



ES2A/A - ES2D/A

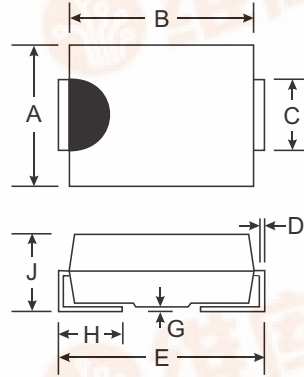
2.0A SURFACE MOUNT SUPER-FAST RECTIFIER

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

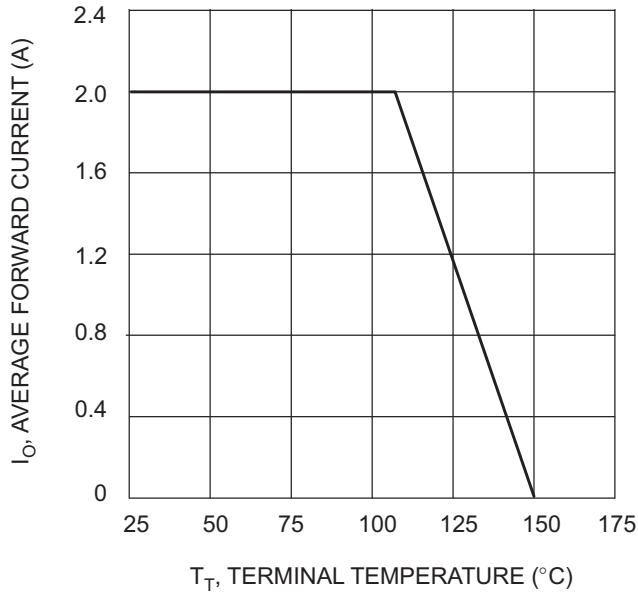
Maximum Ratings and Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

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

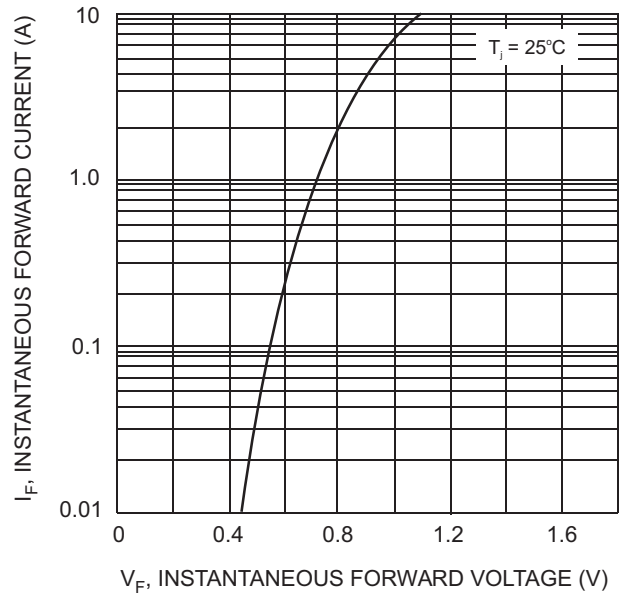
Characteristic	Symbol	ES2A/A	ES2B/A	ES2C/A	ES2D/A	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	50	100	150	200	V
Working Peak Reverse Voltage	V_{RWM}					
DC Blocking Voltage (Note 5)	V_R					
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	105	140	V
Average Rectified Output Current @ $T_J = 110^\circ\text{C}$	I_O	2.0				A
Non-Repetitive Peak Forward Surge Current 8.3ms Single half sine-wave Superimposed on Rated Load	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 (Note 5) @ $T_A = 125^\circ\text{C}$	I_{RM}	5.0 350				A
Reverse Recovery Time (Note 3)	t_{rr}	25				ns
Typical Total Capacitance (Note 2)	C_T	25				pF
Typical Thermal Resistance, Junction to Terminal (Note 1)	R_{JT}	20				$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150				$^\circ\text{C}$

- Notes:
- Unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pads as heat sink.
 - Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
 - Measured with $I_F = 0.5\text{A}$, $I_R = 1.0\text{A}$, $t_{rr} = 0.25\text{A}$. 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.

