



HBAT54 Series

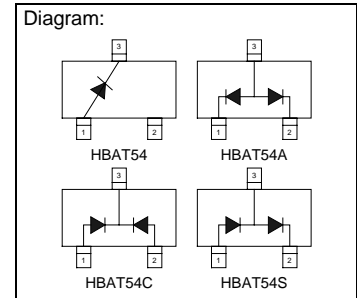
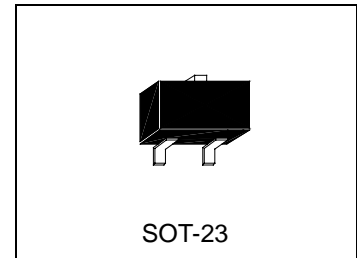
Description

Silicon Schottky Barrier Double Diodes

- HBAT54: Single Diode, also available as double diodes.
- HBAT54A: Common Anode.
- HBAT54C: Common Cathode.
- HBAT54S: Series Connected.

Features

These diodes feature very low turn-on voltage and fast switching. There is a PN junction guard ring against excessive voltage such as electronics attic discharges protects these devices.



Absolute Maximum Ratings

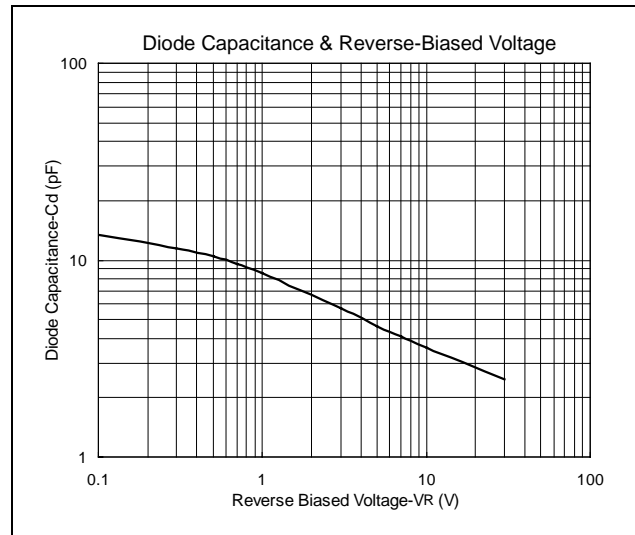
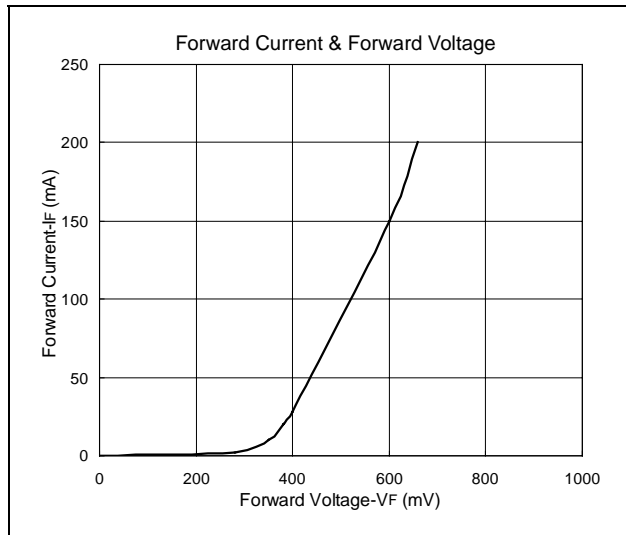
- Maximum Temperatures
 - Storage Temperature -65~+125 °C
 - Junction Temperature +125 °C
- Maximum Power Dissipation
 - Total Power Dissipation (T_A=25°C) 230 mW
- Maximum Voltages and Currents (T_A=25°C)
 - Repetitive Peak Reverse Voltage 30 V
 - Forward Continuous Current 200 mA
 - Repetitive Peak Forward Current 300 mA
 - Surge Forward Current (tp<1s)..... 600 mA

Electrical Characteristics (T_A=25°C)

| Characteristic | Symbol | Condition | Min. | Max. | Unit |
|---------------------------|-------------------|---|------|------|------|
| Reverse breakdown Voltage | V _(BR) | I _R =10uA | 30 | - | V |
| Forward Voltage | V _{F(1)} | I _F =0.1mA | - | 240 | mV |
| | V _{F(2)} | I _F =1mA | - | 320 | mV |
| | V _{F(3)} | I _F =10mA | - | 400 | mV |
| | V _{F(4)} | I _F =30mA | - | 500 | mV |
| | V _{F(5)} | I _F =100mA | - | 1000 | mV |
| Reverse Current | I _R | V _R =25V | - | 2.0 | uA |
| Total Capacitance | C _T | V _R =1V, f=1MHz | - | 10 | pF |
| Reverse Recovery Time | T _{rr} | I _F =I _R =10mA, R _L =100Ω, measured at I _R =1mA | - | 5 | nS |

