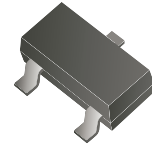


BAT54xT-HF Series

RoHS Device
Halogen Free



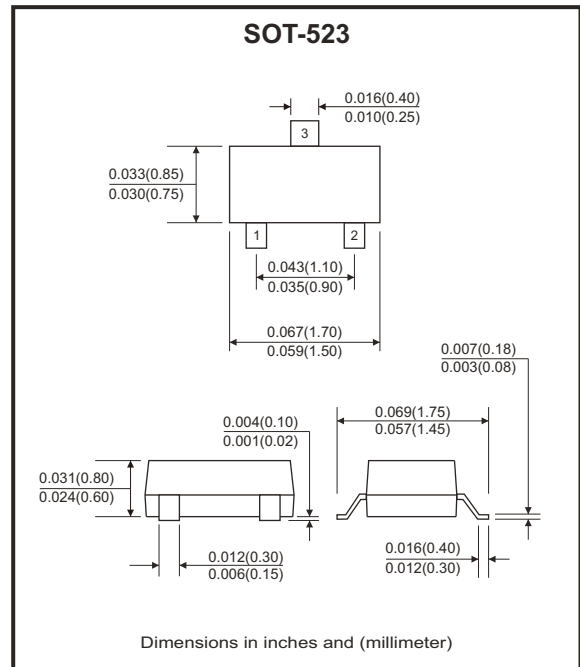
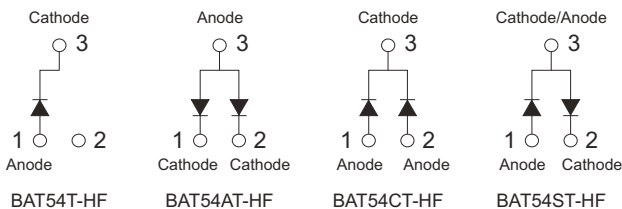
Features

- Low forward voltage drop.
- Fast switching.
- Ultra-small surface mount package.
- PN junction guard ring for transient and ESD protection.

Mechanical data

- Case: SOT-523, molded plastic.
- Terminals: Solderable per MIL-STD-202, method 208.

Circuit Diagram



Maximum Rating (at Ta=25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------|-------------|------|
| Peak repetitive peak reverse voltage | V_{RRM} | 30 | V |
| Working peak reverse voltage | V_{RWM} | | |
| DC reverse voltage | V_R | | |
| Forward continuous current | I_F | 200 | mA |
| Repetitive peak forward current | I_{FRM} | 300 | mA |
| Forward surge current @ $t_p < 1s$ | I_{FSM} | 600 | mA |
| Power dissipation (Note 1) | P_d | 150 | mW |
| Thermal resistance junction to ambient air | $R_{\theta JA}$ | 667 | °C/W |
| Junction temperature range | T_J | -55 to +125 | °C |
| Storage temperature range | T_{STG} | -55 to +150 | °C |

Notes: 1. Mounted on FR-4 board with recommended pad layout.

Company reserves the right to improve product design, functions and reliability without notice.

REV:A

Electrical Characteristics (at Ta=25°C unless otherwise noted)

| Parameter | Symbol | Conditions | Min | Max | Unit |
|-------------------------------|------------|---|-----|--------------------------------------|---------|
| Reverse breakdown voltage | $V_{(BR)}$ | $I_R = 100\mu A$ | 30 | | V |
| Forward voltage (Note 1) | V_F | $I_F = 0.1mA$ $I_F = 1mA$ $I_F = 10mA$ $I_F = 30mA$ $I_F = 100mA$ | | 0.24 0.32 0.40 0.50 1.00 | V |
| Reverse current (Note 2) | I_R | $V_R = 25V$ | | 2 | μA |
| Capacitance between terminals | C_T | $V_R = 1V, f = 1MHz$ | | 10 | pF |
| Reverse recovery time | t_{rr} | $I_F = I_R = 10mA, I_{rr} = 0.1 \times I_R, R_L = 100\Omega$ | | 5 | ns |

Notes: 1. Pulse test, $t_p \leq 300\mu s$.
2. Pulse test, $t_p \leq 5ms$.

