

## SMBG Plastic-Encapsulate Diodes

### Super Fast Recovery Rectifier Diode

#### Features

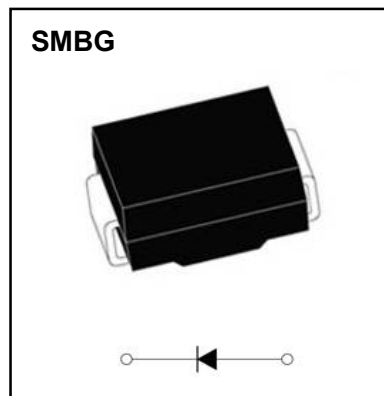
- $I_o$  2A
- $V_{RRM}$  50V-600V
- High surge current capability
- Glass passivated chip
- Polarity: Color band denotes cathode

#### Applications

- Rectifier

#### Marking

- ES2X
- X : From A To J



#### Limiting Values (Absolute Maximum Rating)

Item	Symbol	Unit	Test Conditions	ES2							
				A	B	C	D	E	G	H	J
Repetitive Peak Reverse Voltage	$V_{RRM}$	V		50	100	150	200	300	400	500	600
Maximum RMS Voltage	$V_{RMS}$	V		35	70	105	140	210	280	350	420
Average Forward Current	$I_{F(AV)}$	A	60HZ Half-sine wave, Resistance load, $T_L=110^{\circ}C$	2.0							
Surge(Non-repetitive)Forward Current	$I_{FSM}$	A	60Hz Half-sine wave ,1 cycle , $T_a=25^{\circ}C$	50							
Junction Temperature	$T_J$	$^{\circ}C$		-55~+150							
Storage Temperature	$T_{STG}$	$^{\circ}C$		-55 ~ +150							

#### Electrical Characteristics ( $T_a=25^{\circ}C$ Unless otherwise specified)

Item	Symbol	Unit	Test Condition	ES2						
				A	B	C	D	E	G	H
Peak Forward Voltage	$V_F$	V	$I_F=2.0A$	0.95			1.25		1.7	
Maximum reverse recovery time	$t_{rr}$	ns	$I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$	35						
Peak Reverse Current	$I_{RRM1}$	$\mu A$	$V_{RM}=V_{RRM}$	$T_a=25^{\circ}C$			5.0			
	$I_{RRM2}$			$T_a=100^{\circ}C$			100			
Thermal Resistance(Typical)	$R_{\theta J-A}$	$^{\circ}C/W$	Between junction and ambient		75 <sup>1)</sup>					
	$R_{\theta J-L}$		Between junction and terminal		20 <sup>1)</sup>					

#### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.27" x 0.27" (7.0 mm x 7.0 mm)<sup>er</sup> copper pad areas

