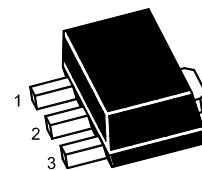


# HSC2881U

## NPN Silicon Epitaxial Planar Transistor

Power amplifier



1.Base 2.Collector 3.Emitter  
SOT-89 Plastic Package

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

| Parameter                   | Symbol    | Value               | Unit             |
|-----------------------------|-----------|---------------------|------------------|
| Collector Base Voltage      | $V_{CBO}$ | 120                 | V                |
| Collector Emitter Voltage   | $V_{CEO}$ | 120                 | V                |
| Emitter Base Voltage        | $V_{EBO}$ | 5                   | V                |
| Collector Current           | $I_C$     | 800                 | mA               |
| Base Current                | $I_B$     | 160                 | mA               |
| Collector Power Dissipation | $P_C$     | 0.5 1 <sup>1)</sup> | W                |
| Junction Temperature        | $T_j$     | 150                 | $^\circ\text{C}$ |
| Storage Temperature Range   | $T_{stg}$ | - 55 to + 150       | $^\circ\text{C}$ |

<sup>1)</sup> Mounted on ceramic board (250 mm<sup>2</sup> X 0.8 mm).

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

| Parameter                                                                               | Symbol        | Min. | Typ. | Max. | Unit |
|-----------------------------------------------------------------------------------------|---------------|------|------|------|------|
| DC Current Gain<br>at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ mA}$                     | $h_{FE}$      | 80   | - -  | 160  | - -  |
| Current Gain Group                                                                      | $h_{FE}$      | 120  |      | 240  |      |
| Collector Base Cutoff Current<br>at $V_{CB} = 120\text{ V}$                             | $I_{CBO}$     | -    | -    | 100  | nA   |
| Emitter Base Cutoff Current<br>at $V_{EB} = 5\text{ V}$                                 | $I_{EBO}$     | -    | -    | 100  | nA   |
| Collector Emitter Breakdown Voltage<br>at $I_C = 1\text{ mA}$                           | $V_{(BR)CEO}$ | 120  | -    | -    | V    |
| Emitter Base Breakdown Voltage<br>at $I_E = 1\text{ mA}$                                | $V_{(BR)EBO}$ | 5    | -    | -    | V    |
| Collector Emitter Saturation Voltage<br>at $I_C = 500\text{ mA}$ , $I_B = 50\text{ mA}$ | $V_{CE(sat)}$ | -    | -    | 1    | V    |
| Base Emitter on Voltage<br>at $V_{CE} = 5\text{ V}$ , $I_C = 500\text{ mA}$             | $V_{BE(on)}$  | -    | -    | 1    | V    |
| Transition Frequency<br>at $V_{CE} = 5\text{ V}$ , $I_C = 100\text{ mA}$                | $f_T$         | -    | 120  | -    | MHz  |
| Collector Output Capacitance<br>at $V_{CB} = 10\text{ V}$ , $f = 1\text{ MHz}$          | $C_{ob}$      | -    | -    | 30   | pF   |

