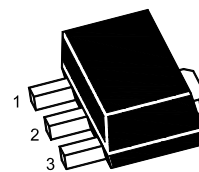


2SD1898U

NPN Silicon Epitaxial Planar Transistor



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

Applications

- For power amplification applications

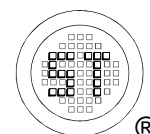
Absolute Maximum Ratings ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---------------------------|-----------|---------------|------------------|
| Collector Base Voltage | V_{CB0} | 100 | V |
| Collector Emitter Voltage | V_{CEO} | 80 | V |
| Emitter Base Voltage | V_{EBO} | 5 | V |
| Collector Current | I_C | 1 | A |
| Total Power Dissipation | P_{tot} | 0.5 | W |
| Junction Temperature | T_j | 150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

Thermal Characteristics

| Parameter | Symbol | Max. | Unit |
|---|-----------------|------|--------------------|
| Thermal Resistance from Junction to Ambient ¹⁾ | $R_{\theta JA}$ | 250 | $^\circ\text{C/W}$ |

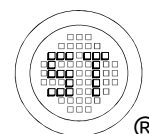
¹⁾ Device mounted on FR-4 substrate PC board, with minimum recommended pad layout.



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

| Parameter | Symbol | Min. | Typ. | Max. | Unit | |
|---|----------------------|----------|------|------|---------------|---|
| DC Current Gain at $V_{CE} = 3\text{ V}$, $I_C = 500\text{ mA}$ | Current Gain Group P | h_{FE} | 82 | - | 180 | - |
| | Q | h_{FE} | 120 | - | 270 | - |
| | R | h_{FE} | 180 | - | 390 | - |
| Collector Base Cutoff Current at $V_{CB} = 80\text{ V}$ | I_{CBO} | - | - | 1 | μA | |
| Emitter Base Cutoff Current at $V_{EB} = 4\text{ V}$ | I_{EBO} | - | - | 1 | μA | |
| Collector Base Breakdown Voltage at $I_C = 50\text{ }\mu\text{A}$ | $V_{(BR)CBO}$ | 100 | - | - | V | |
| Collector Emitter Breakdown Voltage at $I_C = 1\text{ mA}$ | $V_{(BR)CEO}$ | 80 | - | - | V | |
| Emitter Base Breakdown Voltage at $I_E = 50\text{ }\mu\text{A}$ | $V_{(BR)EBO}$ | 5 | - | - | V | |
| Collector Emitter Saturation Voltage at $I_C = 500\text{ mA}$, $I_B = 20\text{ mA}$ | $V_{CE(sat)}$ | - | - | 0.4 | V | |
| Transition Frequency at $V_{CE} = 10\text{ V}$, $I_C = 50\text{ mA}$, $f = 100\text{ MHz}$ | f_T | - | 100 | - | MHz | |