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

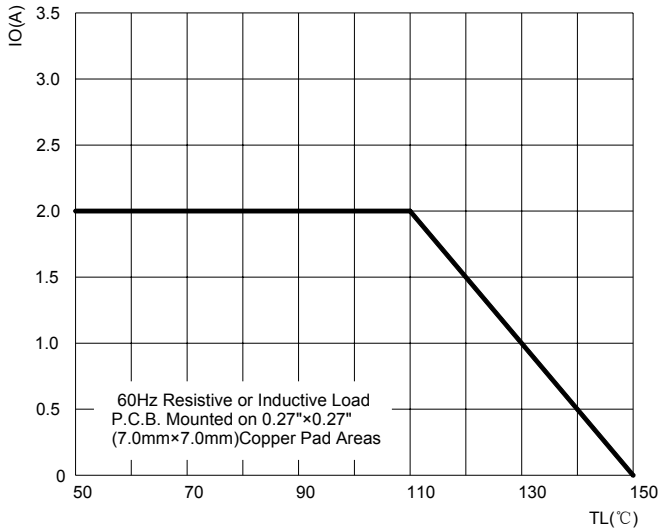


FIG.2: MAXIMUM NON-REPETITIVE FORWARD URGE CURRENT

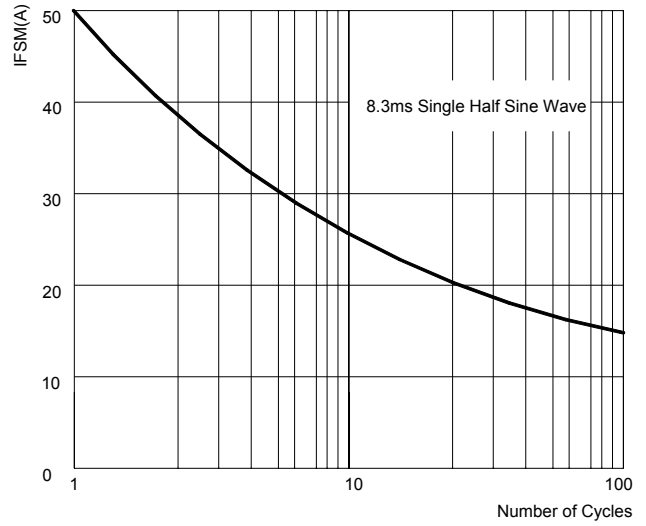


FIG.3: TYPICAL FORWARD CHARACTERISTICS

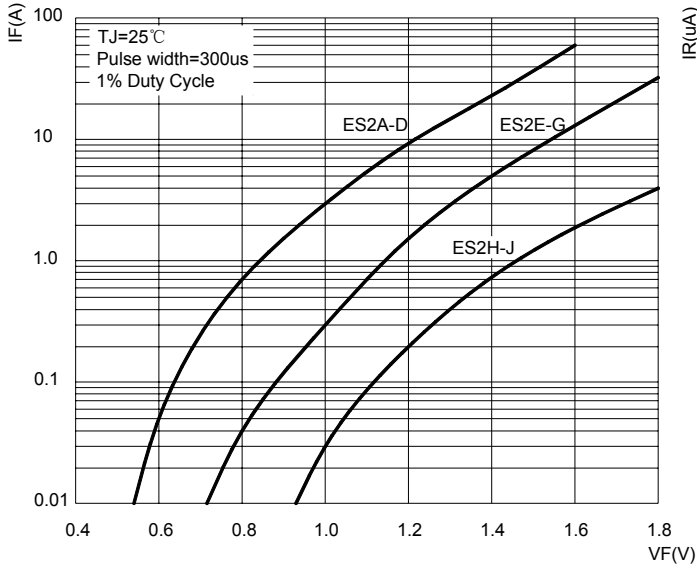


FIG.4: TYPICAL REVERSE CHARACTERISTICS