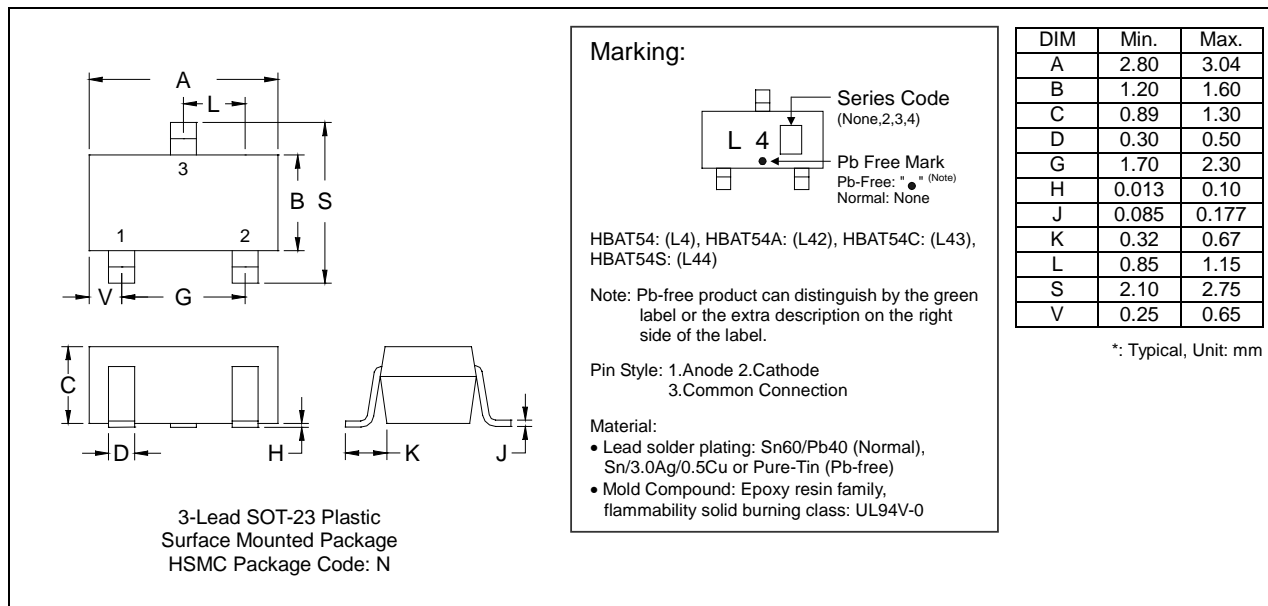


Characteristics Curve





SOT-23 Dimension



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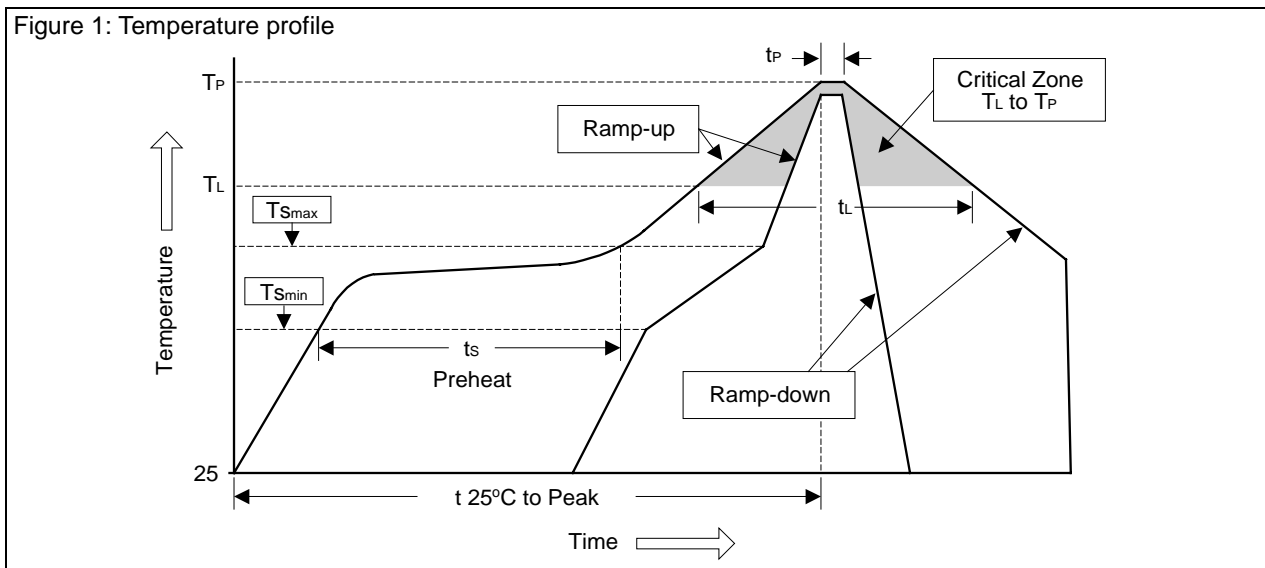
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Soldering Methods for HSMC's Products

1. Storage environment: Temperature=10°C~35°C Humidity=65%±15%
2. Reflow soldering of surface-mount devices



| Profile Feature | Sn-Pb Eutectic Assembly | Pb-Free Assembly |
|--|-------------------------|------------------|
| Average ramp-up rate (T_L to T_P) | <3°C/sec | <3°C/sec |
| Preheat | | |
| - Temperature Min (T_{Smin}) | 100°C | 150°C |
| - Temperature Max (T_{Smax}) | 150°C | 200°C |
| - Time (min to max) (t_s) | 60~120 sec | 60~180 sec |
| T_{Smax} to T_L | | |
| - Ramp-up Rate | <3°C/sec | <3°C/sec |
| Time maintained above: | | |
| - Temperature (T_L) | 183°C | 217°C |
| - Time (t_L) | 60~150 sec | 60~150 sec |
| Peak Temperature (T_P) | 240°C +0/-5°C | 260°C +0/-5°C |
| Time within 5°C of actual Peak Temperature (t_p) | 10~30 sec | 20~40 sec |
| Ramp-down Rate | <6°C/sec | <6°C/sec |
| Time 25°C to Peak Temperature | <6 minutes | <8 minutes |

3. Flow (wave) soldering (solder dipping)

| Products | Peak temperature | Dipping time |
|------------------|------------------|--------------|
| Pb devices. | 245°C ±5°C | 5sec ±1sec |
| Pb-Free devices. | 260°C +0/-5°C | 5sec ±1sec |