

TVS Diodes

ES1x Series

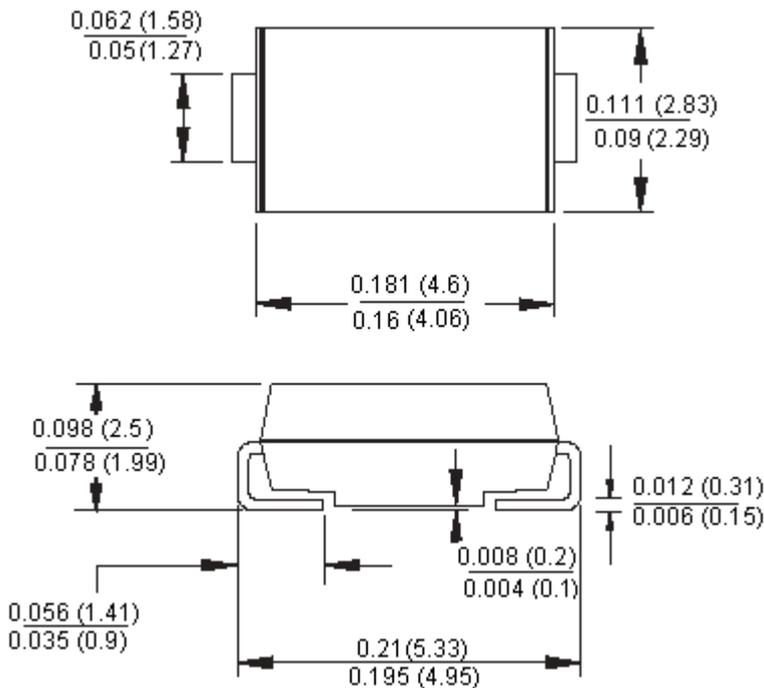


Features:

- Glass passivated junction chip
- For surface mounted application
- Low profile package
- Built-in strain relief
- Ideal for automated placement
- Easy pick and place
- Super fast recovery time for high efficiency
- Glass passivated chip junction
- High temperature soldering : 260°C / 10 seconds at terminals
- Plastic material



SMA/DO-214AC



Dimensions : Inches (Millimetres)

Mechanical Data

Case	: Moulded plastic
Terminals	: Pure tin plated, lead free
Polarity	: Indicated by cathode band
Standard Packaging	: 12 mm tape (EIA STD RS-481)
Weight	: 0.064 g

TVS Diodes



ES1x Series

Maximum Ratings and Electrical Characteristics

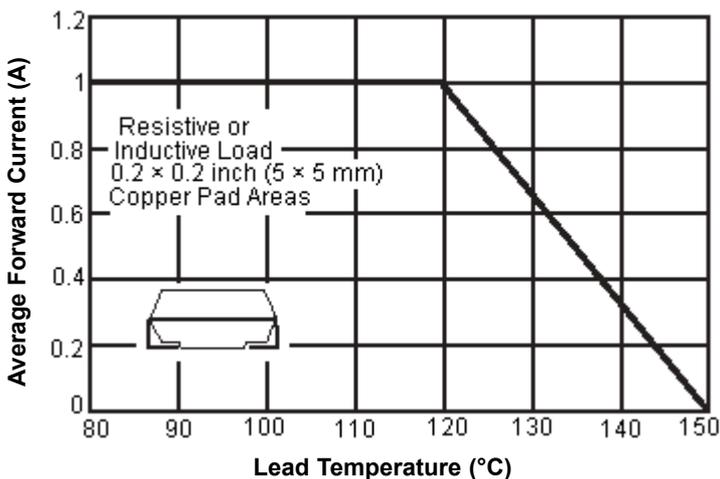
Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%

Type Number	Symbol	ES1A	ES1F	ES1G	ES1H	ES1J	Units
Maximum Recurrent Peak Reverse Voltage	V_{RRM}	50	300	400	500	600	V
Maximum RMS Voltage	V_{RMS}	35	210	280	350	420	
Maximum DC Blocking Voltage	V_{DC}	50	300	400	500	600	
Maximum Average Forward Rectified Current	$I_{(AV)}$	1					A
Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	I_{FSM}	30					
Maximum Instantaneous Forward Voltage at 1 A	V_F	0.95	1.3		1.7		V
Maximum DC Reverse Current at $T_A = 25^\circ\text{C}$ at Rated DC Blocking Voltage at $T_A = 100^\circ\text{C}$	I_R	5 100					μA
Maximum Reverse Recovery Time (Note 1)	T_{rr}	35					nS
Typical Junction Capacitance (Note 2)	C_j	10	8				pF
Maximum Thermal Resistance (Note 3)	$R_{\theta JA}$ $R_{\theta JL}$	85 35					$^\circ\text{C} / \text{W}$
Operating Temperature Range	T_J	-55 to 150					$^\circ\text{C}$
Storage Temperature Range	T_{STG}						

