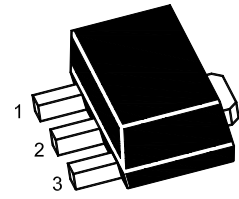


2SA2071U

PNP Silicon Epitaxial Planar Power Transistor

Applications

- Low frequency amplifier and high speed switching



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

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

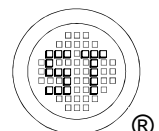
| Parameter | Symbol | Value | Unit |
|---------------------------------------|------------|--------------------------------------|------------------|
| Collector Base Voltage | $-V_{CB0}$ | 60 | V |
| Collector Emitter Voltage | $-V_{CE0}$ | 60 | V |
| Emitter Base Voltage | $-V_{EB0}$ | 6 | V |
| Collector Current | $-I_C$ | 3 | A |
| Peak Pulse Collector Current (8.3 ms) | $-I_{CP}$ | 6 | A |
| Collector Power Dissipation | P_C | 0.5 ¹⁾ 2 ²⁾ | 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-Junction to Ambient | $R_{\theta JA}$ | 250 ¹⁾ 62.5 ²⁾ | $^\circ\text{C/W}$ |

¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

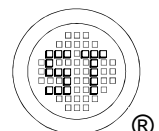
²⁾ Mounted on a 40 X 40 X 0.7 mm ceramic substrate.



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

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|---|----------------|------|------|------|---------------|
| DC Current Gain at $-V_{CE} = 2\text{ V}$, $-I_C = 100\text{ mA}$ | h_{FE} | 120 | - | 270 | - |
| Collector Base Cutoff Current at $-V_{CB} = 40\text{ V}$ | $-I_{CBO}$ | - | - | 1 | μA |
| Emitter Base Cutoff Current at $-V_{EB} = 4\text{ V}$ | $-I_{EBO}$ | - | - | 1 | μA |
| Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$ | $-V_{(BR)CBO}$ | 60 | - | - | V |
| Collector Emitter Breakdown Voltage at $-I_C = 1\text{ mA}$ | $-V_{(BR)CEO}$ | 60 | - | - | V |
| Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$ | $-V_{(BR)EBO}$ | 6 | - | - | V |
| Collector Emitter Saturation Voltage at $-I_C = 2\text{ A}$, $-I_B = 200\text{ mA}$ | $-V_{CE(sat)}$ | - | - | 0.5 | V |
| Transition Frequency at $-V_{CE} = 10\text{ V}$, $I_E = 10\text{ mA}$, $f = 10\text{ MHz}$ | f_T | - | 180 | - | MHz |
| Collector Output Capacitance at $-V_{CB} = 10\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | - | 50 | - | pF |
| Turn-on Time at $-V_{CC} = 25\text{ V}$, $-I_C = 3\text{ A}$, $-I_{B1} = 300\text{ mA}$, $I_{B2} = 300\text{ mA}$ | t_{on} | - | 20 | - | ns |
| Storage Time at $-V_{CC} = 25\text{ V}$, $-I_C = 3\text{ A}$, $-I_{B1} = 300\text{ mA}$, $I_{B2} = 300\text{ mA}$ | t_{stg} | - | 150 | - | ns |
| Fall Time at $-V_{CC} = 25\text{ V}$, $-I_C = 3\text{ A}$, $-I_{B1} = 300\text{ mA}$, $I_{B2} = 300\text{ mA}$ | t_f | - | 20 | - | ns |



