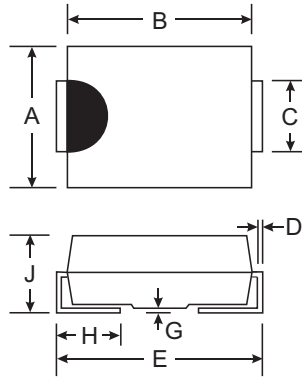


### Features

- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 50A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant (Note 4)

### Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Lead Free Plating (Matte Tin Finish). Solderable per MIL-STD-202, Method 208 (E3)
- Polarity: Cathode Band or Cathode Notch
- Marking Information: See Page 3
- Ordering Information: See Page 3
- SMA Weight: 0.064 grams (approximate)
- SMB Weight: 0.093 grams (approximate)



Dim	SMA		SMB	
	Min	Max	Min	Max
A	2.29	2.92	3.30	3.94
B	4.00	4.60	4.06	4.57
C	1.27	1.63	1.96	2.21
D	0.15	0.31	0.15	0.31
E	4.80	5.59	5.00	5.59
G	0.10	0.20	0.10	0.20
H	0.76	1.52	0.76	1.52
J	2.01	2.30	2.00	2.40
All Dimensions in mm				

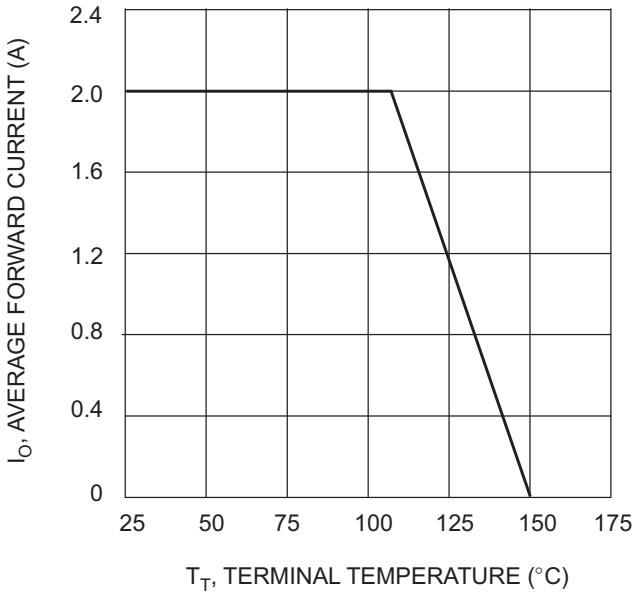
AA, BA, CA, DA Suffix Designates SMA Package  
A, B, C, D, Suffix Designates SMB Package

### Maximum Ratings and Electrical Characteristics @ T<sub>A</sub> = 25 C unless otherwise specified

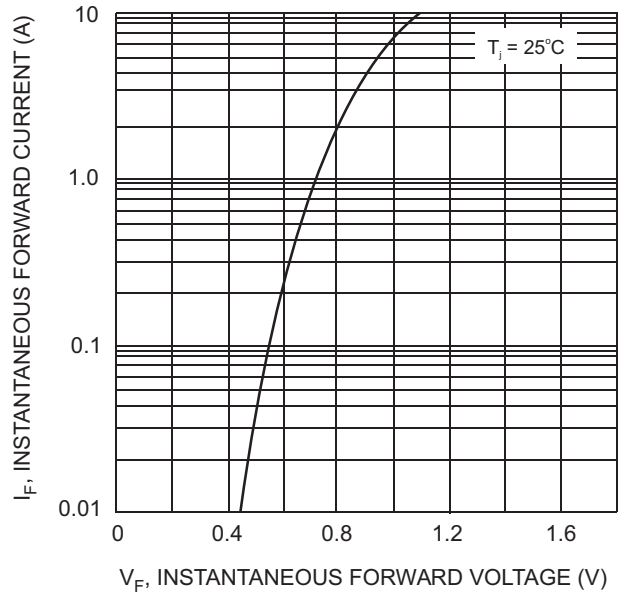
Single phase, half wave, 60Hz, resistive or inductive load.  
For capacitive load, derate current by 20%.

Characteristic	Symbol	ES2A/A	ES2B/A	ES2C/A	ES2D/A	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	V <sub>RRM</sub> V <sub>RWM</sub> V <sub>R</sub>	50	100	150	200	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	35	70	105	140	V
Average Rectified Output Current @ T <sub>T</sub> = 110 C	I <sub>O</sub>	2.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	I <sub>FSM</sub>	50				A
Forward Voltage @ I <sub>F</sub> = 2.0A	V <sub>FM</sub>	0.92				V
Peak Reverse Current @ T <sub>A</sub> = 25 C at Rated DC Blocking Voltage (Note 5) @ T <sub>A</sub> = 125 C	I <sub>RM</sub>	5.0 350				A
Reverse Recovery Time (Note 3)	t <sub>rr</sub>	25				ns
Typical Total Capacitance (Note 2)	C <sub>T</sub>	25				pF
Typical Thermal Resistance, Junction to Terminal (Note 1)	R <sub>JT</sub>	20				°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150				C

- Notes:
- Unit mounted on PC board with 5.0 mm<sup>2</sup> (0.013 mm thick) copper pads as heat sink.
  - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
  - Measured with I<sub>F</sub> = 0.5A, I<sub>R</sub> = 1.0A, t<sub>rr</sub> = 0.25A. See Figure 5.
  - RoHS revision 13.2.2003. Glass and high temperature solder exemptions applied, see *EU Directive Annex Notes 5 and 7*.
  - Short duration pulse test used to minimize self-heating effect.