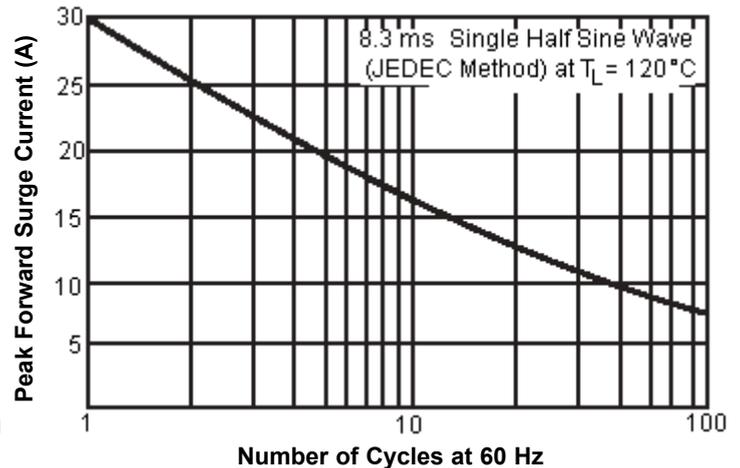
- Notes :**
- Reverse recovery test conditions : $I_F = 0.5 \text{ A}$, $I_R = 1 \text{ A}$, $I_{RR} = 0.25 \text{ A}$
 - Measured at 1 MHz and applied $V_R = 4 \text{ V}$
 - PCB mounted on 0.2×0.2 inches ($5 \times 5 \text{ mm}$) copper pad area

Ratings and Characteristic Curves (ES1A, ES1F, ES1G, ES1H and ES1J)