Rating and Characteristic Curves (BAT54xT-HF Series)

Fig.1 - Typical Reverse Characteristic

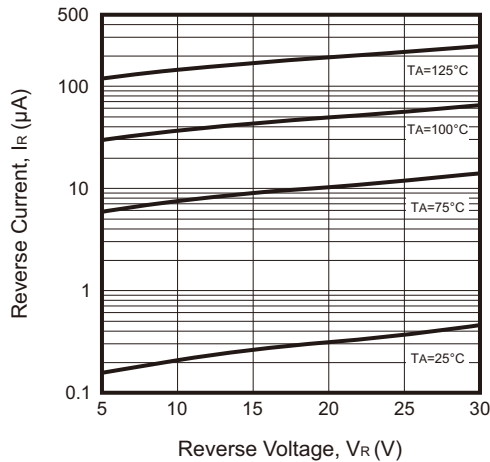


Fig.2 - Typical Forward Characteristic

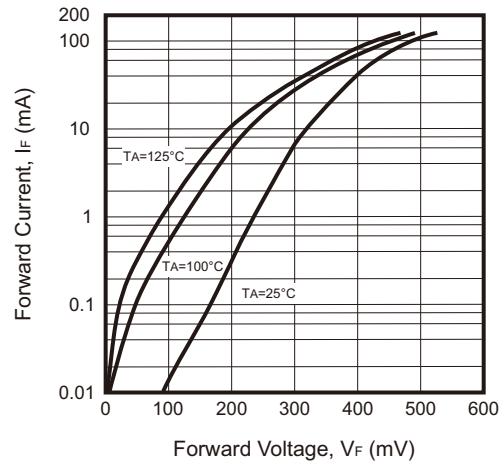


Fig.3 - Capacitance vs Reverse Voltage

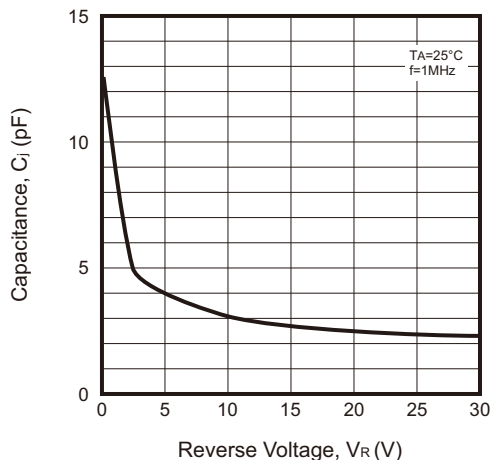
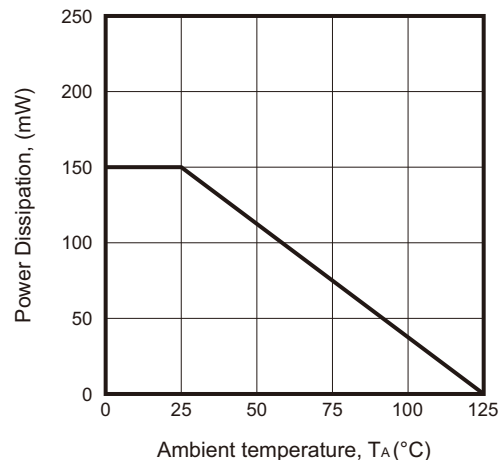
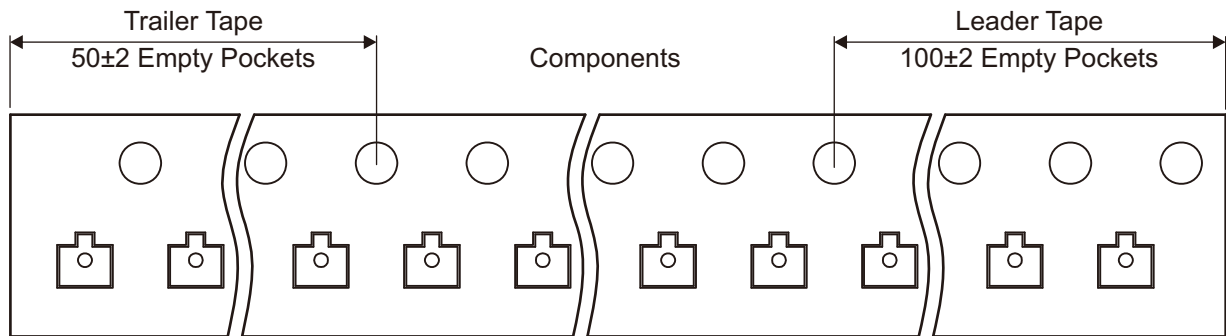
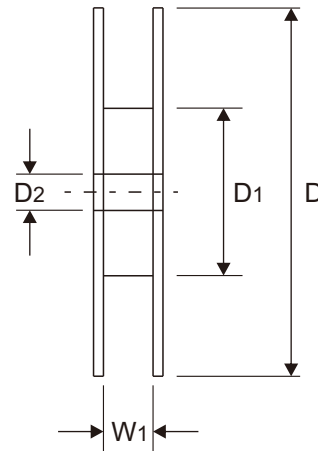
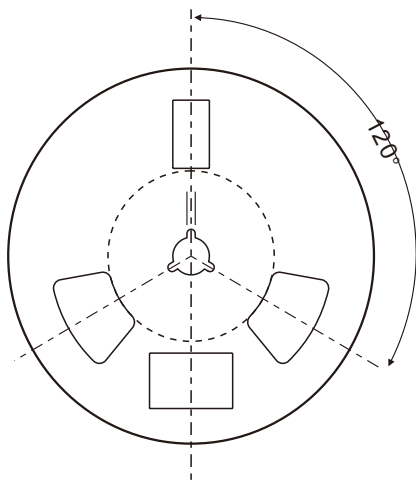
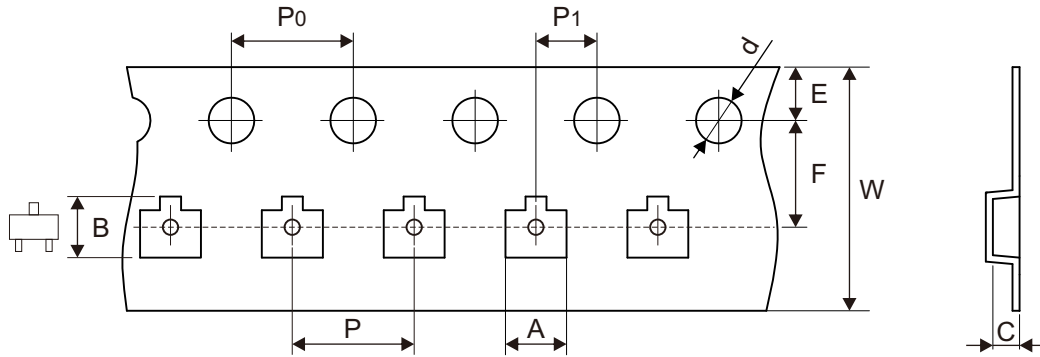