$T_T$ , TERMINAL TEMPERATURE (°C)  
Fig. 1 Forward Current Derating Curve



$V_F$ , INSTANTANEOUS FORWARD VOLTAGE (V)  
Fig. 2 Typical Forward Characteristics

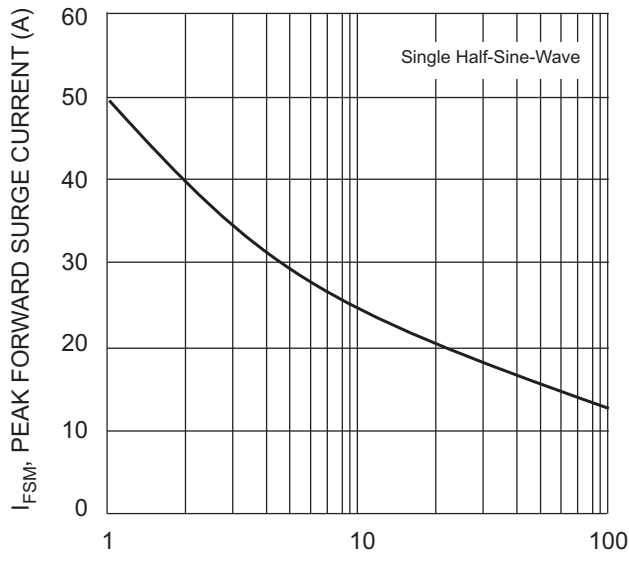


Fig. 3 Surge Current Derating Curve

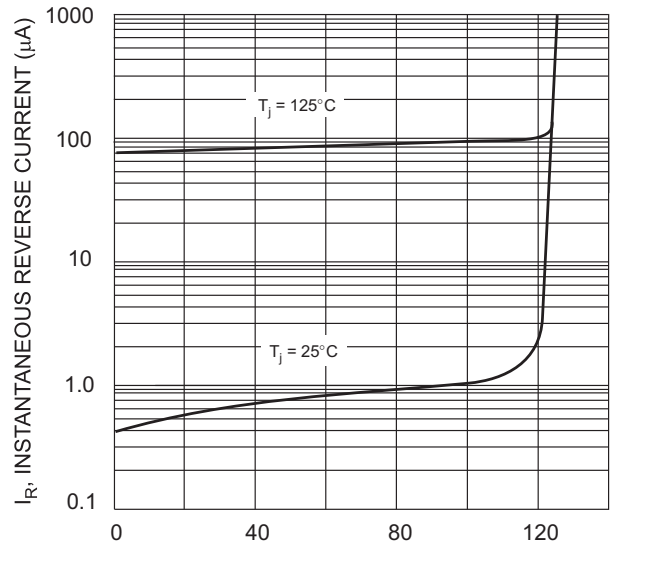
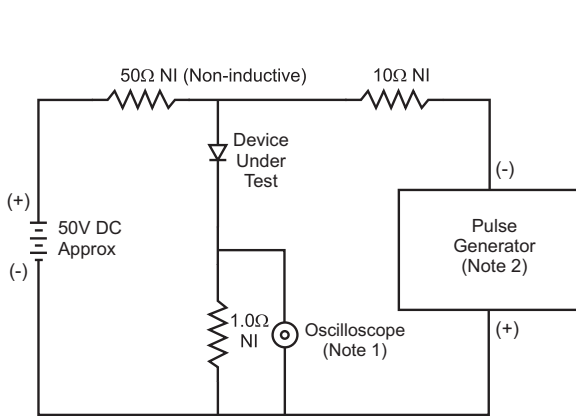


Fig. 4 Typical Reverse Characteristics



Notes:  
1. Rise Time = 7.0ns max. Input Impedance = 1.0MΩ, 22pF.  
2. Rise Time = 10ns max. Input Impedance = 50Ω.

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

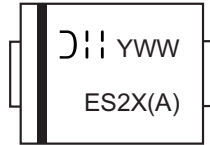
**Ordering Information** (Note 6)


Device	Packaging	Shipping
ES2xA-13-F ES2x-13-F	SMA SMB	5000/Tape & Reel 3000/Tape & Reel

\* x = Device type, e.g. ES2BA-13-F (SMA package); ES2A-13-F (SMB package).

Notes: 6. For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.

**Marking Information**



ES2XA = Product type marking code, ex: ES2BA (SMA package)  
 ES2X = Product type marking code, ex: ES2A (SMB package)  
 = Manufacturers' code marking  
 YWW = Date code marking  
 Y = Last digit of year ex: 2 for 2002  
 WW = Week code 01 to 52

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