Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


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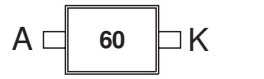
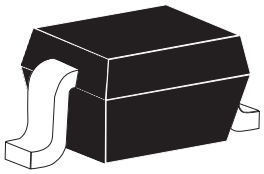
# BAT60J

## SMALL SIGNAL SCHOTTKY DIODE

### FEATURES AND BENEFITS

- VERY SMALL CONDUCTION LOSSES
- NEGLIGIBLE SWITCHING LOSSES
- LOW FORWARD VOLTAGE DROP
- EXTREMELY FAST SWITCHING
- SURFACE MOUNTED DEVICE



**SOD-323**

### DESCRIPTION

Schottky barrier diode encapsulated in a SOD-323 small SMD package.

This device is intended for use in portable equipments. It is suited for DC to DC converters, step-up conversion and power management.

### ABSOLUTE RATINGS (limiting values)

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{RRM}$ | Repetitive peak reverse voltage | | 10 | V |
| $I_F$ | Peak forward current | $\delta = 0.11$ | 3 | A |
| $I_{FSM}$ | Surge non repetitive forward current | tp=10ms | 5 | A |
| $P_{tot}$ | Power Dissipation | Ta=25°C | 310 | mW |
| $T_{stg}$ | Storage temperature range | | - 65 to +150 | °C |
| Tj | Maximum operating junction temperature * | | 150 | °C |
| TL | Maximum temperature for soldering during 10s | | 260 | °C |

* : $\frac{dPtot}{dTj} < \frac{1}{Rth(j-a)}$ thermal runaway condition for a diode on its own heatsink

### THERMAL RESISTANCE

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $R_{th\ (j-a)}$ | Junction to ambient (*) | 400 | °C/W |

(*) Mounted on epoxy board with recommended pad layout.

## STATIC ELECTRICAL CHARACTERISTICS

| Symbol | Tests Conditions | Tests conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_F$ * | Forward voltage drop | Tj = 25°C | $I_F$ = 10 mA | | 0.28 | 0.32 | V |
| | | | $I_F$ = 100 mA | | 0.35 | 0.40 | |
| | | | $I_F$ = 1 A | | 0.53 | 0.58 | |
| $I_R$ ** | Reverse leakage current | Tj = 25°C | $V_R$ = 5 V | | 1 | 3 | µA |
| | | Tj = 25°C | $V_R$ = 8 V | | 1.3 | 4 | |
| | | Tj = 25°C | $V_R$ = 10 V | | 2 | 6 | |
| | | Tj = 25°C | $V_R$ = 12 V | | 2.5 | 7.5 | |
| | | Tj = 80°C | $V_R$ = 8 V | | 73 | 150 | |

Pulse test: * tp = 380µs, $\delta < 2\%$
** tp = 5ms, $\delta < 2\%$

To evaluate the conduction losses the following equation:
$P = 0.38 \times I_{F(AV)} + 0.17\ I_{F^2(RMS)}$

