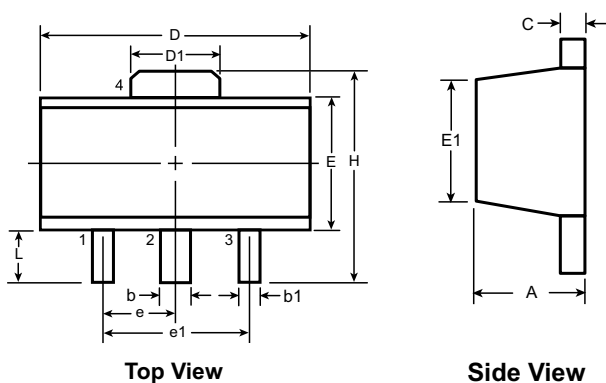


### ■ Features

- Excellent  $h_{FE}$  linearity and high  $h_{FE}$

$h_{FE} = 60 \text{ to } 400$  ( $V_{CE} = 2 \text{ V}$ ,  $I_C = 3 \text{ A}$ )

### SOT-89 PACKAGE OUTLINE



| Symbol             |     | A    | b    | b1   | C   | D    | D1   | E    | E1    | e           | e1          | H    | L    |
|--------------------|-----|------|------|------|-----|------|------|------|-------|-------------|-------------|------|------|
| Dimensions<br>(mm) | MIN | 1.40 | 0.44 | 0.36 | 0.3 | 4.40 | 1.50 | 2.29 | 2.00† | 1.50<br>BSC | 3.00<br>BSC | 3.94 | 0.89 |
|                    | NOM | -    | -    | -    | -   | -    | -    | -    | -     |             |             | -    | -    |
|                    | MAX | 1.60 | 0.56 | 0.48 | 0.5 | 4.60 | 1.75 | 2.60 | 2.29  |             |             | 4.25 | 1.20 |

Dimensions in mm

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

| Parameter                                            | Symbol    | Value         | Unit             |
|------------------------------------------------------|-----------|---------------|------------------|
| Collector to Base Voltage                            | $V_{CBO}$ | 40            | V                |
| Collector to Emitter Voltage                         | $V_{CEO}$ | 30            | V                |
| Emitter to Base Voltage                              | $V_{EBO}$ | 5             | V                |
| Collector Current                                    | $I_C$     | 3             | A                |
| Peak Collector Current ( $t = 10 \text{ ms}$ )       | $I_{CP}$  | 7             | A                |
| Total power dissipation ( $T_a = 25^\circ\text{C}$ ) | $P_{tot}$ | 1             | W                |
| Total power dissipation ( $T_c = 25^\circ\text{C}$ ) | $P_{tot}$ | 10            | W                |
| Junction Temperature                                 | $T_j$     | 150           | $^\circ\text{C}$ |
| Storage Temperature Range                            | $T_{stg}$ | - 55 to + 150 | $^\circ\text{C}$ |

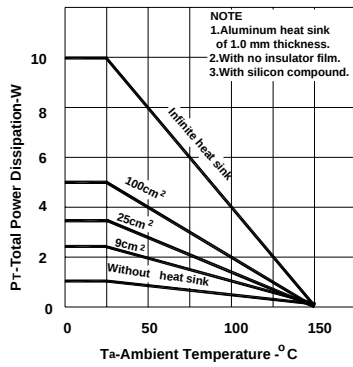
# D882

## Characteristics at $T_a = 25\text{ }^{\circ}\text{C}$

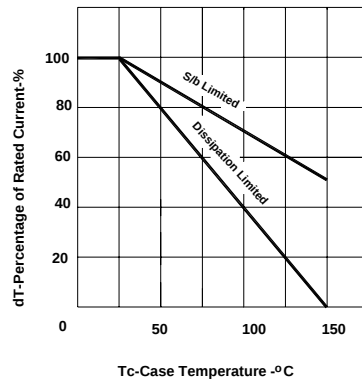
| Parameter                                       | Symbol        | Min. | Typ. | Max. | Unit          |
|-------------------------------------------------|---------------|------|------|------|---------------|
| DC Current Gain                                 |               |      |      |      |               |
| at $V_{CE} = 2\text{ V}$ , $I_C = 20\text{ mA}$ | $h_{FE}$      | 30   | -    | -    | -             |
| at $V_{CE} = 2\text{ V}$ , $I_C = 1\text{ A}$   | $h_{FE}$      | 60   | -    | 120  | -             |
| Current Gain Group R                            | $h_{FE}$      | 100  | -    | 200  | -             |
| Q                                               | $h_{FE}$      | 160  | -    | 320  | -             |
| P                                               | $h_{FE}$      | 200  | -    | 400  | -             |
| E                                               | $h_{FE}$      |      |      |      |               |
| Collector Base Cutoff Current                   |               |      |      |      |               |
| at $V_{CB} = 30\text{ V}$                       | $I_{CBO}$     | -    | -    | 1    | $\mu\text{A}$ |
| Emitter Base Cutoff Current                     |               |      |      |      |               |
| at $V_{EB} = 3\text{ V}$                        | $I_{EBO}$     | -    | -    | 1    | $\mu\text{A}$ |
| Collector Emitter Saturation Voltage            |               |      |      |      |               |
| at $I_C = 2\text{ A}$ , $I_B = 0.2\text{ A}$    | $V_{CE(sat)}$ | -    | -    | 0.5  | V             |
| Base Emitter Saturation Voltage                 |               |      |      |      |               |
| at $I_C = 2\text{ A}$ , $I_B = 0.2\text{ A}$    | $V_{BE(sat)}$ | -    | -    | 2    | V             |
| Gain Bandwidth Product                          |               |      |      |      |               |
| at $V_{CE} = 5\text{ V}$ , $I_C = 0.1\text{ A}$ | $f_T$         | -    | 90   | -    | MHz           |
| Output Capacitance                              |               |      |      |      |               |
| at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$  | $C_{ob}$      | -    | 45   | -    | pF            |