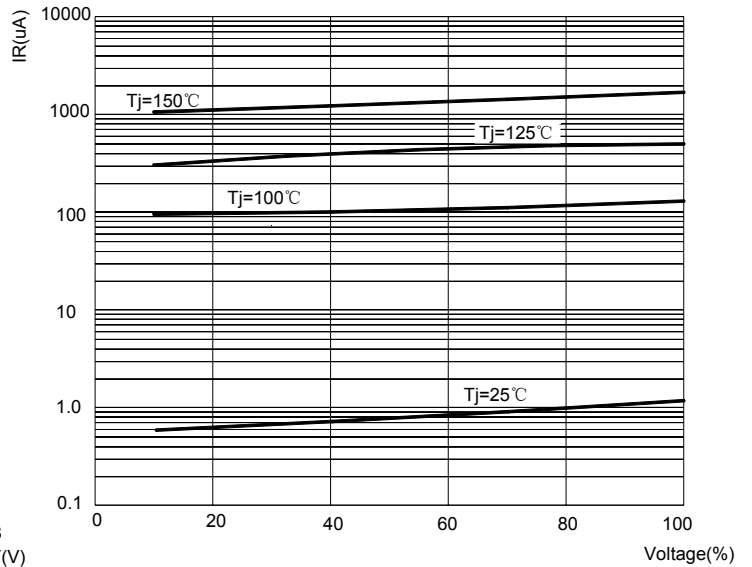
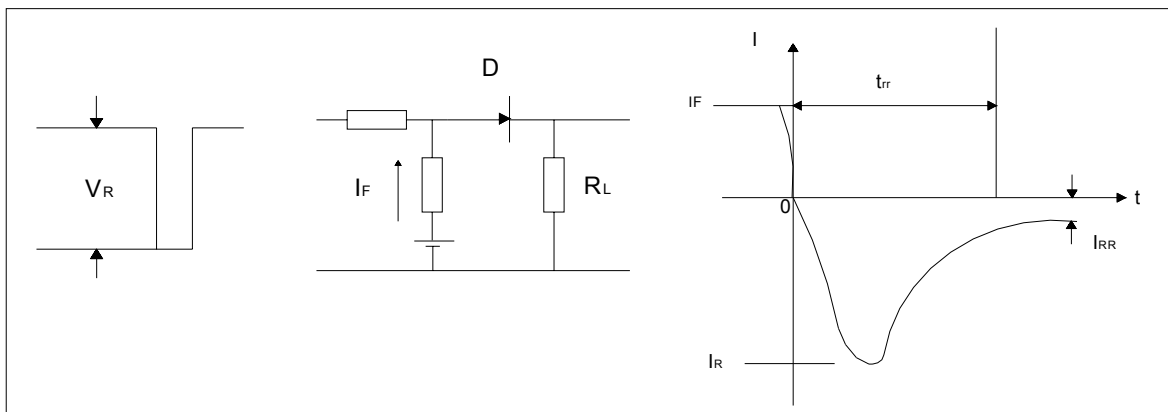
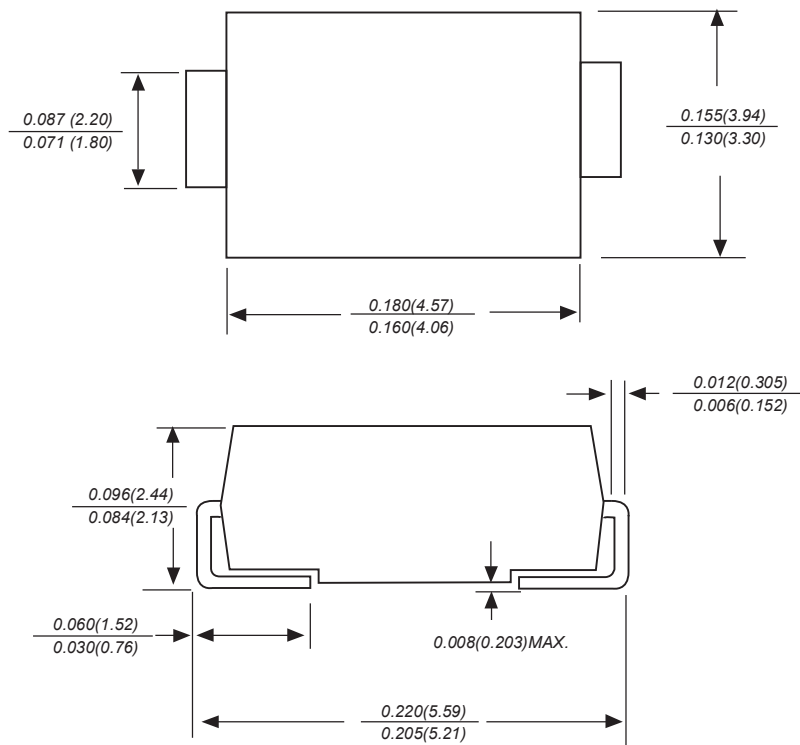


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time

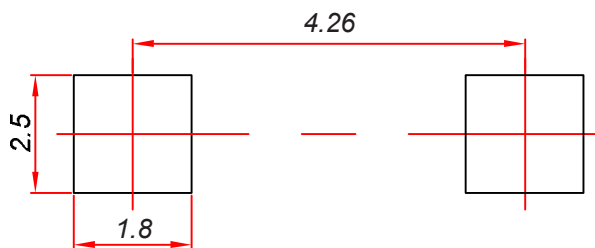


## SMBG Package Outline Dimensions



Dimensions in inches and (millimeters)