**Fig. 1:** Average forward power dissipation versus average forward current.

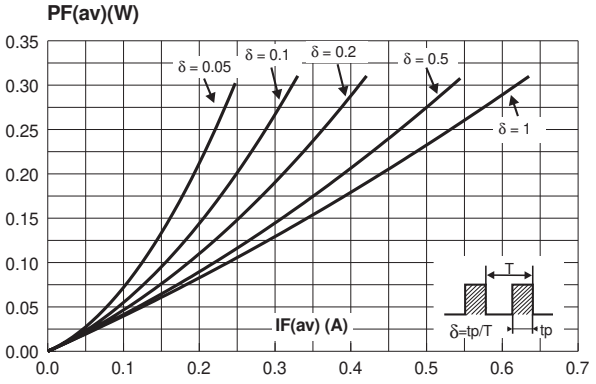



**Fig. 2-1:** Peak forward current versus ambient temperature (δ = 0.11).

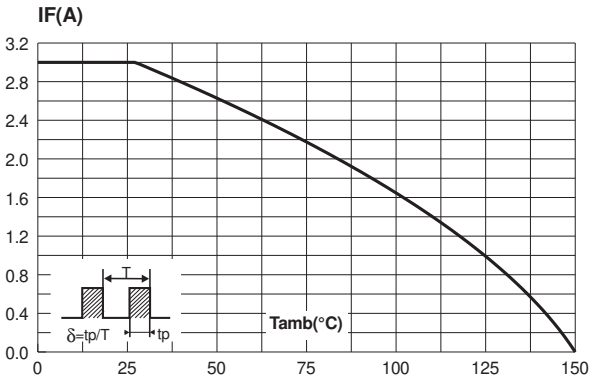



**Fig. 2-2:** Average forward current versus ambient temperature (δ = 0.5).

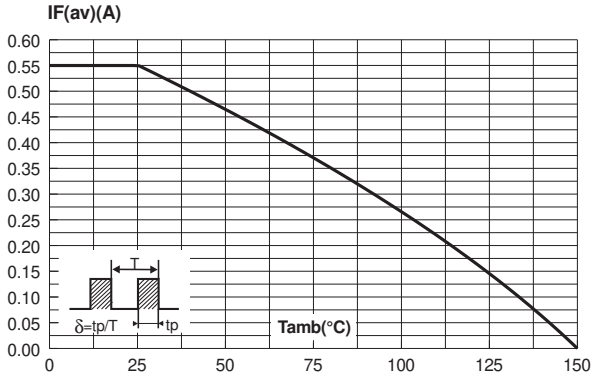



**Fig. 3:** Non repetitive surge peak forward current versus overload duration (maximum values).

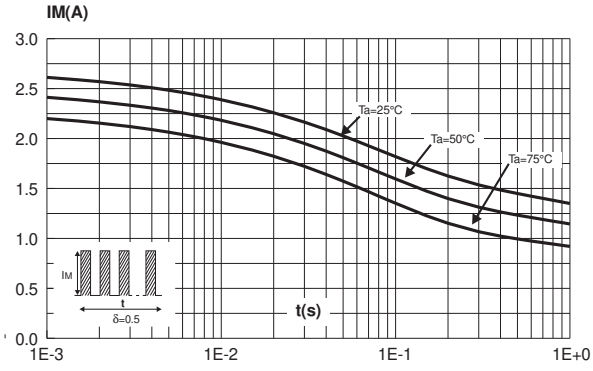



**Fig. 4:** Relative variation of thermal impedance junction to ambient versus pulse duration (Epoxy printed circuit board FR4 with recommended pad layout).

