



USS5350

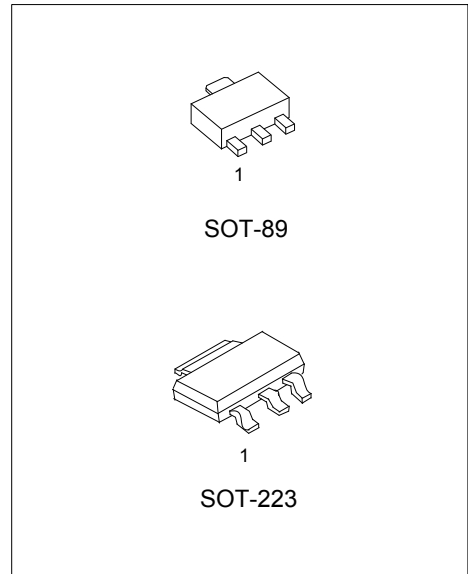
Preliminary

PNP EPITAXIAL SILICON TRANSISTOR

50V, 3A PNP LOW $V_{CE(SAT)}$ TRANSISTOR

■ FEATURES

- * Low collector-emitter saturation voltage $V_{CE(SAT)}$
- * High collector current capability: I_C and I_{CM}
- * Higher efficiency leading to less heat generation
- * Reduced printed-circuit board requirements.
- * Complement: USS4350.



■ ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|----------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| USS5350L-AB3-R | USS5350G-AB3-R | SOT-89 | B | C | E | Tape Reel |
| USS5350L-AA3-R | USS5350G-AA3-R | SOT-223 | B | C | E | Tape Reel |

| | | |
|--------------------|--|--|
| USS5350L-AB3-R | (1)Packing Type (2)Package Type (3)Lead Free | (1) R: Tape Reel (2) AA3: SOT-223, AB3: SOT-89 (3) G: Halogen Free, L: Lead Free |
|--------------------|--|--|

■ ABSOLUTE MAXIMUM RATING ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | RATINGS | UNIT | |
|--|-----------|----------|------------------|---|
| Collector-Base Voltage | V_{CBO} | -50 | V | |
| Collector-Emitter Voltage | V_{CEO} | -50 | V | |
| Emitter-Base Voltage | V_{EBO} | -5 | V | |
| Collector Current (Note 3) | DC | I_C | -3 | A |
| | Peak | I_{CM} | -5 | A |
| Base Current (DC) | I_B | -0.5 | A | |
| Power Dissipation ($T_A \leq 25^\circ\text{C}$) (Note 2) | SOT-89 | P_D | 1.4 | W |
| | SOT-223 | | 2 | |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ | |
| Storage Temperature | T_{STG} | -65~+150 | $^\circ\text{C}$ | |

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged.

Absolute maximum ratings are stress ratings only and functional device operation is not implied.

