

# Silicon-Based Technology Corp.

Power Schottky Barrier Rectifier

SBT0540SL Series

SBT0540SL series are Schottky Barrier Diodes fabricated by a series of proprietary Schottky barrier patents and technologies (SBT<sup>®</sup>) 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)	$V_F$	0.40	V	$I_F=0.5\text{A}, T_j=25^{\circ}\text{C}$
		0.50		$I_F=1.0\text{A}, T_j=25^{\circ}\text{C}$
		0.36		$I_F=0.5\text{A}, T_j=100^{\circ}\text{C}$
		0.45		$I_F=1.0\text{A}, T_j=100^{\circ}\text{C}$
Minimum Reverse Current (Note 2)	$I_R$	10	$\mu\text{A}$	$V_R=20\text{V}, T_j=25^{\circ}\text{C}$
		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<sub>A</sub>=25°C unless otherwise specified)**

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>		
Working Peak Reverse Voltage	V <sub>RWM</sub>	40	V
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	28	V
Average Rectified Output Current	I <sub>O</sub>	0.5	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave superimposed on rated load (JEDEC Method)	I <sub>FSM</sub>	5.5	A
Power Dissipation (Note 1)	P <sub>D</sub>	410	mW
Typical Thermal Resistance Junction to Ambient (Note 1)	R <sub>θJA</sub>	244	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-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<sub>R</sub>

**■ 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	$\alpha$
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
SBT0540SL	SBTP5DL	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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