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

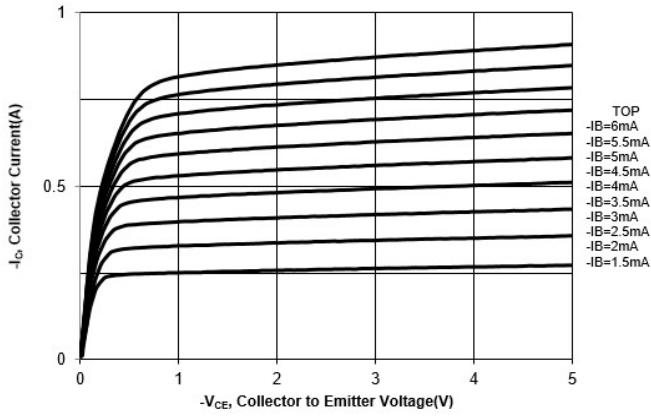


Fig. 2 Collector Current vs. Base to Emitter Voltage

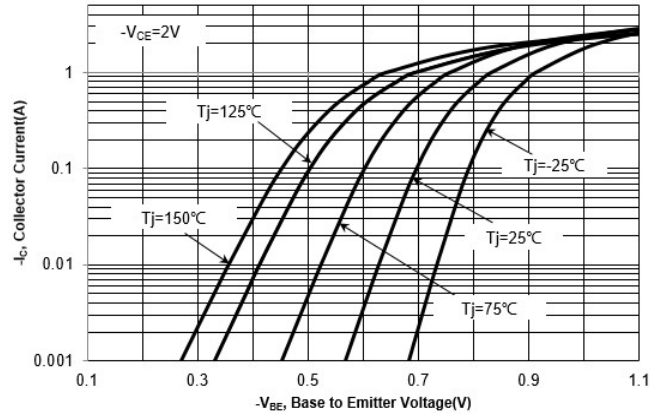


Fig. 3 DC Current Gain vs. Collector Current

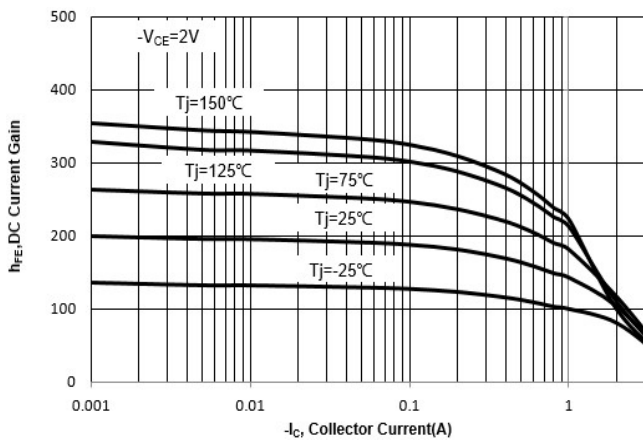
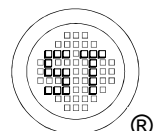
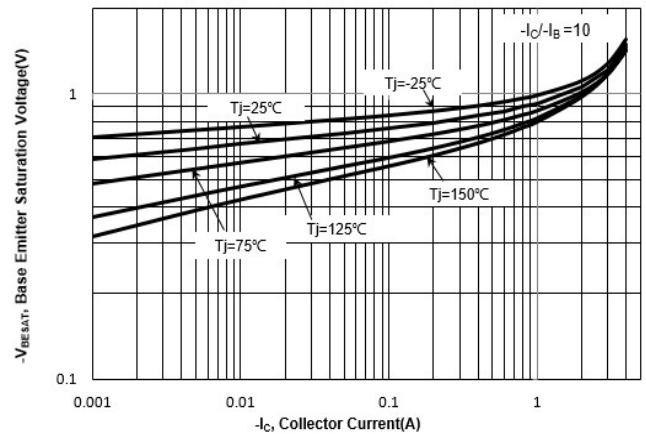


Fig. 4 V_{BESAT} vs. Collector Current



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Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

