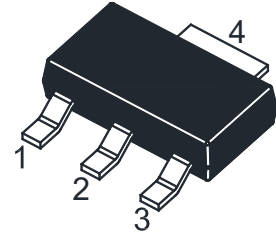


2SB955Q-HAF

PNP Silicon Epitaxial Power Transistor

Features

- Halogen and Antimony Free(HAF), RoHS compliant



1.Base 2.Collector 3.Emitter 4. Collector
SOT-223 Plastic Package

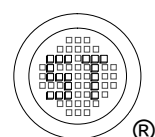
Absolute Maximum Ratings ($T_a = 25\text{ }^\circ\text{C}$)

| Parameter | Symbol | Value | Unit |
|---|----------------|---------------|------------------|
| Collector Base Voltage | $-V_{CBO}$ | 180 | V |
| Collector Emitter Voltage | $-V_{CEO}$ | 140 | V |
| Emitter Base Voltage | $-V_{EBO}$ | 6 | V |
| Collector Current | $-I_C$ | 4 | A |
| Peak Pulse Current | $-I_{CM}$ | 10 | A |
| Power Dissipation | P_{tot} | 1.75 | W |
| Operating and Storage Temperature Range | T_j, T_{stg} | - 55 to + 150 | $^\circ\text{C}$ |

Thermal Characteristics

| Parameter | Symbol | Max. | Unit |
|---|-----------------|------|--------------------|
| Thermal Resistance from Junction to Ambient ¹⁾ | $R_{\theta JA}$ | 71.4 | $^\circ\text{C/W}$ |

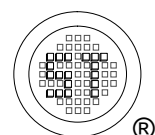
¹⁾ Device mounted on FR-4 substrate PC board, 2oz copper, with 1-inch square copper plate.



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

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|----------------|------|------|------|------|
| DC Current Gain at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ mA}$ | h_{FE} | 100 | - | - | - |
| at $-V_{CE} = 5\text{ V}$, $-I_C = 1\text{ A}$ | h_{FE} | 100 | - | 300 | - |
| at $-V_{CE} = 5\text{ V}$, $-I_C = 3\text{ A}$ | h_{FE} | 75 | - | - | - |
| at $-V_{CE} = 5\text{ V}$, $-I_C = 10\text{ A}$ | h_{FE} | 5 | - | - | - |
| Collector Base Cutoff Current at $-V_{CB} = 150\text{ V}$ | $-I_{CBO}$ | - | - | 50 | nA |
| Emitter Base Cutoff Current at $-V_{EB} = 6\text{ V}$ | $-I_{EBO}$ | - | - | 10 | nA |
| Collector Base Breakdown Voltage at $-I_C = 100\text{ }\mu\text{A}$ | $-V_{(BR)CBO}$ | 180 | - | - | V |
| Collector Emitter Breakdown Voltage at $-I_C = 10\text{ mA}$ | $-V_{(BR)CEO}$ | 140 | - | - | V |
| Emitter Base Breakdown Voltage at $-I_E = 100\text{ }\mu\text{A}$ | $-V_{(BR)EBO}$ | 6 | - | - | V |
| Collector Emitter Saturation Voltage at $-I_C = 0.1\text{ A}$, $-I_B = 5\text{ mA}$ | $-V_{CE(sat)}$ | - | - | 60 | mV |
| at $-I_C = 0.5\text{ A}$, $-I_B = 50\text{ mA}$ | | - | - | 120 | |
| at $-I_C = 1\text{ A}$, $-I_B = 100\text{ mA}$ | | - | - | 150 | |
| at $-I_C = 3\text{ A}$, $-I_B = 300\text{ mA}$ | | 30 | - | 370 | |
| Base Emitter Saturation Voltage at $-I_B = 300\text{ mA}$, $-I_C = 3\text{ A}$ | $-V_{BE(sat)}$ | - | - | 1110 | mV |
| Base Emitter On Voltage at $-V_{CE} = 5\text{ V}$, $-I_C = 3\text{ A}$ | $-V_{BE(on)}$ | - | - | 950 | mV |
| Gain Bandwidth Product at $-V_{CE} = 10\text{ V}$, $-I_C = 100\text{ mA}$, $f = 50\text{ MHz}$ | f_T | - | 110 | - | MHz |
| Collector Base Capacitance at $-V_{CB} = 20\text{ V}$, $f = 1\text{ MHz}$ | C_{ob} | - | 28 | - | pF |
| Turn-On Delay Time at $-I_C = 1\text{ A}$, $-I_{B1} = 100\text{ mA}$, $I_{B2} = 100\text{ mA}$, $-V_{CC} = 50\text{ V}$ | $t_{d(on)}$ | - | 68 | - | ns |
| Turn-Off Delay Time at $-I_C = 1\text{ A}$, $-I_{B1} = 100\text{ mA}$, $I_{B2} = 100\text{ mA}$, $-V_{CC} = 50\text{ V}$ | $t_{d(off)}$ | - | 1030 | - | ns |



