



USS4350Z

Preliminary

NPN SILICON TRANSISTOR

3.0A, 50V NPN LOW $V_{CE(SAT)}$ TRANSISTOR

DESCRIPTION

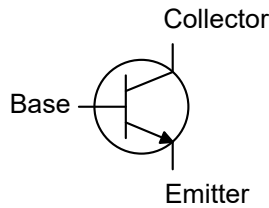
The UTC **USS4350Z** is NPN low $V_{CE(SAT)}$ transistor in a medium power and flat lead SOT-223 Surface-Mounted Device (SMD) plastic package.

PNP complement: USS5350Z.

FEATURES

- * Very low collector-emitter saturation voltage $V_{CE(SAT)}$
- * High collector current capability I_C and I_{CM}
- * High collector current gain (h_{FE}) at high I_C
- * High energy efficiency due to less heat generation

EQUIVALENT CIRCUIT



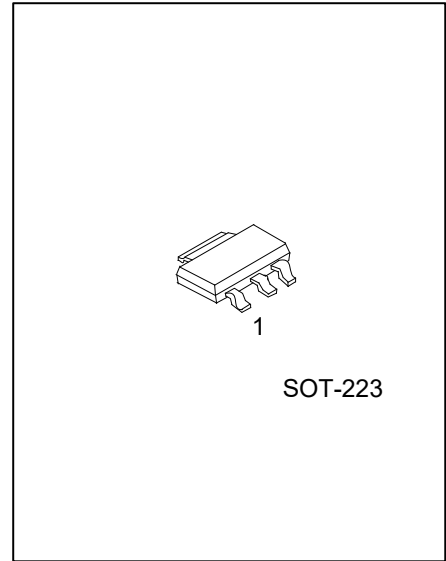
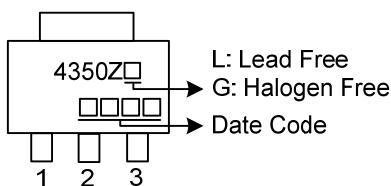
ORDERING INFORMATION

| Ordering Number | | Package | Pin Assignment | | | Packing |
|-----------------|-----------------|---------|----------------|---|---|-----------|
| Lead Free | Halogen Free | | 1 | 2 | 3 | |
| USS4350ZL-AA3-R | USS4350ZG-AA3-R | SOT-223 | B | C | E | Tape Reel |

Note: Pin Assignment: B: Base E: Emitter C: Collector

| | | |
|-----------------|-------------------|---|
| USS4350ZG-AA3-R | (1) Packing Type | (1) R: Tape Reel |
| | (2) Package Type | (2) AA3: SOT-223 |
| | (3) Green Package | (3) G: Halogen Free and Lead Free, L: Lead Free |

MARKING



■ 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 |
| Collector Current | I_C | 3 | A |
| Peak Collector Current | I_{CM} | 5 | A |
| Base Current | I_B | 0.5 | A |
| Power Dissipation | P_C | 1.35 | W |
| Junction Temperature | T_J | +150 | $^{\circ}\text{C}$ |
| Storage Temperature | T_{STG} | -55 ~ +150 | $^{\circ}\text{C}$ |

Note: 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.

■ THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|-----------------------------|
| Junction to Ambient | θ_{JA} | 92 | $^{\circ}\text{C}/\text{W}$ |

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

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

| PARAMETER | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|--------------------------------------|---------------|---|-----|-----|-----|------|
| Collector-Base Breakdown Voltage | BV_{CBO} | $I_C=100\mu\text{A}$, $I_E=0$ | 50 | | | V |
| Collector-Emitter Breakdown Voltage | BV_{CEO} | $I_C=1\text{mA}$, $I_B=0$ | 50 | | | V |
| Emitter-Base Breakdown Voltage | BV_{EBO} | $I_E=100\mu\text{A}$, $I_C=0$ | 5 | | | V |
| Collector-Base Cut-off Current | I_{CBO} | $V_{CB}=50\text{V}$, $I_E=0$ | | | 100 | nA |
| Collector-Emitter Cut-off Current | I_{CEO} | $V_{CE}=50\text{V}$, $I_B=0$ | | | 100 | nA |
| Emitter-Base Cut-off Current | I_{EBO} | $V_{EB}=5\text{V}$, $I_C=0$ | | | 100 | nA |
| Base-Emitter Saturation Voltage | $V_{BE(SAT)}$ | $I_C=2\text{A}$, $I_B=100\text{mA}$ | | | 1.1 | V |
| | | $I_C=3\text{A}$, $I_B=300\text{mA}$ | | | 1.2 | V |
| Base-Emitter Turn-On Voltage | $V_{BE(ON)}$ | $V_{CE}=2\text{V}$, $I_C=1\text{A}$ | | | 1.2 | V |
| DC Current Gain | h_{FE} | $V_{CE}=2\text{V}$, $I_C=100\text{mA}$ | 300 | | | |
| | | $V_{CE}=2\text{V}$, $I_C=500\text{mA}$ | 300 | | | |
| | | $V_{CE}=2\text{V}$, $I_C=1\text{A}$ | 300 | | | |
| | | $V_{CE}=2\text{V}$, $I_C=2\text{A}$ | 200 | | | |
| | | $V_{CE}=2\text{V}$, $I_C=3\text{A}$ | 100 | | | |
| Collector-Emitter Saturation Voltage | $V_{CE(SAT)}$ | $I_C=500\text{mA}$, $I_B=50\text{mA}$ | | | 80 | mV |
| | | $I_C=1\text{A}$, $I_B=50\text{mA}$ | | | 160 | mV |
| | | $I_C=2\text{A}$, $I_B=100\text{mA}$ | | | 280 | mV |
| | | $I_C=2\text{A}$, $I_B=200\text{mA}$ | | | 260 | mV |
| | | $I_C=3\text{A}$, $I_B=300\text{mA}$ | | | 370 | mV |

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