

# Silicon-Based Technology Corp.

Small-Signal Schottky Barrier Diodes

SBT42W/43W Series

SBT42W/43W 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	Min.	Max.	Unit	Test Conditions
Reverse Breakdown Voltage (Note 2)		$V_{(BR)R}$	30	-	V	$I_R=100\mu\text{A}$
Forward Voltage Drop (Note 2)	All Types	$V_{FM}$	-	0.60	V	$I_F=200\text{mA}$
	SBT42W		-	0.35		$I_F=10\text{mA}$
	SBT42W		-	0.45		$I_F=50\text{mA}$
	SBT43W		-	0.30		$I_F=2.0\text{mA}$
	SBT43W		-	0.35		$I_F=15\text{mA}$
Peak Reverse Current (Note 2)		$I_{RM}$	-	500 100	nA $\mu\text{A}$	$V_R=25\text{V}$ $V_R=25\text{V}, T_j=100^\circ\text{C}$
Total Capacitance		$C_T$	-	10	pF	$V_R=3.0\text{V}, f=1.0\text{MHz}$
Reverse Recovery Time		$t_{rr}$	-	5.0	ns	$I_F=I_R=10\text{mA}$ , $I_{rr}=0.1 \times I_R, R_L=100\Omega$
Rectification Efficiency		$\eta_V$	80	-	%	$R_L=15\Omega, C_L=300\text{pF}$ , $F=45\text{MHz}, V_{RF}=2.0\text{V}$



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**■ Maximum Ratings : (@T<sub>A</sub>=25°C unless otherwise specified)**

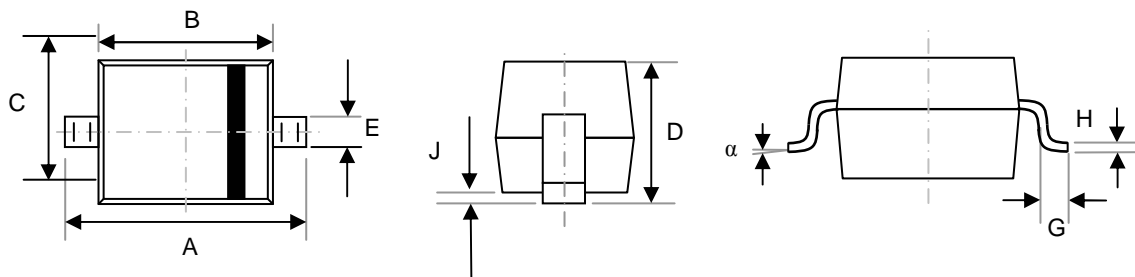
Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V <sub>RRM</sub>	30	V
Working Peak Reverse Voltage	V <sub>RWM</sub>		
DC Blocking Voltage	V <sub>R</sub>		
RMS Reverse Voltage	V <sub>R(RMS)</sub>	21	V
Forward Continuous Current (Note 1)	I <sub>FM</sub>	200	mA
Repetitive Peak Forward Current (Note 1) @t<1.0s	I <sub>FRM</sub>	500	mA
Non-Repetitive Peak Forward Surge Current @t<10ms	I <sub>FSM</sub>	4.0	A
Power Dissipation	P <sub>d</sub>	200	mW
Thermal Resistance Junction to Ambient Air (Note 1)	R <sub>θJA</sub>	500	°C/W
Operating and Storage Temperature Range	T <sub>j</sub> , T <sub>STG</sub>	-55 to +125	°C

- Notes: 1. Part mounted on FR-4 PC board with a recommended pad layout, which can be found on our website at [www.sbt.com.tw](http://www.sbt.com.tw)
2. Short duration test pulse is used to minimize self-heating effect.

**■ 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 3)

Part Number	Marking Code	Packaging Type	Shipping
			7" Tape & Real
SBT42W	SBT42S	SOD-123	3K
SBT43W	SBT43S	SOD-123	3K

Notes: 3. Website at <http://www.sbt.com.tw>

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

5. 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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