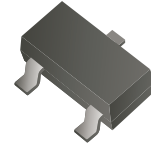


# BAT54-HF Series

RoHS Device  
Halogen Free



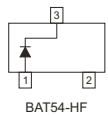
## Features

- High current capability.
- Low forward voltage drop.
- Extremely fast switching speed.

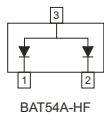
## Mechanical data

- Case: SOT-23, molded plastic.
- Epoxy : UL 94V-0.

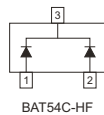
## Circuit Diagram



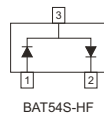
BAT54-HF



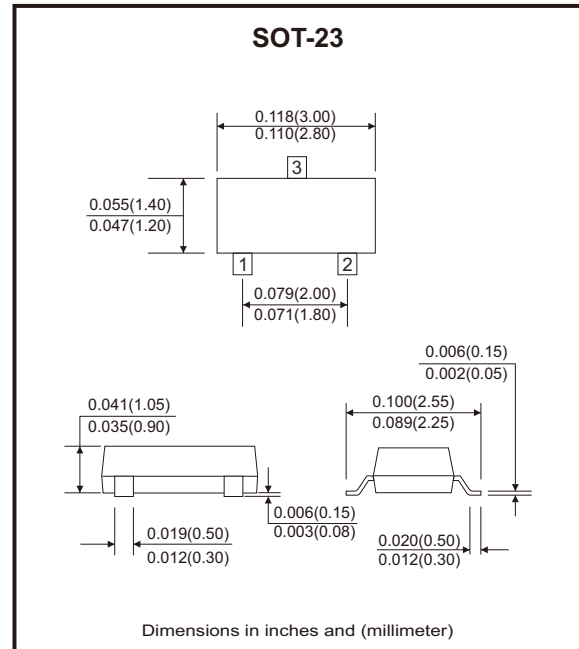
BAT54A-HF



BAT54C-HF



BAT54S-HF



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

| Parameter                                               | Symbol           | Value       | Unit |
|---------------------------------------------------------|------------------|-------------|------|
| Max. repetitive peak reverse voltage                    | V <sub>RRM</sub> | 30          | V    |
| Max. RMS voltage                                        | V <sub>RMS</sub> | 21          | V    |
| Max. DC blocking voltage                                | V <sub>DC</sub>  | 30          | V    |
| Max. average forward rectified current                  | I <sub>FM</sub>  | 200         | mA   |
| Peak forward surge current 8.3 ms single half sine-wave | I <sub>FSM</sub> | 600         | mA   |
| Typical thermal resistance                              | R <sub>θJA</sub> | 500         | °C/W |
| Power dissipation                                       | P <sub>D</sub>   | 200         | mW   |
| junction temperature                                    | T <sub>J</sub>   | 125         | °C   |
| Storage temperature range                               | T <sub>STG</sub> | -50 to +150 | °C   |

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

| Parameter                         | Symbol          | Conditions                                                                                       | Min. | Typ. | Max. | Unit |
|-----------------------------------|-----------------|--------------------------------------------------------------------------------------------------|------|------|------|------|
| Maximum Forward voltage           | V <sub>F1</sub> | I <sub>F</sub> =0.1mA                                                                            |      |      | 240  | mV   |
|                                   | V <sub>F2</sub> | I <sub>F</sub> =1mA                                                                              |      |      | 320  |      |
|                                   | V <sub>F3</sub> | I <sub>F</sub> =10mA                                                                             |      |      | 400  |      |
|                                   | V <sub>F4</sub> | I <sub>F</sub> =30mA                                                                             |      |      | 500  |      |
|                                   | V <sub>F5</sub> | I <sub>F</sub> =100mA                                                                            |      |      | 1000 |      |
| Maximum reverse breakdown voltage | V <sub>R</sub>  | I <sub>R</sub> =100μA                                                                            | 30   |      |      | V    |
| Maximum reverse current           | I <sub>R</sub>  | V <sub>R</sub> =25V                                                                              |      |      | 2.0  | μA   |
| Type junction capacitance         | C <sub>j</sub>  | V <sub>R</sub> =1V, f=1MHz                                                                       |      |      | 10   | pF   |
| Reverse recovery time             | t <sub>rr</sub> | I <sub>F</sub> =I <sub>R</sub> =10mA, I <sub>RR</sub> =0.1xI <sub>R</sub> , R <sub>L</sub> =100Ω |      |      | 5    | ns   |