Electrical Characteristics Curves

Fig. 1 Output Characteristics Curve

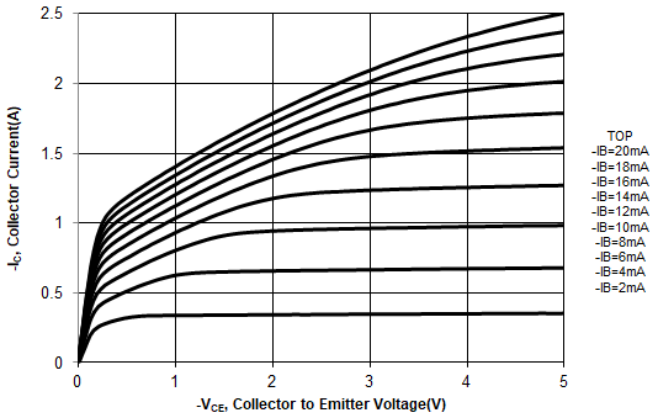


Fig. 2 Collector Current vs. Base to Emitter Voltage

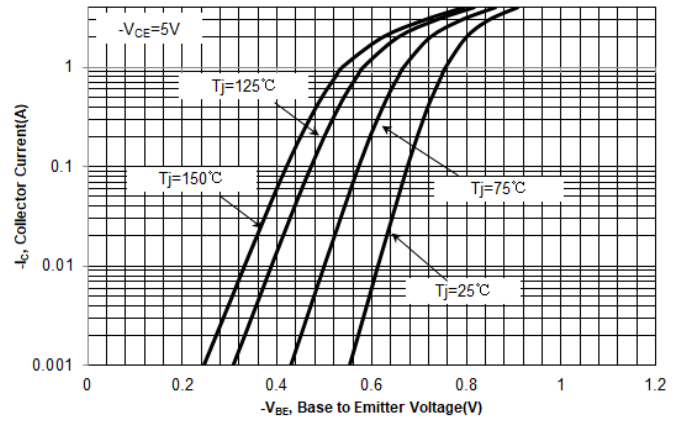


Fig. 3 DC Current Gain vs. Collector Current

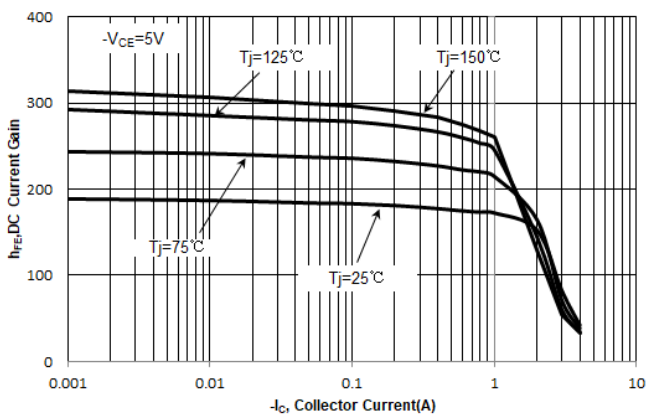
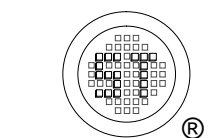
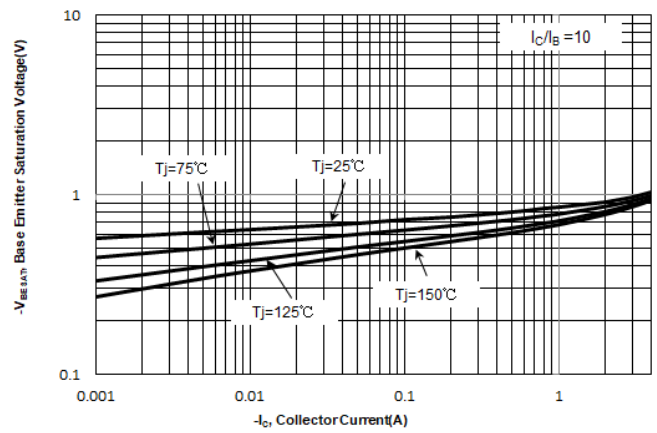


Fig. 4 $V_{BE(SAT)}$ vs. Collector Current



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Electrical Characteristics Curves

