



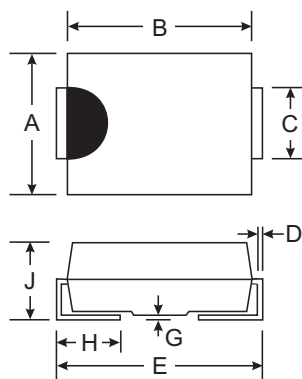
THE DATASHEET OF ES2DA-13

Features

- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Low Forward Voltage Drop and High Current Capability
- Surge Overload Rating to 50A Peak
- Ideally Suited for Automated Assembly
- **Available in Lead Free Finish/RoHS Complaint Version (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: Solder Plated Terminal - Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 5, on Page 3
- Polarity: Cathode Band or Cathode Notch
- Mounting Position: Any
- SMA Weight: 0.064 grams (approx.)
- SMB Weight: 0.093 grams (approx.)



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 @ $T_A = 25^\circ\text{C}$ 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	V_{RRM} V_{RWM} V_R	50	100	150	200	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	105	140	V
Average Rectified Output Current @ $T_T = 110^\circ\text{C}$	I_O	2.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load (JEDEC Method)	I_{FSM}	50				A
Forward Voltage @ $I_F = 2.0\text{A}$	V_{FM}	0.92				V
Peak Reverse Current @ $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage @ $T_A = 125^\circ\text{C}$	I_{RM}	5.0 350				μA
Reverse Recovery Time (Note 3)	t_{rr}	25				ns
Typical Junction Capacitance (Note 2)	C_j	25				pF
Typical Thermal Resistance, Junction to Terminal (Note 1)	$R_{\theta JT}$	20				$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150				$^\circ\text{C}$

- Notes:
1. Unit mounted on PC board with 5.0 mm² (0.013 mm thick) copper pads as heat sink.
 2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
 3. Measured with $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $t_{rr} = 0.25\text{A}$. See Figure 5.
 4. RoHS revision 13.2.2003. Glass and High Temperature Solder Exemptions Applied, see *EU Directive Annex Notes 5 and 7*.