Fig.4 - Derating Curve (P_D - T_A)



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Reel Taping Specification



| SOT-523 | SYMBOL | A | B | C | d | D | D1 | D2 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | (mm) | 1.85 ± 0.05 | 1.85 ± 0.05 | 0.875 ± 0.05 | 1.50 ± 0.10 | 178.00 ± 1.00 | 54.00 ± 0.50 | 13.00 ± 0.50 |
| | (inch) | 0.073 ± 0.002 | 0.073 ± 0.002 | 0.034 ± 0.002 | 0.059 ± 0.004 | 7.008 ± 0.039 | 2.126 ± 0.020 | 0.512 ± 0.020 |

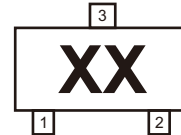
| SOT-523 | SYMBOL | E | F | P | P0 | P1 | W | W1 |
|---------|--------|---------------|---------------|---------------|---------------|---------------|--------------------------|---------------|
| | (mm) | 1.75 ± 0.10 | 3.50 ± 0.05 | 4.00 ± 0.10 | 4.00 ± 0.10 | 2.00 ± 0.05 | 8.00 + 0.20 - 0.10 | 9.50 ± 1.00 |
| | (inch) | 0.069 ± 0.004 | 0.138 ± 0.002 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.002 | 0.315 + 0.008 - 0.004 | 0.374 ± 0.039 |

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REV:A

Marking Code

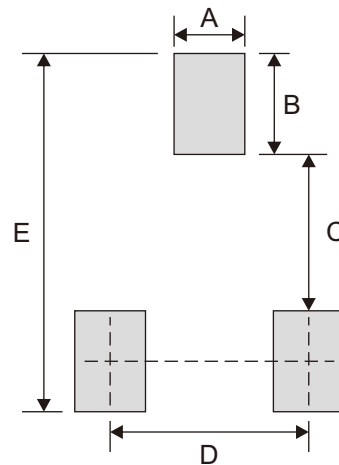
| Part Number | Marking Code |
|-------------|--------------|
| BAT54T-HF | L1 |
| BAT54AT-HF | L2 |
| BAT54CT-HF | L3 |
| BAT54ST-HF | L4 |



XX = Product type marking code

Suggested P.C.B. PAD Layout

| SIZE | SOT-523 | |
|------|---------|--------|
| | (mm) | (inch) |
| A | 0.356 | 0.014 |
| B | 0.508 | 0.020 |
| C | 0.787 | 0.031 |
| D | 1.00 | 0.039 |
| E | 1.803 | 0.071 |



Note: 1. The pad layout is for reference purposes only.

Standard Packaging

| Case Type | REEL PACK | |
|-----------|------------|------------------|
| | REEL (pcs) | Reel Size (inch) |
| SOT-523 | 3,000 | 7 |