

Silicon-Based Technology Corp.

Power Schottky Barrier Rectifier

SBT0540S Series

SBT0540S series are Schottky Barrier Diodes fabricated by a series of proprietary Schottky barrier patents and technologies (SBT[®]) developed by Silicon-Based Technology Corporation, which exhibit high-performance characteristics for modern switching, conversion and protection applications with high speed and low power consumptions. The package types as described in this data sheet are set forth in routine production; other packages are available upon special orders.

■ Features and Advantages:

- Low forward voltage drop (V_F)
- Low reverse leakage current (I_R)
- Very small conduction power loss
- Very small switching power loss
- Very high switching speed
- Very high reliability

■ Electrical Characteristics : (@ $T_A=25^{\circ}\text{C}$ unless otherwise specified)

| Characteristic | Symbol | SBT0540W | Unit | Test Conditions |
|--|-------------|----------|---------------|--|
| Minimum Reverse Breakdown Voltage (Note 2) | $V_{(BR)R}$ | 40 | V | $I_R=40\mu\text{A}$ |
| Minimum Forward Voltage Drop (Note 2) | V_F | 0.50 | V | $I_F=0.5\text{A}, T_j=25^{\circ}\text{C}$ |
| | | 0.60 | | $I_F=1.0\text{A}, T_j=25^{\circ}\text{C}$ |
| | | 0.40 | | $I_F=0.5\text{A}, T_j=100^{\circ}\text{C}$ |
| | | 0.55 | | $I_F=1.0\text{A}, T_j=100^{\circ}\text{C}$ |
| Minimum Reverse Current (Note 2) | I_R | 10 | μA | $V_R=20\text{V}, T_j=25^{\circ}\text{C}$ |
| | | 20 | | $V_R=40\text{V}, T_j=25^{\circ}\text{C}$ |
| | | 1.0 | mA | $V_R=20\text{V}, T_j=100^{\circ}\text{C}$ |
| | | 30 | | $V_R=40\text{V}, T_j=100^{\circ}\text{C}$ |
| Total Capacitance | C_T | 100 | pF | $F=1\text{MHz}, V_R=5\text{V}$ |



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**■ Maximum Ratings : (@T_A=25°C unless otherwise specified)**

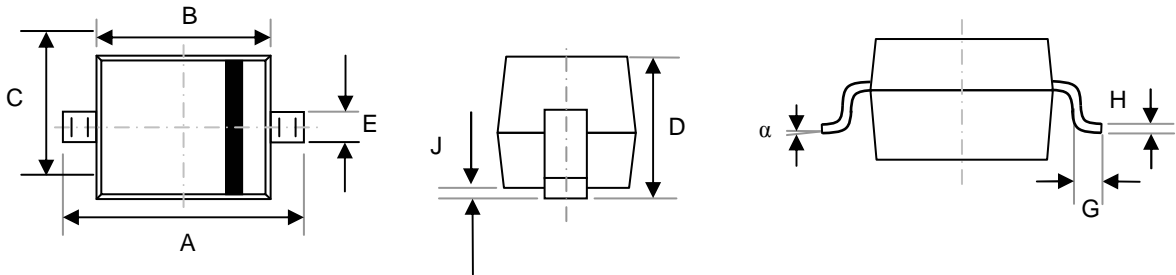
| Characteristic | Symbol | Value | Unit |
|---|-----------------------------------|-------------|------|
| Peak Repetitive Reverse Voltage | V _{RRM} | | |
| Working Peak Reverse Voltage | V _{RWM} | 40 | V |
| DC Blocking Voltage | V _R | | |
| RMS Reverse Voltage | V _{R(RMS)} | 28 | V |
| Average Rectified Output Current | I _O | 0.5 | A |
| Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method) | I _{FSM} | 5.5 | A |
| Power Dissipation (Note 1) | P _D | 410 | mW |
| Typical Thermal Resistance Junction to Ambient (Note 1) | R _{θJA} | 244 | °C/W |
| Operating and Storage Temperature Range | T _j , T _{STG} | -65 to +125 | °C |
| Voltage Rate of Change (Note 3) | dv/dt | 1000 | V/μs |

- Notes: 1. Part mounted on FR4 PC Board with recommended pad layout, which can be found on our website at <http://www.sbt.com.tw>.
2. Pulse Test: Pulse width=300μs, Duty Cycle≤2%
3. dv/dt measured at rated V_R

■ Package Data :

- Case: Molded Plastic Material (UL Flammability Classification 94V-0)
- Terminals: Solderable Plated Terminals (MIL-STD-202, Method 208)
- Lead Free Plating (Matte Tin Finish)
- Polarity: See device configurations below
- Approx. Weight: 0.01 grams
- Package outline and dimensions (see below)

SOD-123



| DIMENSIONS (MM) | | | | | | | | | | |
|-----------------|------|------|------|------|------|---------|------|---------|------|----------|
| | A | B | C | D | E | | G | H | J | α |
| Min. | 3.55 | 2.55 | 1.40 | - | 0.45 | 0.55 | 0.25 | 0.11 | - | 0° |
| Max. | 3.85 | 2.85 | 1.70 | 1.35 | 0.65 | Typical | - | Typical | 0.10 | 8° |

■ Ordering Information (Note 4)

| Part Number | Marking Code | Packaging Type | Shipping |
|-------------|--------------|----------------|----------------|
| | | | 7" Tape & Real |
| SBT0540S | SBTP5D | SOD-123 | 3K |

Notes: 4. Website at <http://www.sbt.com.tw>

5. Bulk package in a box form is also available upon request.

6. Day code marking is YM, in which Y represents year (For example: 2005 is marked by 5);

M represents month in a year (For example: March is marked by C; November is marked by K).



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