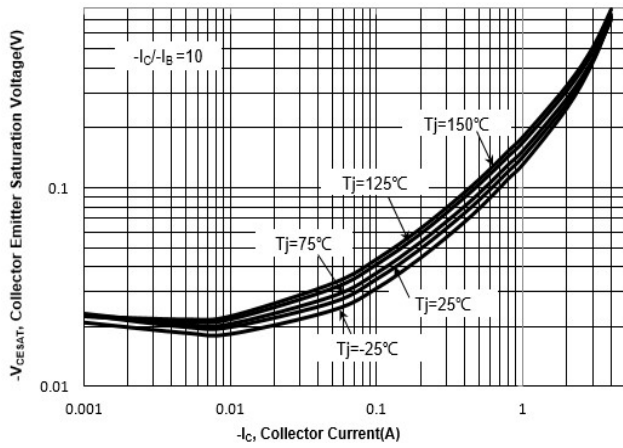


Fig. 6 Output Capacitance

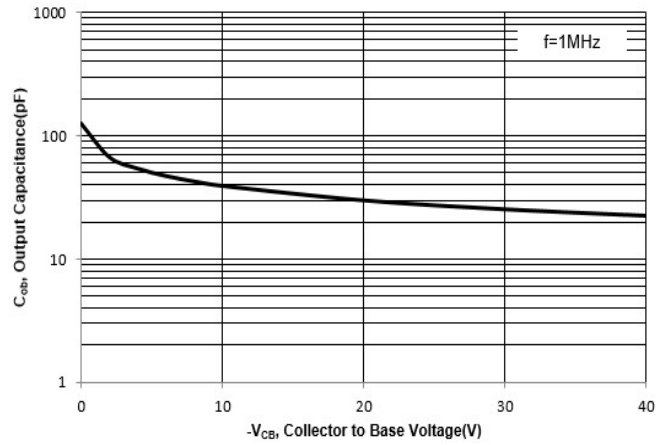
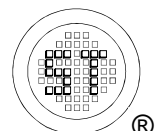
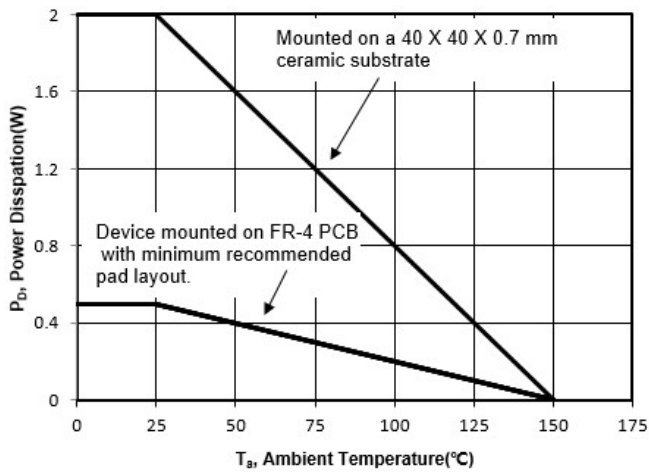


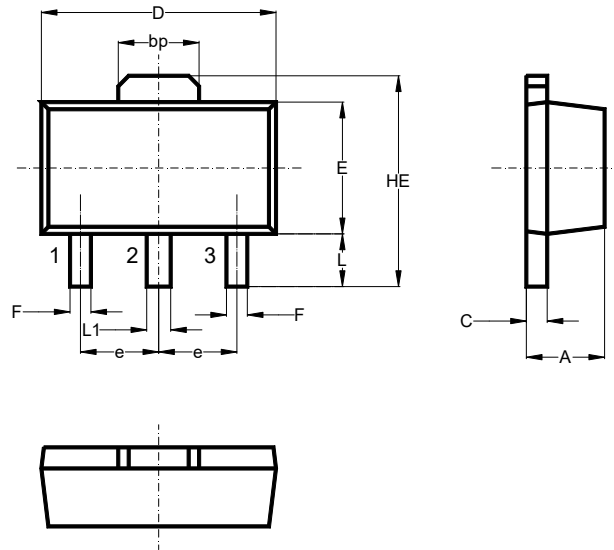
Fig. 7 Power Derating Curve



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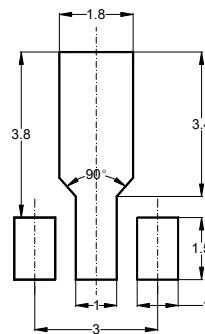
Package Outline (Dimensions in mm)

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

" 2SA2071U " = Part No
 "YM" = Date Code Marking
 "Y" = Year
 "M" = Month
 Font type: Arial