## Rating and Characteristic Curves (BAT54-HF Series)

Fig.1 - Forward Characteristics

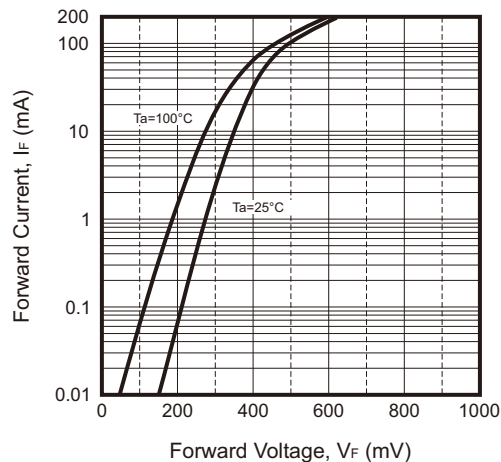


Fig.2 - Reverse Characteristics

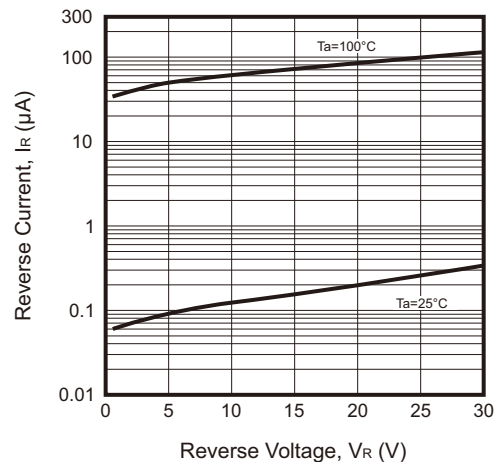


Fig.3 - Capacitance Characteristics

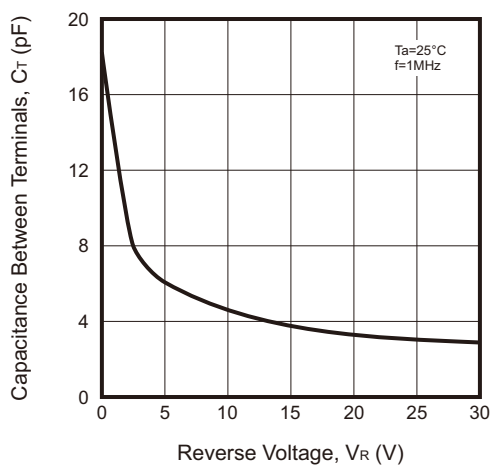
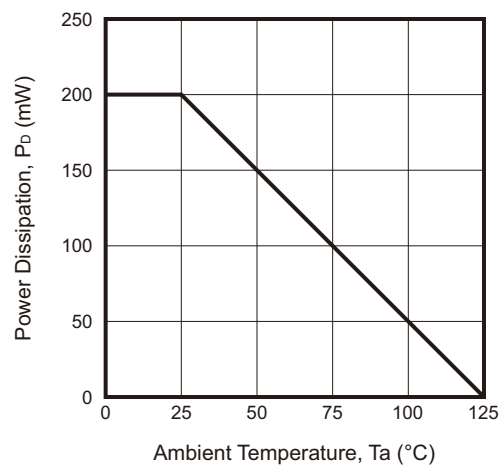
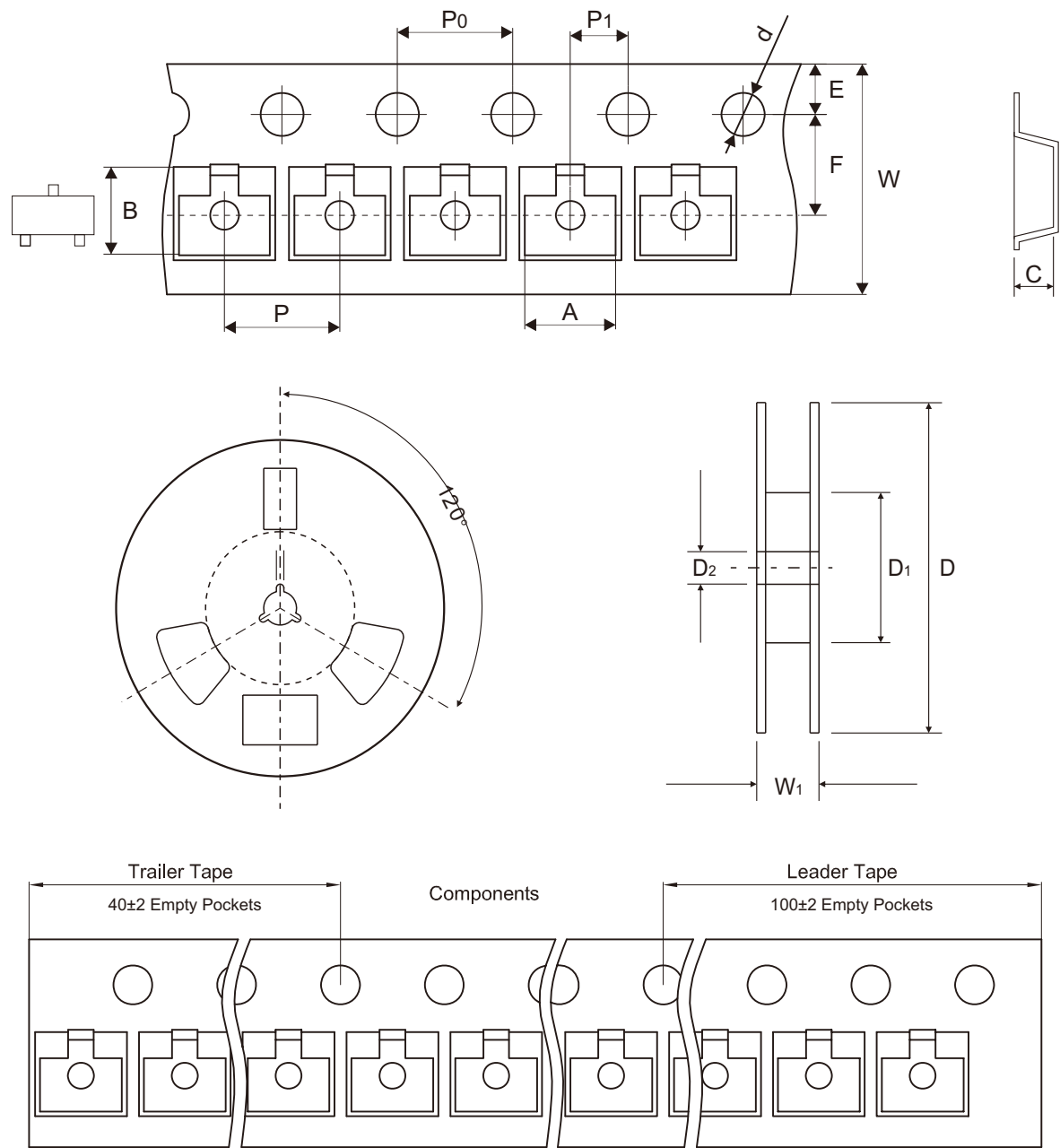