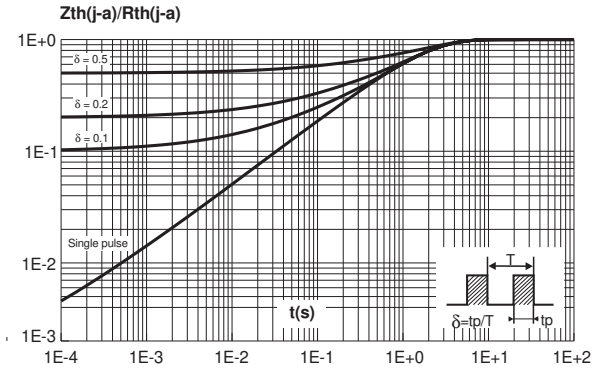



**Fig. 5:** Reverse leackage current versus reverse voltage applied (typical values).

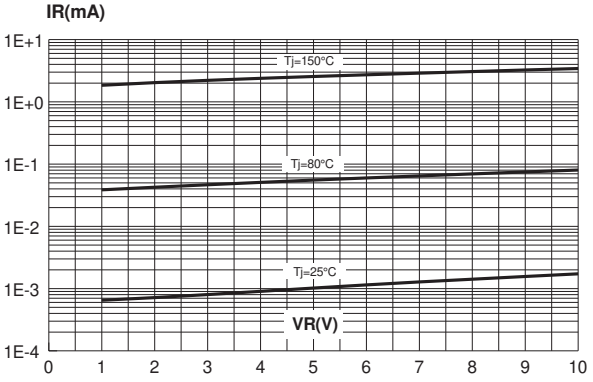


**Fig. 6:** Reverse leackage current versus junction temperature (typical values).

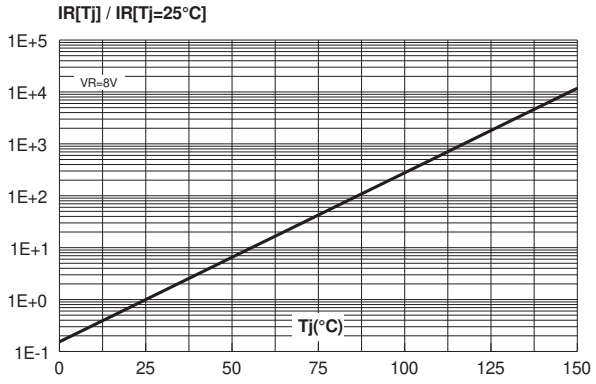



**Fig. 7:** Junction capacitance versus reverse voltage applied (typical values).

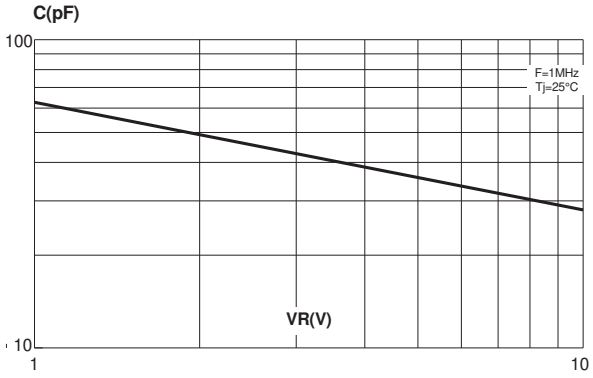



**Fig. 8-1:** Forward voltage drop versus forward current (High level).

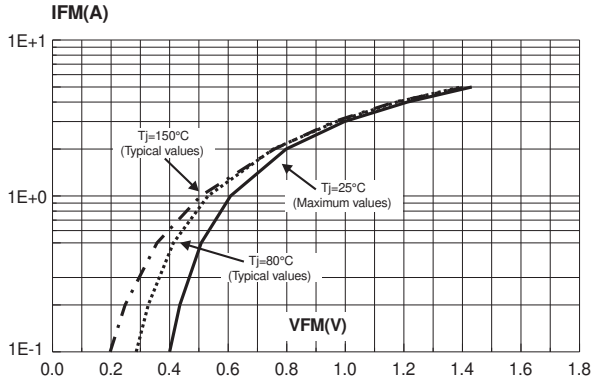



**Fig. 8-2:** Forward voltage drop versus forward current (Low level).

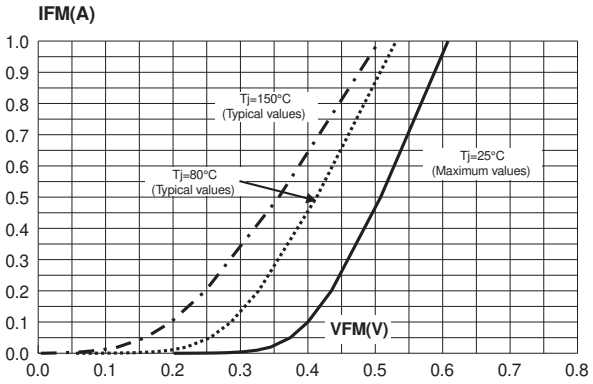
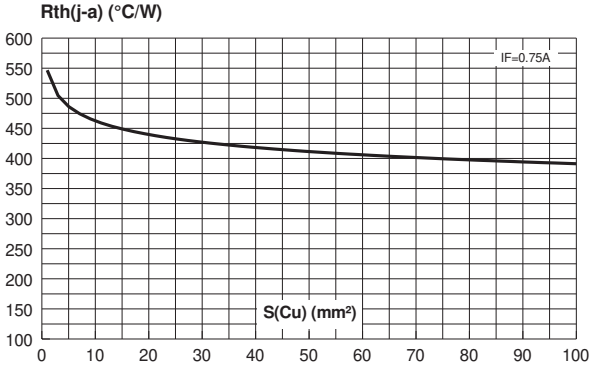
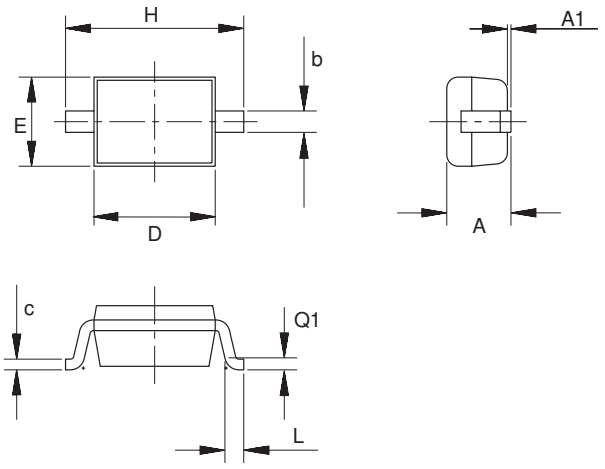



**Fig. 9:** Thermal resistance junction to ambient versus copper surface (epoxy printed circuit board FR4, copper thickness: 35µm).



## PACKAGE MECHANICAL DATA

SOD-323




| REF. | DIMENSIONS | | | |
|---|---|---|---|---|
| | Millimeters | | Inches | |
| | Min. | Max. | Min. | Max. |
| A | | 1.17 | | 0.046 |
| A1 | 0 | 0.1 | 0 | 0.004 |
| b | 0.25 | 0.44 | 0.01 | 0.017 |
| c | 0.1 | 0.25 | 0.004 | 0.01 |
| D | 1.52 | 1.8 | 0.06 | 0.071 |
| E | 1.11 | 1.45 | 0.044 | 0.057 |
| H | 2.3 | 2.7 | 0.09 | 0.106 |
| L | 0.1 | 0.46 | 0.004 | 0.02 |
| Q1 | 0.1 | 0.41 | 0.004 | 0.016 |

## MARKING

| Type | Marking | Package | Weight | Base qty | Delivery mode |
|---|---|---|---|---|---|
| BAT60JFILM | 60 | SOD-323 | 0.005 g. | 3000 | Tape & reel |

- Epoxy meets UL94V-0