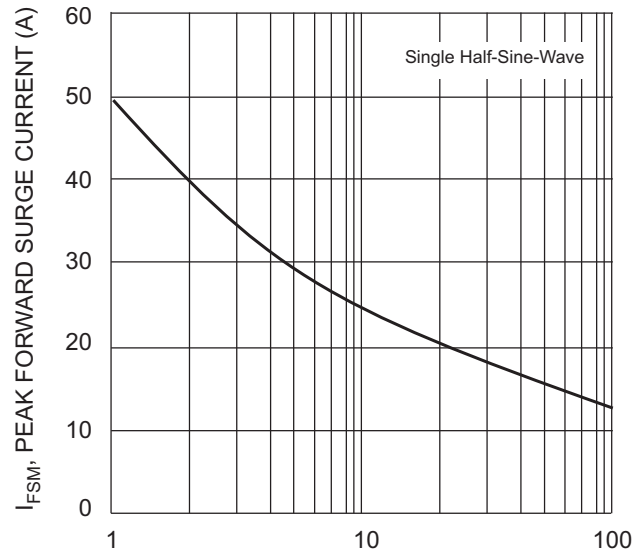




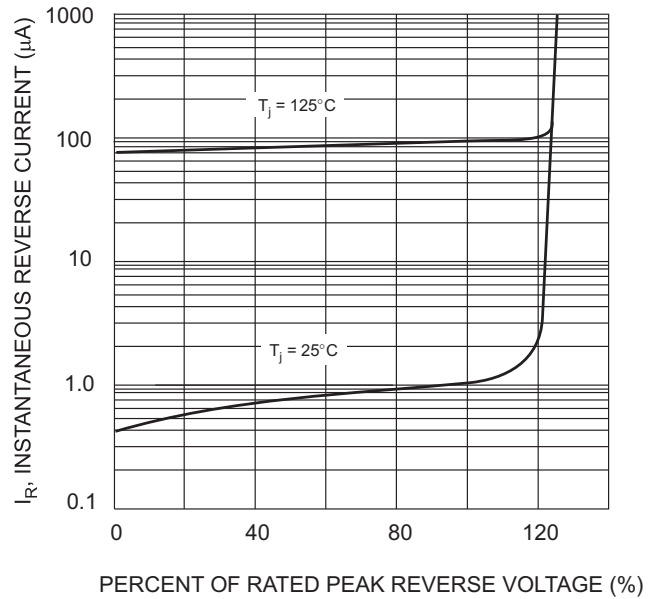
T_T , TERMINAL TEMPERATURE ($^{\circ}\text{C}$)
Fig. 1 Forward Current Derating Curve



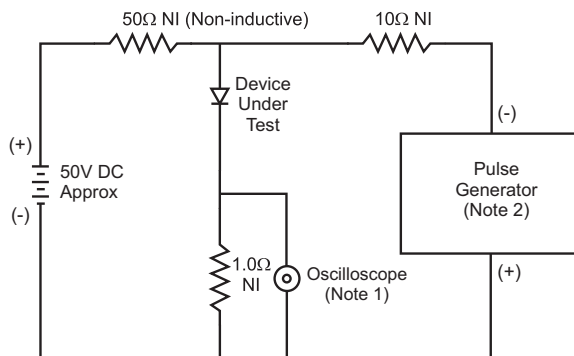
V_{FI} , INSTANTANEOUS FORWARD VOLTAGE (V)
Fig. 2 Typical Forward Characteristics



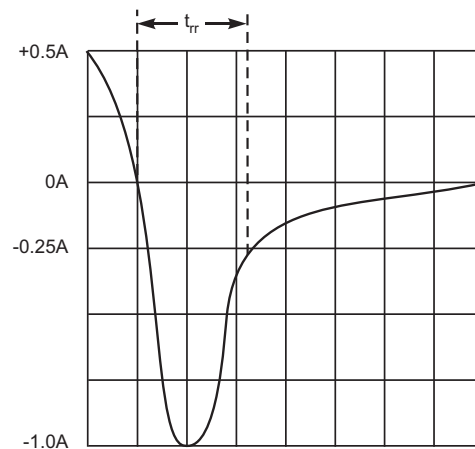
NUMBER OF CYCLES AT 60Hz
Fig. 3 Surge Current Derating Curve



PERCENT OF RATED PEAK REVERSE VOLTAGE (%)
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.



Set time base for 50/100 ns/cm

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit



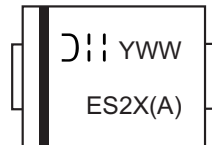
Ordering Information (Note 6)

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)

Di = 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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