Fig.4 - Power Derating Curve



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

Reel Taping Specification



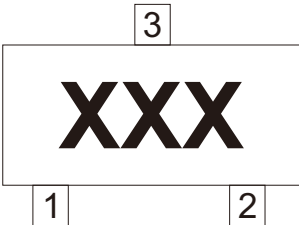
| SOT-23 | SYMBOL | A             | B             | C             | d             | D             | D1            | D2            |
|--------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|        | (mm)   | 3.15 ± 0.10   | 2.77 ± 0.10   | 1.22 ± 0.10   | 1.50 ± 0.10   | 178.00 ± 2.00 | 54.40 ± 1.00  | 13.00 ± 1.00  |
|        | (inch) | 0.124 ± 0.004 | 0.109 ± 0.004 | 0.048 ± 0.004 | 0.059 ± 0.004 | 7.008 ± 0.079 | 2.142 ± 0.039 | 0.512 ± 0.039 |

| SOT-23 | SYMBOL | E             | F             | P             | P0            | P1            | W             | W1            |
|--------|--------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|        | (mm)   | 1.75 ± 0.10   | 3.50 ± 0.10   | 4.00 ± 0.10   | 4.00 ± 0.10   | 2.00 ± 0.10   | 8.00 ± 0.10   | 12.30 ± 1.00  |
|        | (inch) | 0.069 ± 0.004 | 0.138 ± 0.004 | 0.157 ± 0.004 | 0.157 ± 0.004 | 0.079 ± 0.004 | 0.315 ± 0.004 | 0.472 ± 0.039 |

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

Marking Code

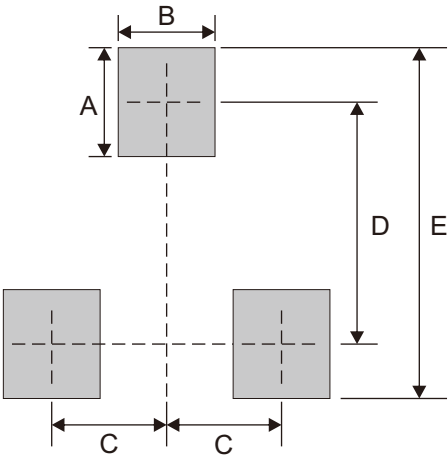
| Part Number | Marking Code |
|-------------|--------------|
| BAT54-HF    | KL1          |
| BAT54A-HF   | KL2          |
| BAT54C-HF   | KL3          |
| BAT54S-HF   | KL4          |



xxx = Product type marking code

Suggested PAD Layout

| SIZE | SOT-23 |        |
|------|--------|--------|
|      | (mm)   | (inch) |
| A    | 0.90   | 0.035  |
| B    | 0.80   | 0.031  |
| C    | 0.95   | 0.037  |
| D    | 2.00   | 0.079  |
| E    | 2.90   | 0.114  |



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

Standard Packaging

| Case Type | REEL PACK  |                  |
|-----------|------------|------------------|
|           | REEL (pcs) | Reel Size (inch) |
| SOT-23    | 3,000      | 7                |

# Mouser Electronics

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