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

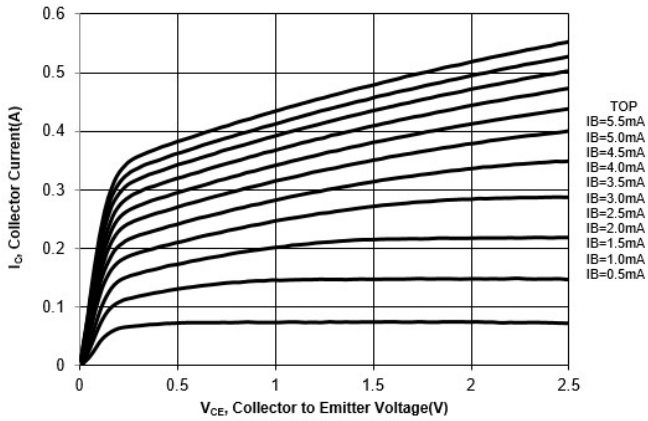


Fig. 2 Collector Current vs. Base to Emitter Voltage

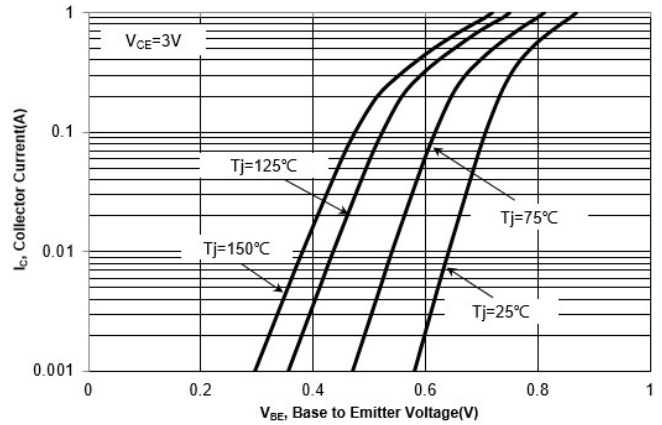


Fig. 3 $h_{FE,DC}$ Current Gain vs. Collector Current

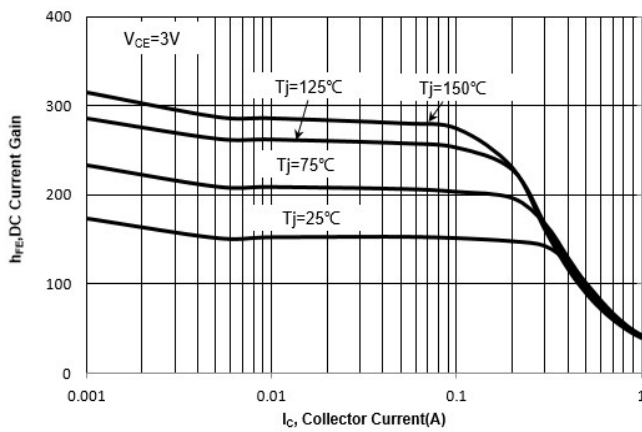
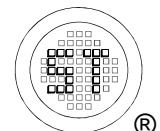
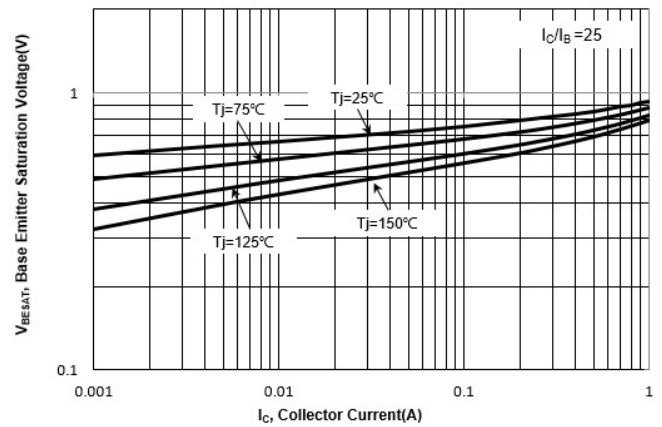