## RATING AND CHARACTERISTIC CURVES (D882)

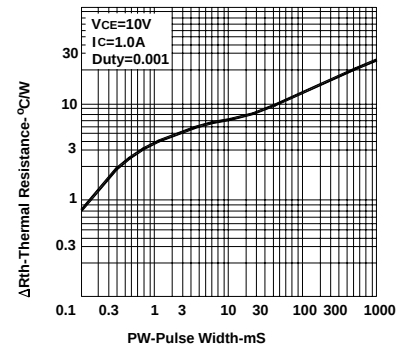
TOTAL POWER DISSIPATION vs. AMBIENT TEMPERATURE



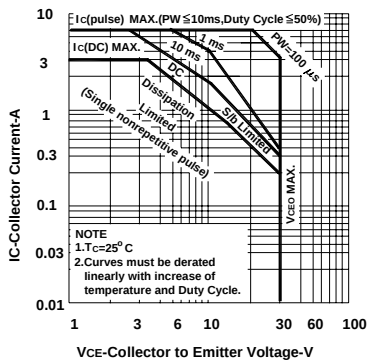
DERATING CURVES FOR ALL TYPES



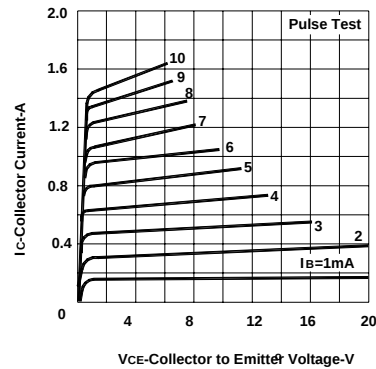
THERMAL RESISTANCE vs. PULSE WIDTH



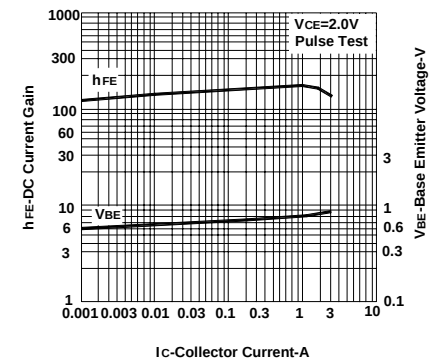
SAFE OPERATING AREAS



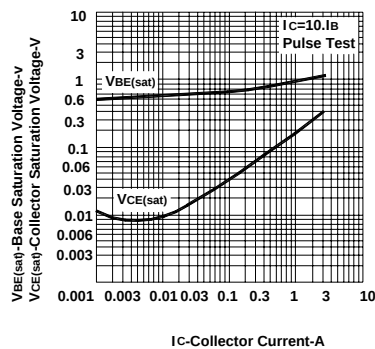
COLLECTOR CURRENT vs. COLLECTOR TO EMITTER VOLTAGE



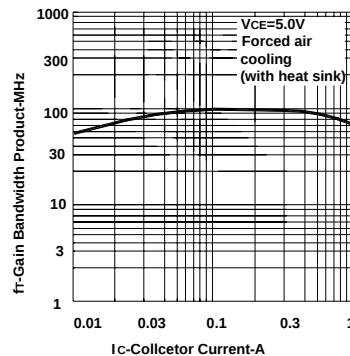
DC CURRENT GAIN, BASE TO EMITTER VOLTAGE vs. COLLECTOR CURRENT



BASE AND COLLECTOR SATURATION VOLTAGE vs. COLLECTOR CURRENT



GAIN BANDWIDTH PRODUCT vs. COLLECTOR CURRENT



INPUT AND OUTPUT CAPACITANCE vs. REVERSE VOLTAGE

