |
| $I_{CBO}$ Collector Cut-Off Current                      | $V_{CB} = 40V$ <b>BCU86</b><br>$I_E = 0$    |      |      | 1    | $\mu A$ |
| $I_{EBO}$ Emitter Cut-Off Current                        | $V_{BE} = 4V$ <b>BCU86</b><br>$I_C = 0$     |      |      | 1    | $\mu A$ |
| $h_{FE1}^*$ DC Current Gain                              | $V_{CE} = 2V$ <b>BCU86</b><br>$I_C = 100mA$ | 100* |      | 560* | —       |
| $h_{FE2}^*$ DC Current Gain                              | $V_{CE} = 2V$ <b>BCU86</b><br>$I_C = 3A$    | 35   |      |      | —       |
| $f_T$ Transition frequency                               | $V_{CE} = 10V$ <b>BCU86</b><br>$I_C = 50mA$ |      | 150  |      | MHz     |
| $C_{ob}$ Output Capacitance                              | $V_{CB} = 10V$ <b>BCU86</b><br>$f = 1MHz$   |      | 25   |      | pF      |
| $t_{on}$ Turn – On Time                                  | See specified test circuit<br><b>BCU86</b>  |      | 70   |      | ns      |
| $t_{stg}$ Storage Time                                   | See specified test circuit<br><b>BCU86</b>  |      | 650  |      |         |
| $t_f$ Fall Time                                          | See specified test circuit<br><b>BCU86</b>  |      | 35   |      |         |

\* Pulse test  $t_p = 300\mu s$ ,  $\delta \leq 2\%$

**Reverse Polarity for PNP**

\* The BCU86 / BCU87 are classified by 100mA  $h_{FE}$  as follows:

100 R 200      140 S 280      200 T 400      280 U 560