Fig. 4 $V_{BE(sat)}$ vs. Collector Current



Electrical Characteristics Curves

Fig. 5 $V_{CE(sat)}$ vs. Collector Current

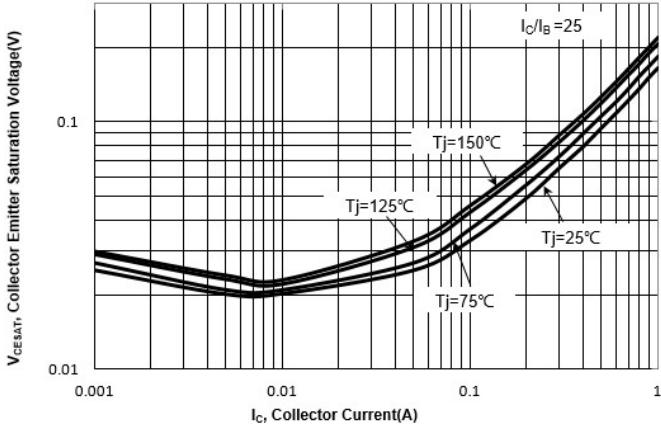


Fig. 6 Output Capacitance

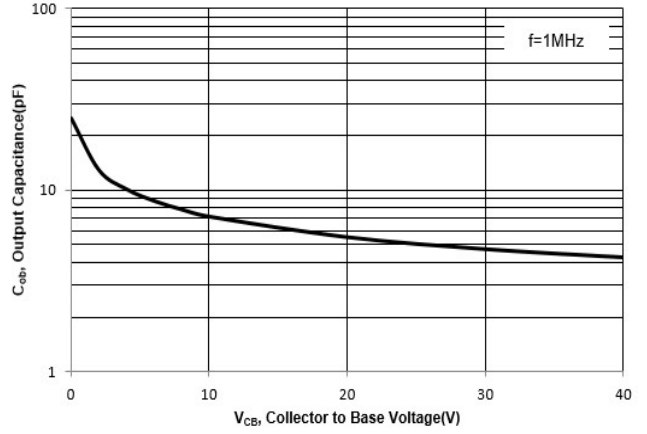
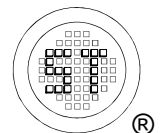
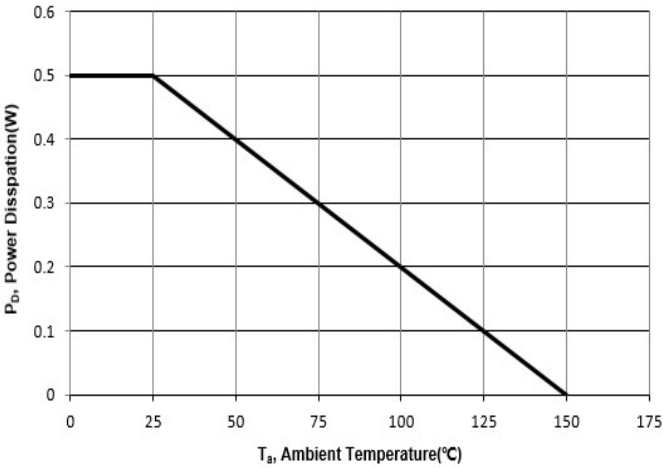


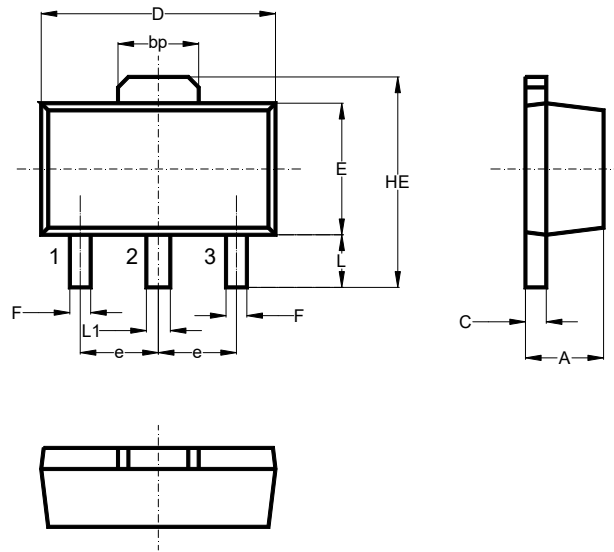
Fig 7. Power Derating Curve



2SD1898U

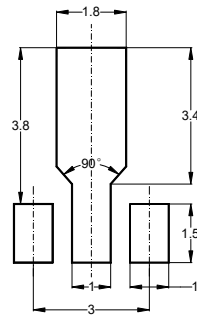
Package Outline (Dimensions in mm)

SOT-89



| Unit | A | bp | C | D | E | F | HE | e | L | L1 |
|------|-----|------|-----|-----|-----|------|------|------|------|------|
| mm | 1.6 | 1.60 | 0.5 | 4.6 | 2.6 | 0.45 | 4.25 | 1.5 | 1.05 | 0.51 |
| | 1.4 | 1.50 | 0.3 | 4.4 | 2.4 | 0.35 | 3.75 | typ. | 0.95 | 0.41 |

Recommended Soldering Footprint



Packing information

| Package | Tape Width (mm) | Pitch | | Reel Size | | Per Reel Packing Quantity |
|---------|-----------------|---------|---------------|-----------|------|---------------------------|
| | | mm | inch | mm | inch | |
| SOT-89 | 12 | 8 ± 0.1 | 0.315 ± 0.004 | 178 | 7 | 1,000 |
| | | | | 330 | 13 | 4,000 |

Marking information

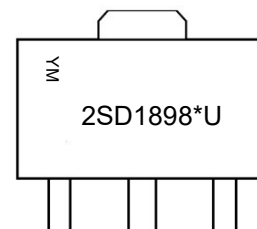
" 2SD1898*U " = Part No. (" * " = HFE grouping Code)

" YM " = Date Code Marking

" Y " = Year

" M " = Month

Font type: Arial



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