2. Device mounted on a printed-circuit board; single-sided copper; mounting pad for collector 6cm^2 .

3. Pulse test: $t_P \leq 300 \mu\text{s}$; Duty cycle $\leq 2\%$.

■ THERMAL CHARACTERISTICS

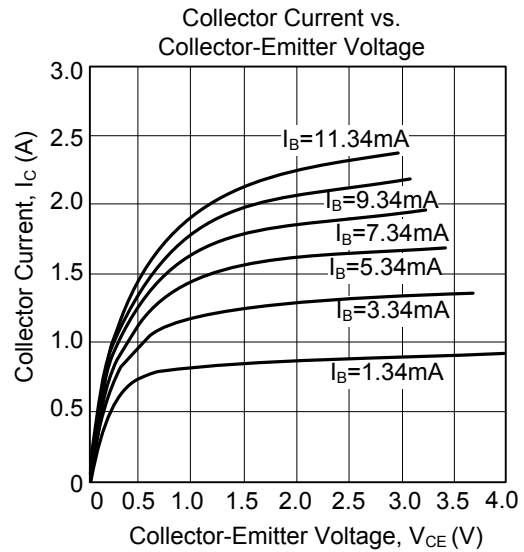
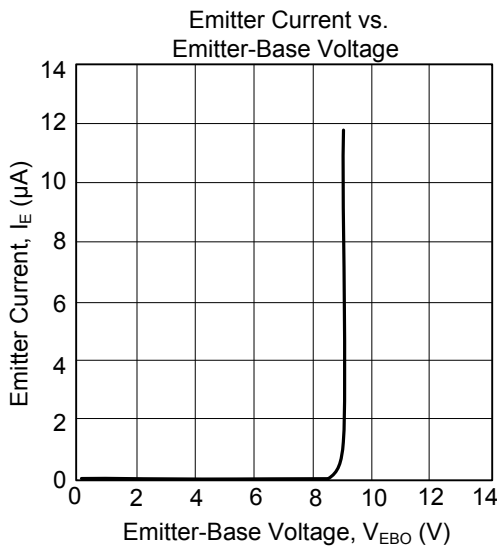
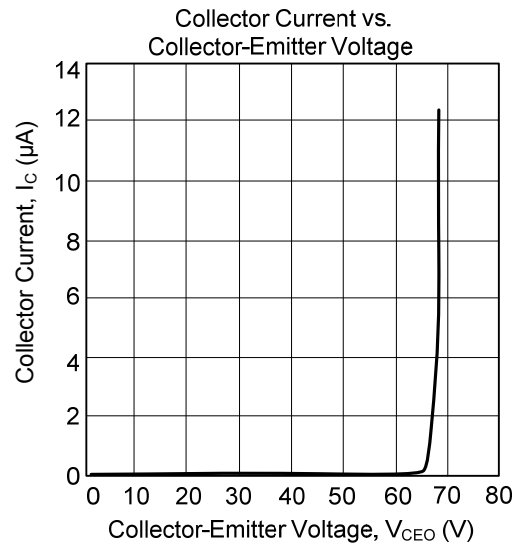
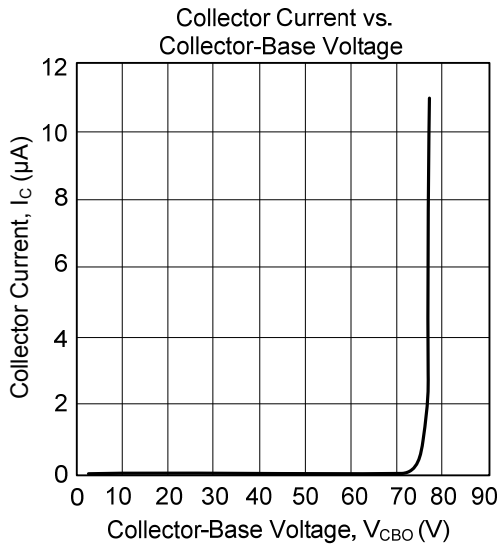
| PARAMETER | SYMBOL | RATINGS | UNIT | |
|------------------------------|---------|---------------|------|--------------------|
| Junction To Ambient (Note 2) | SOT-89 | θ_{JA} | 90 | $^\circ\text{C/W}$ |
| | SOT-223 | | 62.5 | |

■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|------|-----|------|---------------|
| Collector Cut-Off Current | I_{CBO} | $V_{CB} = -50 \text{ V}, I_E = 0$ | | | -100 | nA |
| | | $V_{CB} = -50 \text{ V}, I_E = 0, T_J = 150^\circ\text{C}$ | | | -50 | μA |
| Collector Cut-Off Current | I_{CES} | $V_{CE} = -50 \text{ V}, V_{BE} = 0$ | | | -100 | nA |
| Emitter Cut-Off Current | I_{EBO} | $V_{EB} = -5 \text{ V}, I_C = 0$ | | | -100 | nA |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C = -0.5 \text{ A}, I_B = -50 \text{ mA}$ | | | -90 | mV |
| | | $I_C = -1 \text{ A}, I_B = -50 \text{ mA}$ | | | -180 | mV |
| | | $I_C = -2 \text{ A}, I_B = -100 \text{ mA}$ | | | -320 | mV |
| | | $I_C = -2 \text{ A}, I_B = -200 \text{ mA}$ (Note) | | | -270 | mV |
| | | $I_C = -3 \text{ A}, I_B = -300 \text{ mA}$ (Note) | | | -390 | mV |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C = -2 \text{ A}, I_B = -100 \text{ mA}$ | | | -1.1 | V |
| | | $I_C = -3 \text{ A}, I_B = -300 \text{ mA}$ (Note) | | | -1.2 | V |
| Base-Emitter Turn-On Voltage | $V_{BE(ON)}$ | $V_{CE} = -2 \text{ V}, I_C = -1 \text{ A}$ | -1.1 | | | V |
| Dc Current Gain | h_{FE} | $V_{CE} = -2 \text{ V}, I_C = -0.1 \text{ A}$ | 200 | | | |
| | | $V_{CE} = -2 \text{ V}, I_C = -0.5 \text{ A}$ | 200 | | | |
| | | $V_{CE} = -2 \text{ V}, I_C = -1 \text{ A}$ (Note) | 200 | | 450 | |
| | | $V_{CE} = -2 \text{ V}, I_C = -2 \text{ A}$ (Note) | 130 | | | |
| | | $V_{CE} = -2 \text{ V}, I_C = -3 \text{ A}$ (Note) | 80 | | | |
| Equivalent On-Resistance | $R_{CE(SAT)}$ | $I_C = -2 \text{ A}, I_B = -200 \text{ mA}$, (Note) | | 90 | 135 | m Ω |
| Transition Frequency | f_T | $V_{CE} = -5 \text{ V}, I_C = -100 \text{ mA}, f = 100 \text{ MHz}$ | 100 | | | MHz |
| Collector Capacitance | C_C | $V_{CB} = -10 \text{ V}, I_E = I_C = 0, f = 1 \text{ MHz}$ | | | 35 | pF |

Note: Pulse test: $t_P \leq 300 \mu\text{s}$; Duty cycle $\leq 2\%$.

■ TYPICAL CHARACTERISTICS



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