

FEATURES

High Current Capability
Low Forward Voltage Drop

Mechanical Data

SOD-123 Small Outline Plastic Package
Polarity: Color band denotes cathode end
Epoxy UL: 94V-0
Mounting Position: Any



VOLTAGE RANGE

20.0 Volts

CURRENT

0.5 Ampere

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

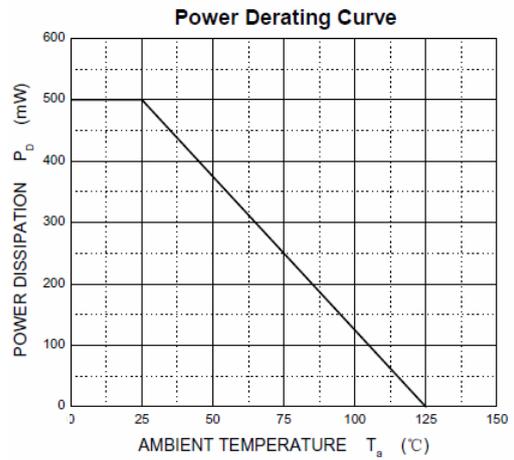
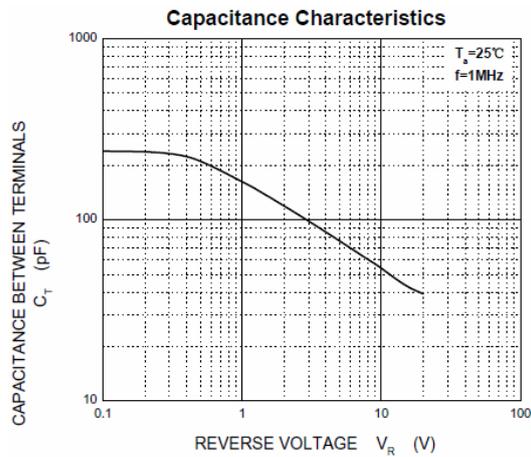
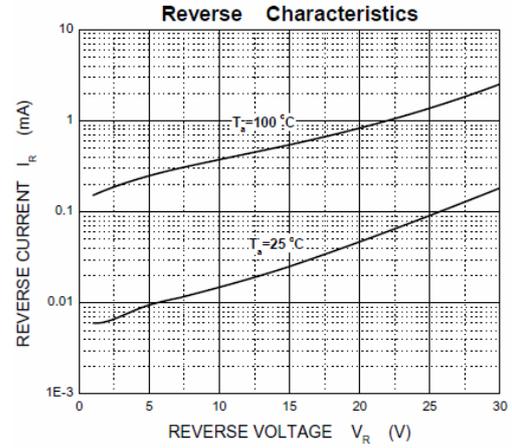
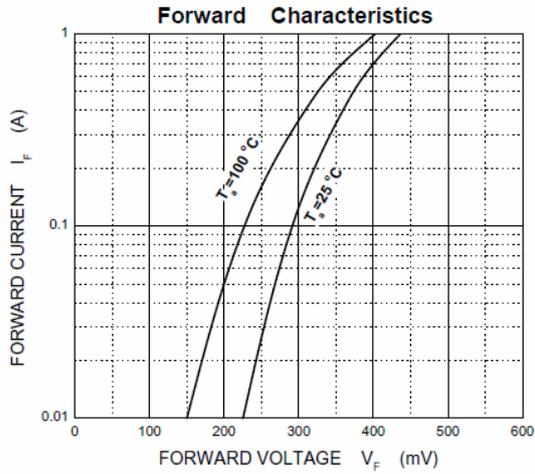
| Parameters | Symbol | MBR0520L | Unit |
|---|---------------|----------|------------|
| Maximum repetitive peak reverse voltage | VRRM | 20 | V |
| Maximum RMS voltage | VRMS | 14 | V |
| Maximum DC blocking voltage | VDC | 20 | V |
| Maximum average forward rectified current | IFM | 0.5 | A |
| Peak forward surge current 8.3 ms single half sine-wave | IFSM | 5.5 | A |
| Typical thermal resistance | R θ JA | 200 | °C/W |
| Power Dissipation | PD | 500 | mW |
| Storage temperature range | TSTG | -50-+150 | °C |
| Voltage rate of change | Dv/dt | 1000 | V/ μ S |

Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified).