Fig. 5 V_{CESAT} vs. Collector Current

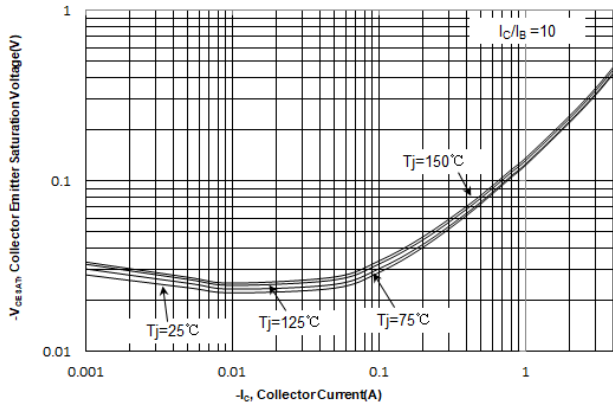


Fig. 6 Output Capacitance

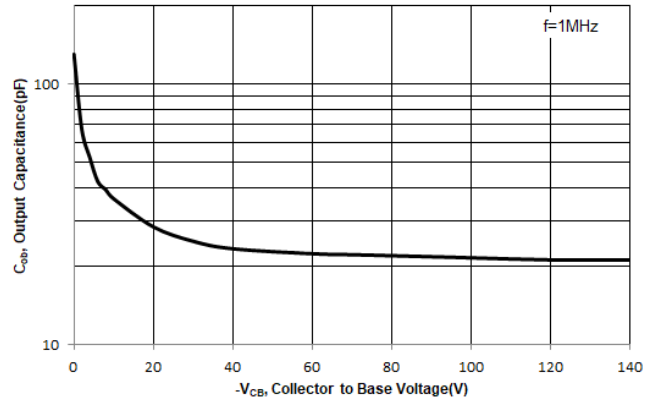
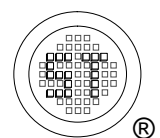
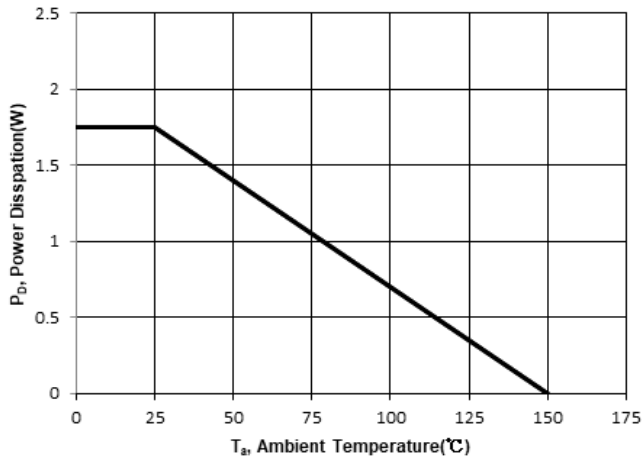


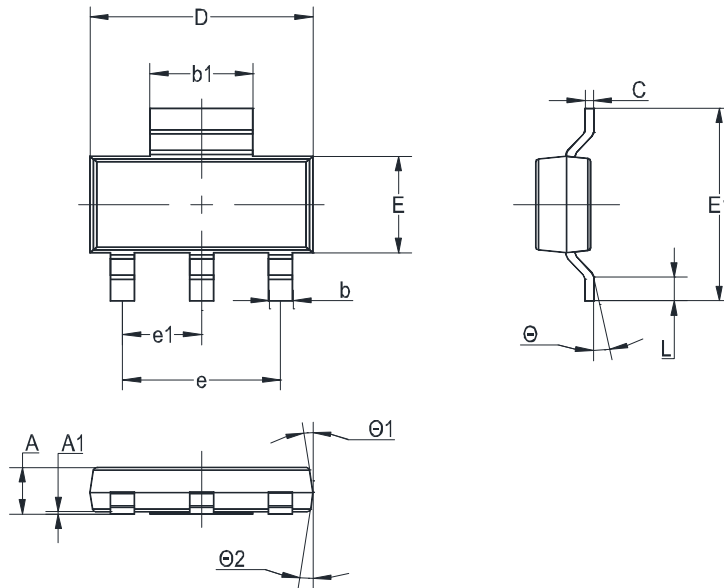
Fig. 7 Power Derating Curve



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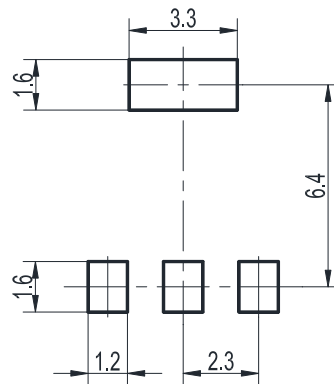
Package Outline (Dimensions in mm)

SOT-223



| Unit | A | A1 | b | b1 | C | D | E | E1 | e | e1 | L | Θ | Θ1 | Θ2 |
|------|-----|-----|-----|-----|------|-----|-----|-----|-----|-----|-----|-----|----|----|
| mm | 1.8 | 0.1 | 0.8 | 3.1 | 0.32 | 6.7 | 3.7 | 7.3 | 4.6 | 2.3 | 1.1 | 10° | 7° | 7° |
| | 1.5 | MAX | 0.6 | 2.9 | 0.22 | 6.3 | 3.3 | 6.7 | TYP | TYP | 0.7 | 0° | 0° | 0° |

Recommended Soldering Footprint



Packing information

| Package | Tape Width (mm) | Pitch | | Reel Size | | Per Reel Packing Quantity |
|---------|-----------------|---------|---------------|-----------|------|---------------------------|
| | | mm | inch | mm | inch | |
| SOT-223 | 12 | 8 ± 0.1 | 0.315 ± 0.004 | 330 | 13 | 3,000 |

Marking information

" 2SB955Q " = Part No.

" ***** " = Date Code Marking

Font type: Arial