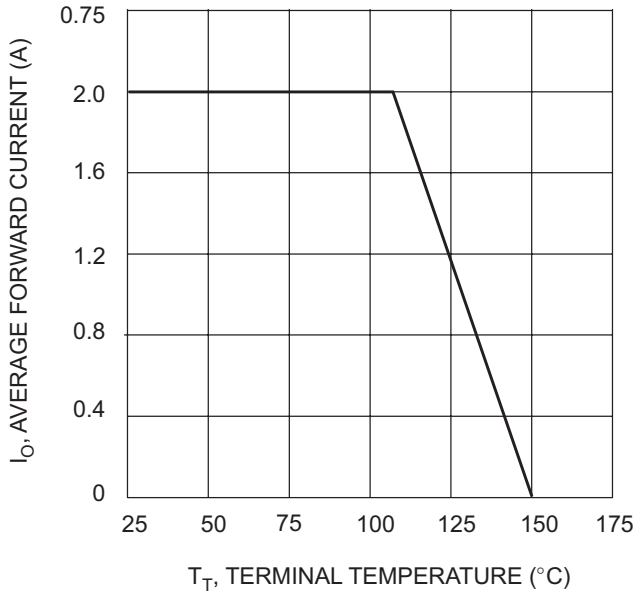


Fig. 1 Forward Current Derating Curve

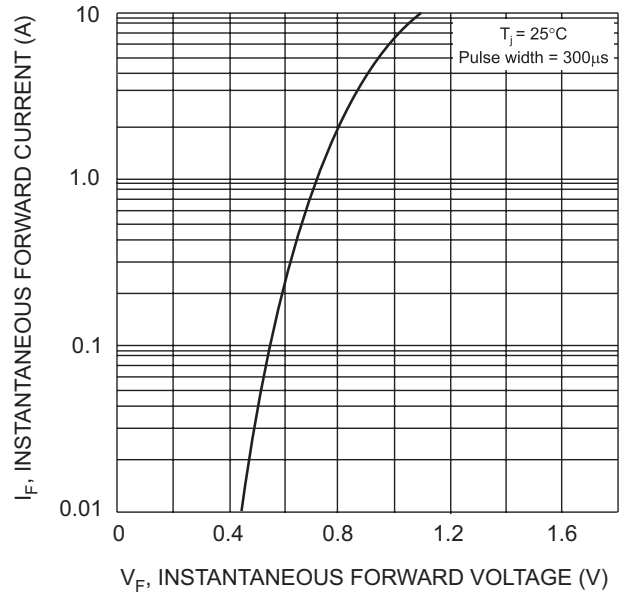


Fig. 2 Typical Forward Characteristics

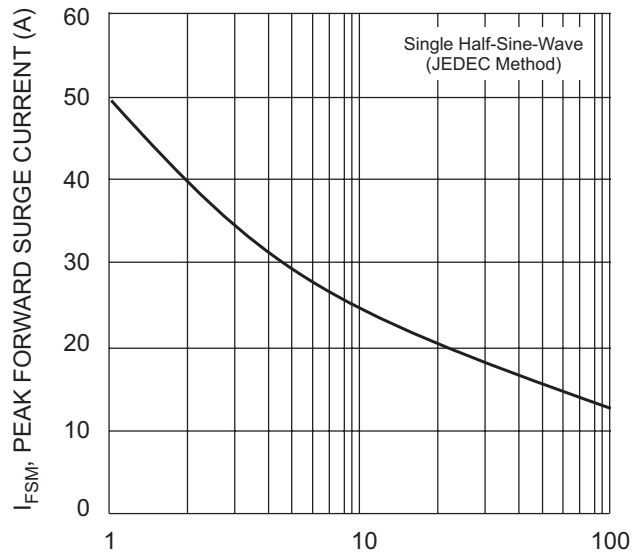


Fig. 3 Surge Current Derating Curve

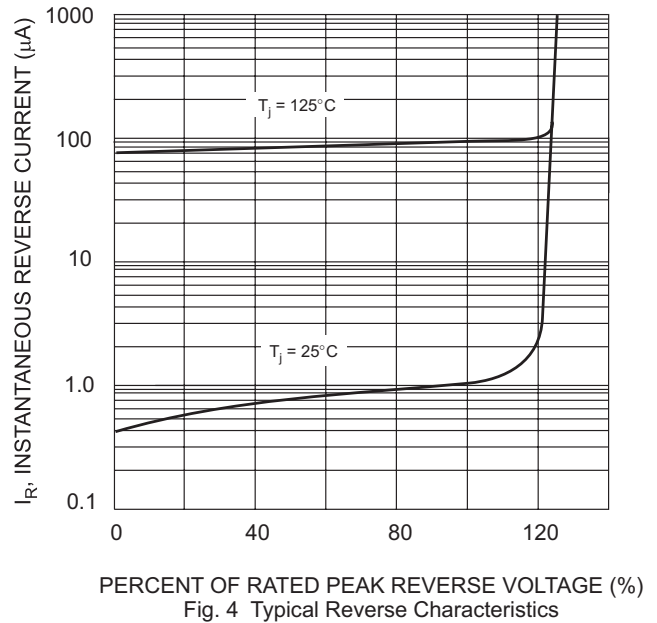
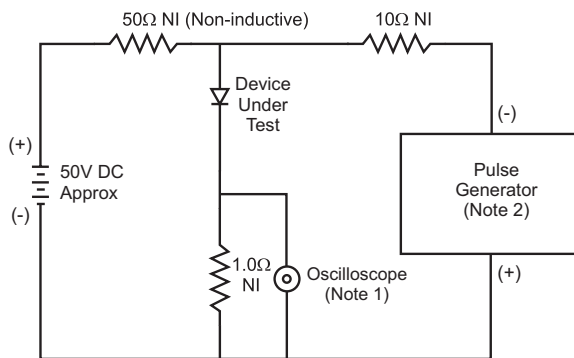


Fig. 4 Typical Reverse Characteristics



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

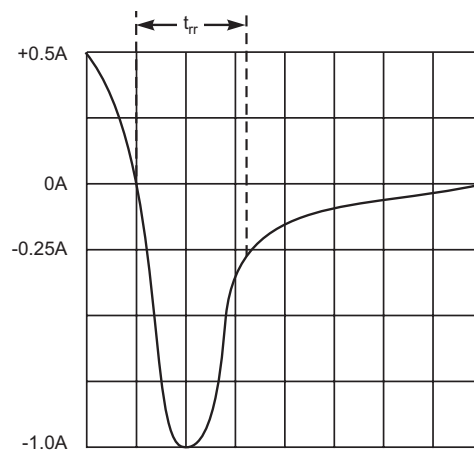


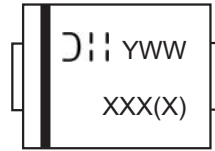
Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

Ordering Information (Note 5)

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

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

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
 - For Lead Free Finish/RoHS Compliant version part numbers, please add "-F" suffix to part number above. Example: ES2BA-13-F.



XXX = Product type marking code, ex: ES2BA (SMA package)
 XXXX = Product type marking code, ex: ES2A (SMB package)
 D||| = 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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