## SMBG Suggested Pad Layout



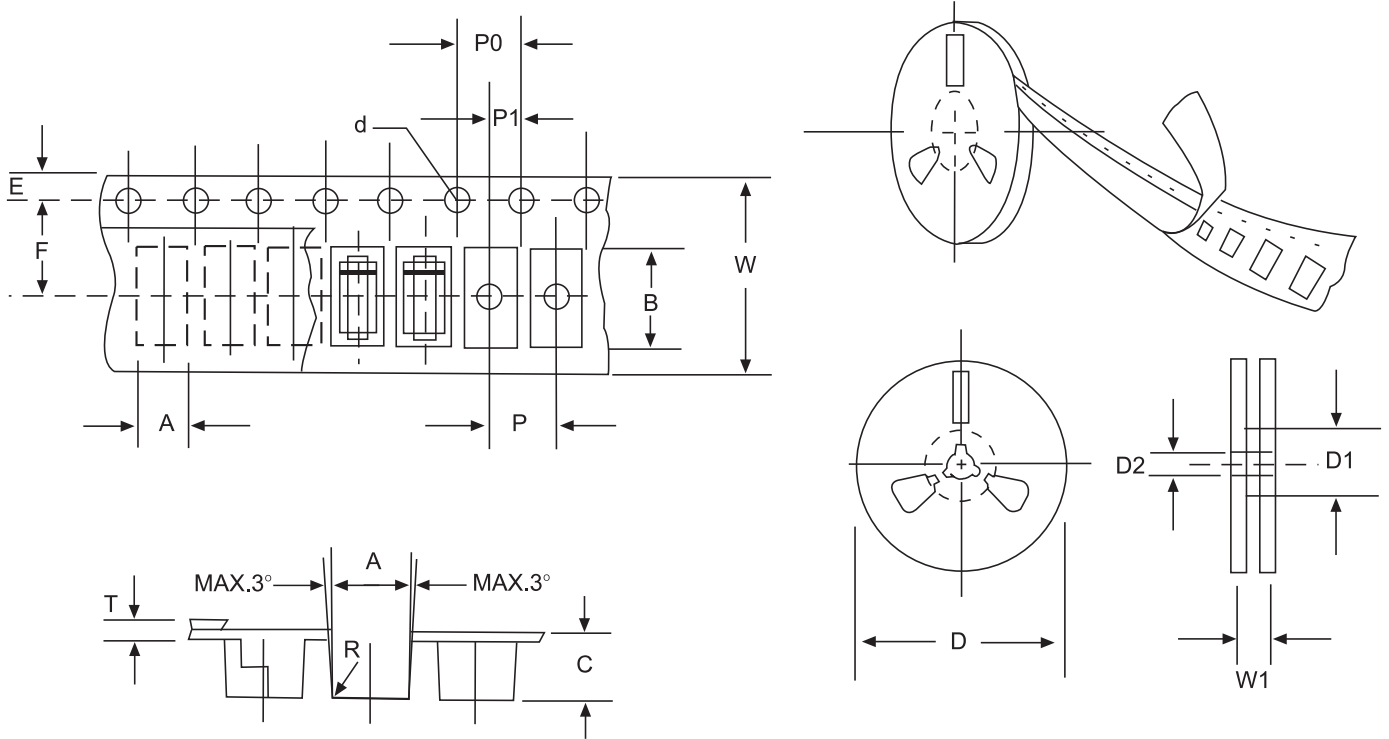
### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$  mm.
3. The pad layout is for reference purposes only.

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# Reel Taping Specifications For Surface Mount Devices-SMBG



**FIG:CONFIGURATION OF AXIAL TAPING**

ITEM	SYMBOL	SMBGmm(inch)
Carrier width	A	4.09±0.1(0.161±0.004)
Carrier length	B	5.82±0.1(0.229±0.004)
Carrier depth	C	3.33±0.1(0.131±0.004)
Sprocket hole	d	1.55±0.05(0.061±0.0002)
Reel outside diameter	D	330/178±2.0(13/7.0±0.79)
Reel inner diameter	D1	8.0±0.2(0.315±0.008)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Sprocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	5.65±0.05(0.222±0.002)
Punch hole pitch	P	8.0±0.1(0.315±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Total tape thickness	T	0.32±0.1(0.013±0.004)
Tape width	W	12.0±0.2(0.472±0.008)
Reel width	W1	16.8±2.0(0.661±0.079)

NOTE:Devices are packde in accordance with EIA standard RS-481-A and specification given above.

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