



ES1A - ES1G

#### 1.0A SURFACE MOUNT SUPER-FAST RECTIFIER

#### **Features**

- Glass Passivated Die Construction
- Super-Fast Recovery Time For High Efficiency
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant (Note 1)
- Green Molding Compound (No Halogen and Antimony) (Note 2)

## **Mechanical Data**

- · Case: SMA
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Lead Free Plating (Matte Tin Finish) Solderable per MIL-STD-202, Method 208 (23)
- Polarity: Cathode Band or Cathode Notch
- Weight: 0.064 grams (approximate)





Top View

**Bottom View** 

#### Ordering Information (Note 3)

Part Number	Case	Packaging
ES1x-13-F	SMA	5000/Tape & Reel

<sup>\*</sup> x = Device type, e.g. ES1A-13-F

Notes:

- 1. EU Directive 2002/95/EC (RoHS). All applicable RoHS exemptions applied, see EU Directive 2002/95/EC Annex Notes.
- 2. Product manufactured with Data Code 0924 (week 24, 2009) and newer are built with Green Molding Compound.
- 3. For packaging details, go to our website at http://www.diodes.com.

# **Marking Information**



ES1x = Product type marking code, ex. ES1A

| | = Manufacturer's code marking

| YWW = Date code marking
| Y = Last digit of year (ex: 2 for 2002)

| WW = Week code (01 to 53)



# Maximum Ratings @TA = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitance load, derate current by 20%.

Characteristic	Symbol	ES1A	ES1B	ES1C	ES1D	ES1G	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 5)	$egin{array}{c} V_{RRM} \ V_{RWM} \ \end{array}$	50	100	150	200	400	V
RMS Reverse Voltage	V <sub>R(RMS)</sub>	35	70	105	140	280	V
Average Rectified Output Current @ T <sub>T</sub> = 110°C	Ιο			1.0			Α
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I <sub>FSM</sub>			30			Α

### **Thermal Characteristics**

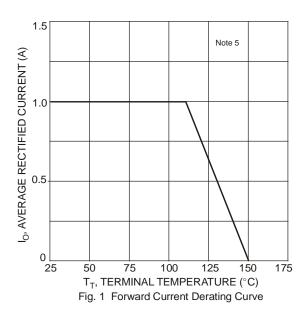
Characteristic	Symbol	Value	Unit
Typical Thermal Resistance, Junction to Terminal (Note 4)	$R_{\theta JT}$	25	°C/W
Operating and Storage Temperature Range	$T_{J_1}T_{STG}$	-55 to +150	°C

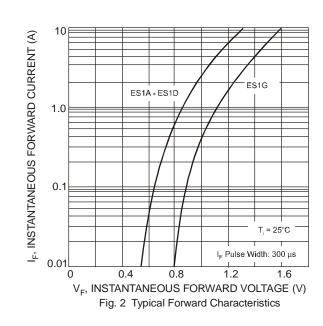
# Electrical Characteristics @TA = 25°C unless otherwise specified

Characteristic		Symbol	ES1A	ES1B	ES1C	ES1D	ES1G	Unit
Maximum Forward Voltage Drop	$I_F = 0.6A$ $I_F = 1.0A$	V <sub>FM</sub>	0.90 — 0.92 — 1.25		 1.25	V		
Peak Reverse Current at Rated DC Blocking Voltage (Note 5)	$T_A = 25$ °C $T_A = 125$ °C	I <sub>RM</sub>	5.0 200			μА		
Maximum Reverse Recovery Time (Note 6)		t <sub>rr</sub>			25			ns
Typical Total Capacitance (Note 7)		Ст			20			pF

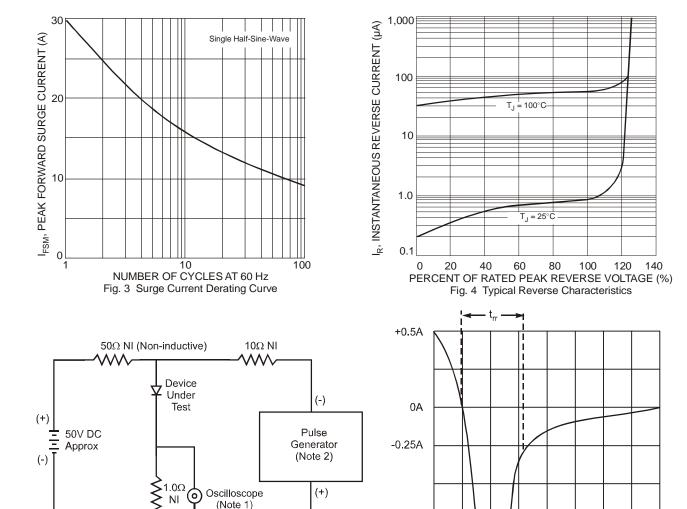
Notes:

- 4. Unit mounted on PC board with 5.0 mm² (0.013 mm thick) copper pad as heat sink.
- 5. Short duration pulse test used to minimize self-heating effect. 6. Measured with  $I_F$  = 0.5A,  $I_R$  = 1.0A,  $I_{rr}$  = 0.25A. See figure 5.
- 7. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.









1. Rise Time = 7.0ns max. Input Impedance =  $1.0M\Omega$ , 22pF.

(Note 1)

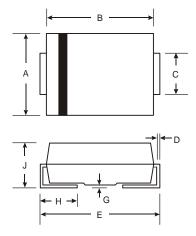
2. Rise Time = 10ns max. Input Impedance =  $50\Omega$ .

Fig. 5 Reverse Recovery Time Characteristic and Test Circuit

-1.0A

(+)

# **Package Outline Dimensions**

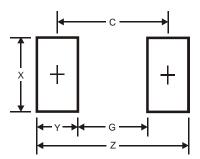


SMA					
Dim	Min	Max			
Α	2.29	2.92			
В	4.00 4.60				
С	1.27 1.63				
D	0.15	0.31			
Е	4.80 5.59				
G	0.05 0.20				
Н	0.76 1.52				
J	2.01	2.30			
All Dimensions in mm					

Set time base for 50/100 ns/cm



### **Suggested Pad Layout**



Dimensions	Value (in mm)
Z	6.5
G	1.5
Х	1.7
Υ	2.5
С	4.0

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многоканальный

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