Maximum Forward Current Derating Curve



Maximum Non-Repetitive Peak Forward Surge Current



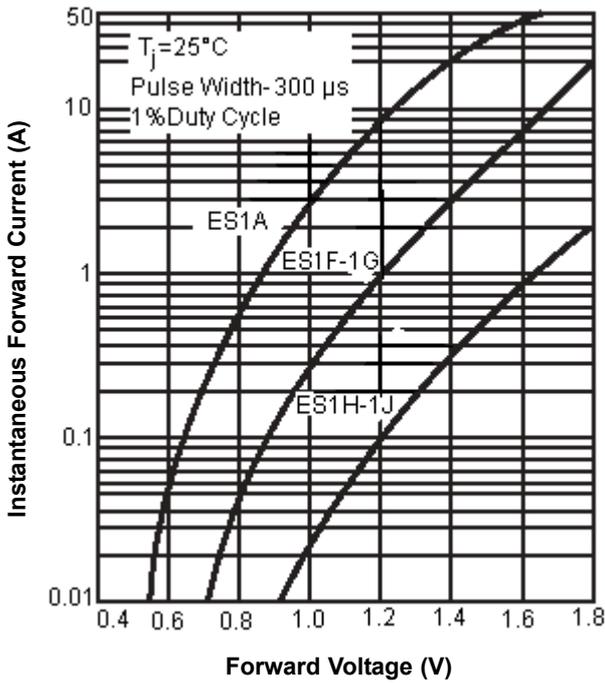
TVS Diodes

ES1x Series

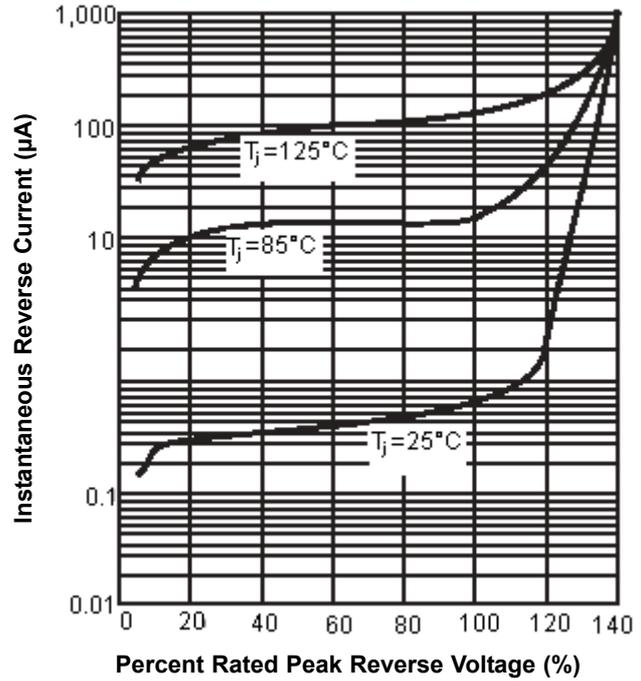


Ratings and Characteristic Curves

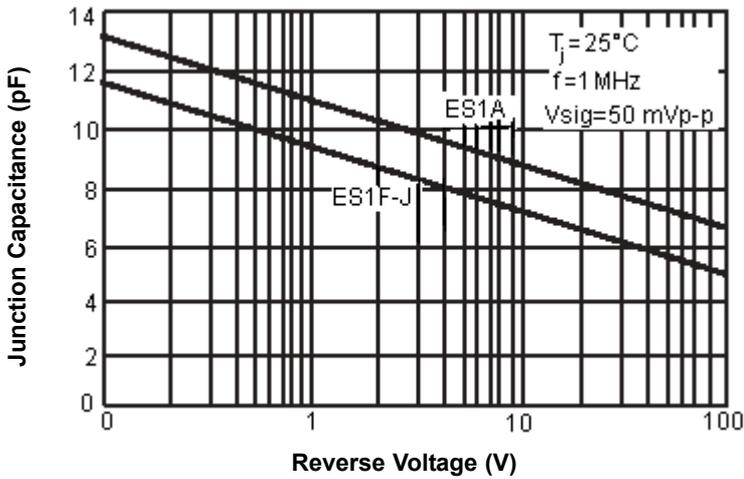
Typical Instantaneous Forward Characteristics



Typical Reverse Characteristics



Typical Junction Capacitance

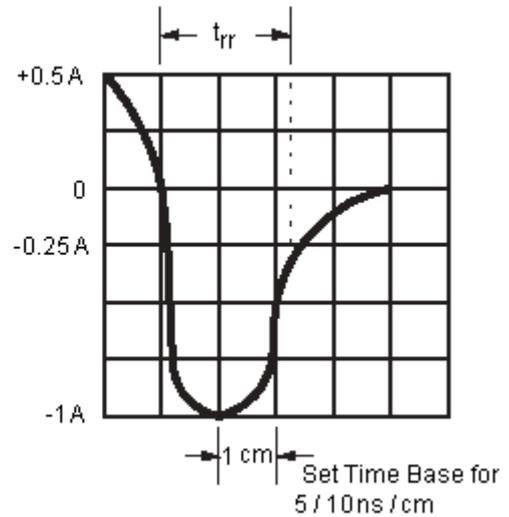
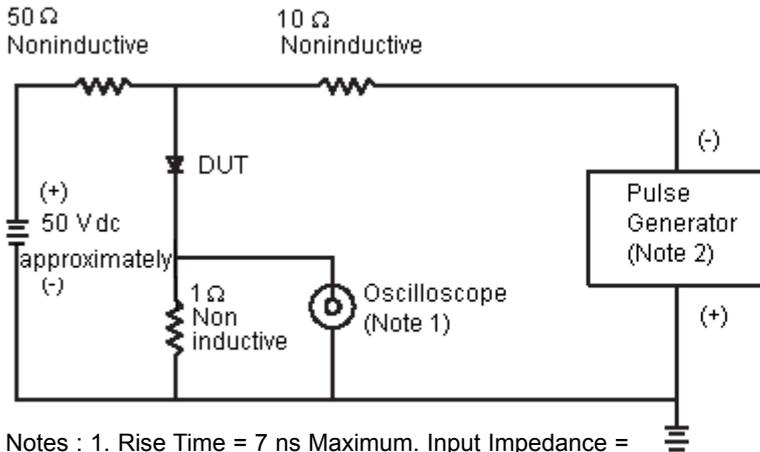


TVS Diodes

ES1x Series



Reverse Recovery Time Characteristic and Test Circuit Diagram



- Notes :
1. Rise Time = 7 ns Maximum. Input Impedance = 1 MΩ 22 pf
 2. Rise Time = 10 ns Maximum Source Impedance = 50 Ω

Part Number Table

Description	Part Number
Diode, Ultra-Fast, 1 A, 50 V	ES1A
Diode, Ultra-Fast, 1 A, 300 V	ES1F
Diode, Ultra-Fast, 1 A, 400 V	ES1G
Diode, Ultra-Fast, 1A, 500 V	ES1H
Diode, Ultra-Fast, 1 A, 600 V	ES1J

Important Notice : This data sheet and its contents (the "Information") belong to the members of the Premier Farnell group of companies (the "Group") or are licensed to it. No licence is granted for the use of it other than for information purposes in connection with the products to which it relates. No licence of any intellectual property rights is granted. The Information is subject to change without notice and replaces all data sheets previously supplied. The Information supplied is believed to be accurate but the Group assumes no responsibility for its accuracy or completeness, any error in or omission from it or for any use made of it. Users of this data sheet should check for themselves the Information and the suitability of the products for their purpose and not make any assumptions based on information included or omitted. Liability for loss or damage resulting from any reliance on the Information or use of it (including liability resulting from negligence or where the Group was aware of the possibility of such loss or damage arising) is excluded. This will not operate to limit or restrict the Group's liability for death or personal injury resulting from its negligence. Multicomp is the registered trademark of the Group. © Premier Farnell plc 2012.