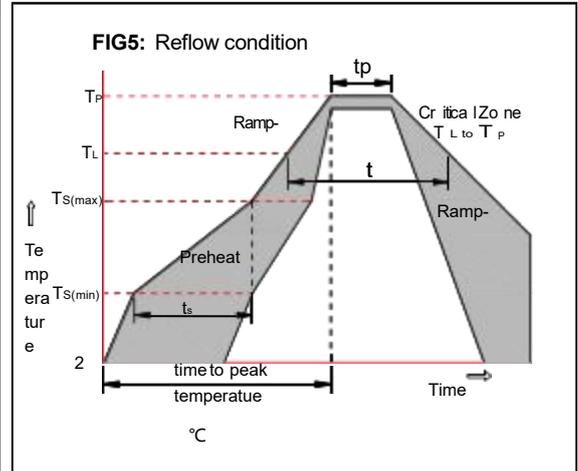
| Parameters | Symbol | Test conditions | MBR0520L | Unit |
|-----------------------------------|--------|-----------------|----------|------|
| Maximum forward voltage | VF | IF = 0.1A | 0.330 | V |
| | | IF = 0.5A | 0.385 | |
| | | IF = 1.0A | --- | |
| Maximum reverse breakdown voltage | VR | IR=250uA | 20 | V |
| | | IR=200uA | --- | |
| | | IR=20.0uA | --- | |
| Maximum reverse current | IR | VR=10V | 75 | uA |
| | | VR=15V | --- | |
| | | VR=20V | 250 | |
| | | VR=30V | --- | |
| | | VR=40V | --- | |

RATING AND CHARACTERISTIC CURVES



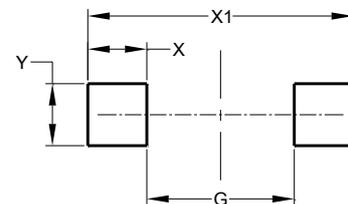
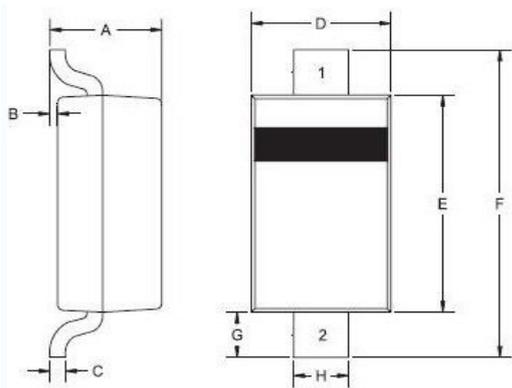
Soldering parameters

| Reflow Condition | | Pb-Free assembly (see as below) |
|---|-----------------------------------|------------------------------------|
| Pre Heat | -Temperature Min ($T_{s(min)}$) | +150 °C |
| | -Temperature Max($T_{s(max)}$) | +200 °C |
| | -Time (Min to Max) (ts) | 60-180 secs. |
| Average ramp up rate (Liquid us Temp (T_L) to peak) | | 3 °C/sec. Max |
| $T_{s(max)}$ to T_L - Ramp-up Rate | | 3 °C/sec. Max |
| Reflow | -Temperature(T_L)(Liquid us) | +217 °C |
| | -Temperature(t_L) | 60-150 secs. |
| Peak Temp (T_P) | | +260(+0/-5) °C |
| Time within 5 °C of actual Peak Temp (t_p) | | 30 secs. Max |
| Ramp-down Rate | | 6 °C/sec. Max |
| Time 25 °C to Peak Temp (T_P) | | 8 min. Max |
| Do not exceed | | +260 °C |



Package Dimensions & Suggested Pad Layout

SOD123



| SOD123 | | |
|----------------------|------|------|
| Dim | Min | Max |
| A | 0.95 | 1.35 |
| B | 0.00 | 0.12 |
| C | - | 0.20 |
| D | 1.40 | 1.80 |
| E | 2.50 | 2.80 |
| F | 3.60 | 3.90 |
| G | 0.40 | - |
| H | 0.50 | 0.70 |
| All Dimensions in mm | | |

| Dimensions | Value (in mm) |
|------------|---------------|
| G | 2.20 |
| X | 1.20 |
| X1 | 4.60 |
| Y | 1.20 |

Tape & reel specification

| Tape | | Symbol | Dimension (mm) | | |
|-------------------|-----------|---------|----------------|----|----------|
| | | P0 | 4.00±0.20 | | |
| | | P1 | 4.00±0.20 | | |
| | | P2 | 2.00±0.20 | | |
| | | D0 | 1.55±0.10 | | |
| | | D1 | 1.00±0.20 | | |
| | | E | 1.75±0.20 | | |
| | | F | 3.60±0.20 | | |
| | | W | 8.00±0.40 | | |
| | | A0 | 2.30±0.40 | | |
| | | B0 | 4.00±0.40 | | |
| | | K0 | 1.50±0.40 | | |
| | | T | 0.23±0.10 | | |
| | | 7" Reel | | D2 | 17.0±3.0 |
| | | | | D3 | 55Min. |
| D4 | R24.0±3.0 | | | | |
| G | R82.0±3.0 | | | | |
| I | 13.0±2.0 | | | | |
| W1 | 11.0±3.0 | | | | |
| Quantity: 3000PCS | | | | | |