## HSC2881U

## Typical Characteristics

Figure 1. Static Characteristic

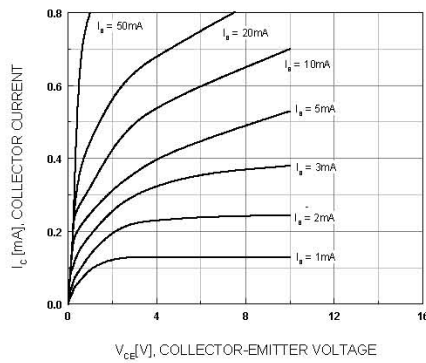


Figure 2. Base-Emitter On Voltage

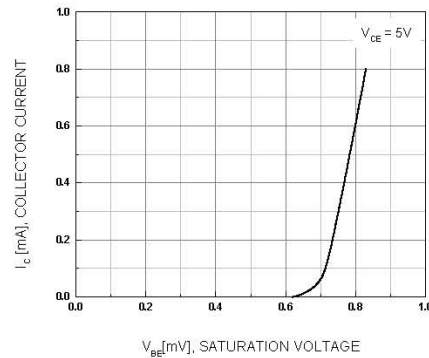


Figure 3. DC Current Gain

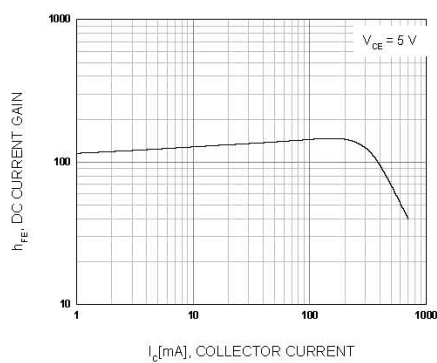


Figure 4. Collector-Emitter Saturation Voltage

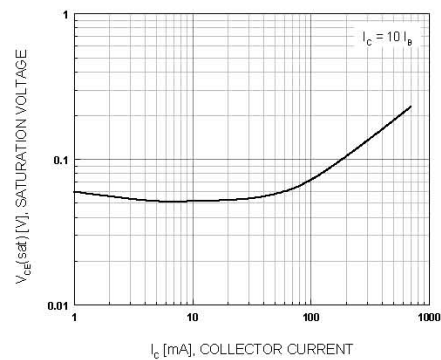
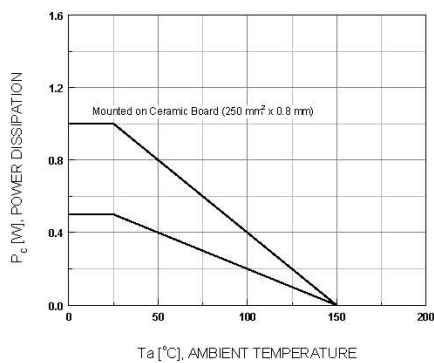
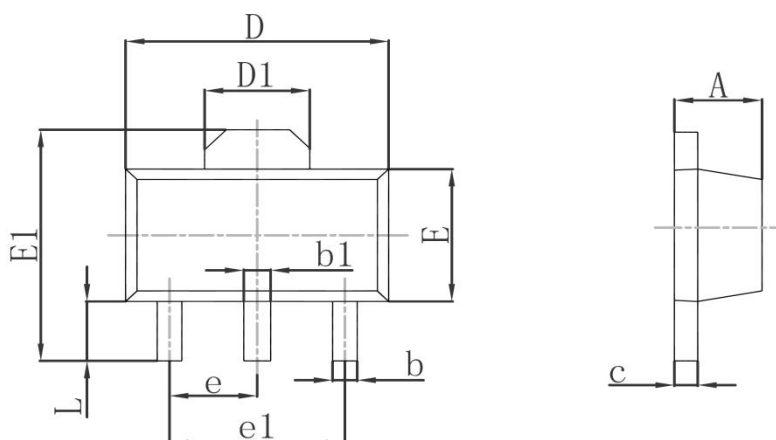


Figure 5. Power Derating



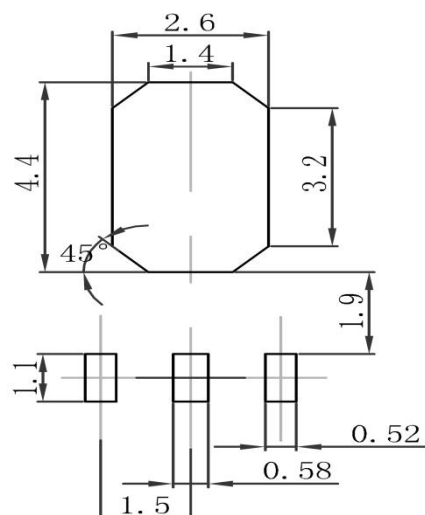
## HSC2881U

## SOT-89 Package Outline Dimensions



| Symbol | Dimensions In Millimeters |       | Dimensions In Inches |       |
|--------|---------------------------|-------|----------------------|-------|
|        | Min.                      | Max.  | Min.                 | Max.  |
| A      | 1.400                     | 1.600 | 0.055                | 0.063 |
| b      | 0.320                     | 0.520 | 0.013                | 0.020 |
| b1     | 0.400                     | 0.580 | 0.016                | 0.023 |
| c      | 0.350                     | 0.440 | 0.014                | 0.017 |
| D      | 4.400                     | 4.600 | 0.173                | 0.181 |
| D1     | 1.550REF                  |       | 0.061REF             |       |
| E      | 2.300                     | 2.600 | 0.091                | 0.102 |
| E1     | 3.940                     | 4.250 | 0.155                | 0.167 |
| e      | 1.500TYP                  |       | 0.060TYP             |       |
| e1     | 3.000TYP                  |       | 0.118TYP             |       |
| L      | 0.900                     | 1.200 | 0.035                | 0.047 |

## SOT-89 Suggested Pad Layout

**Note:**

1. Controlling dimension: in millimeters
2. General tolerance:  $\pm 0.05\text{mm}$
3. The pad layout is for reference purposes only