



## Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Typical  $I_R$  less than 5uA above 7.5V
- High temperature soldering guaranteed: 260°C / 10 seconds at terminals

## Mechanical Data

Case	: Molded plastic over passivated junction
Terminals	: Pure tin plated lead free, solderable per MIL-STD-750, Method 2025
Polarity	: Colour Band denotes positive end (cathode)
Standard Packaging	: 12mm tape (EIA-481)
Weight	: 0.002oz, 0.064g

## Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Type Number	Symbol	Value	Units
Power Dissipation, $R_{thJA} < 30k/W$ , $T_a = 60^\circ C$	$P_D$	3	W
Power Dissipation, $R_{thJA} < 100k/W$ , $T_a = 25^\circ C$	$P_D$	1.25	
Non Repetitive Peak Surge Power Dissipation (Note 1)	$P_{ZSM}$	60	
Non Repetitive Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	10	A
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	°C

**Notes:** 1. Non Repetitive Peak surge  $P_D$  Test Conditions:  $t_p = 100\mu s$  sq. pulse,  $T_j = 25^\circ C$  prior to surge.

## Electrical Characteristics

( $T_A=25^\circ\text{C}$  unless otherwise noted)  $V_F=1.2\text{V}$  max,  $I_F=200\text{mA}$  for all types.

Device (Note 1)	Device Marking Code	Nominal Zener Voltage $V_Z @ I_{ZT}$ Voltage (Notes 2 & 3)	Test Current $I_{ZT}$ mA	Maximum Zener Impedance (Note 4)		Leakage Current		Surge Current @ $T_A = 25^\circ\text{C}$ $I_r$ - mA (Note 5)	
				$Z_{ZT} @ I_{ZT}$ $\Omega$	$Z_{ZK} @ I_{ZK}$		$I_R @ V_R$		
					$\Omega$	mA	$\mu\text{A Max}$		V
1SMA4737	737A	7.5	100	3	700	0.25	5	5	607
1SMA4738	738A	8.2		3.5				6	
1SMA4739	739A	9.1	4	7					
1SMA4740	740A	10	4	7.5					

- Notes:**
- 1: Tolerance and Type Number Designation. The type numbers listed have a standard tolerance on the nominal zener voltage of  $\pm 5\%$ .
  - 2: Specials Available Include:
    - A. Nominal zener voltages between the voltages shown and tighter voltage tolerances.
    - B. Matched sets.
  - 3: Zener Voltage ( $V_Z$ ) Measurement. Guarantees the zener voltage when measured at 90 seconds while maintaining the lead temperature ( $T_L$ ) at  $30^\circ\text{C} \pm 1^\circ\text{C}$ , from the diode body.
  - 4: Zener Impedance ( $Z_Z$ ) Derivation. The zener impedance is derived from the 60 cycle ac voltage, which results when an ac current having and rms value equal to 10% of the dc zener current ( $I_{ZT}$  or  $I_{ZK}$ ) is superimposed on  $I_{ZT}$  or  $I_{ZK}$ .
  - 5: Surge Current ( $I_r$ ) Non-Repetitive. The rating listed in the electrical characteristics table is maximum peak, non-repetitive reverse surge current of 1/2 square wave or equivalent sine wave pulse of 1/120 second duration superimposed on the test current,  $I_{ZT}$ , per JEDEC registration; however, actual device capability is as described in Figure 10.

## Ratings And Characteristic Curves (1SMA4737 THRU 1SMA4740):

FIG.1- POWER TEMPERATURE DERATING CURVE

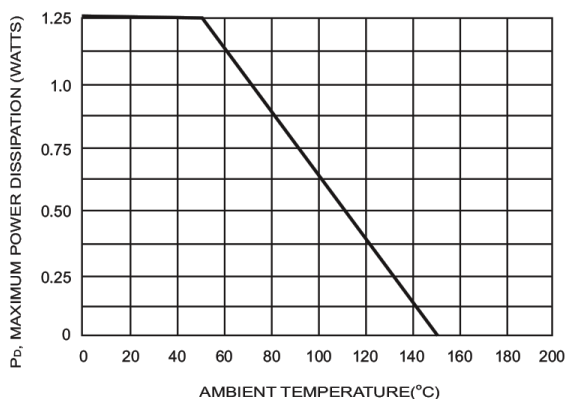


FIG.2- TYPICAL FORWARD CHARACTERISTICS

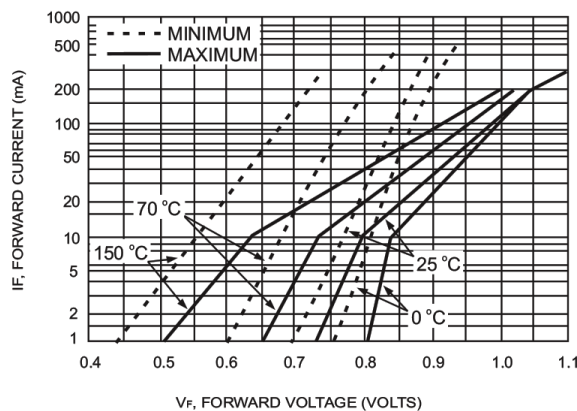


FIG.3- EFFECT OF ZENER CURRENT ON ZENER IMPEDANCE

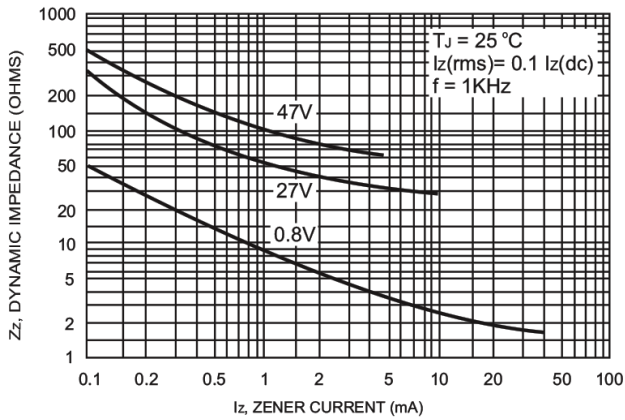


FIG.4- EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE

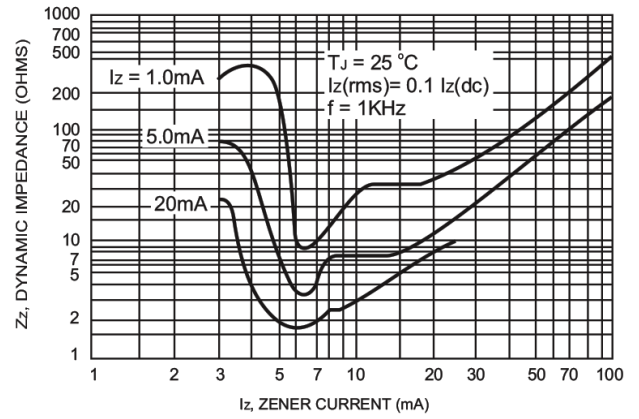


FIG.5- TYPICAL LEAKAGE CURRENT

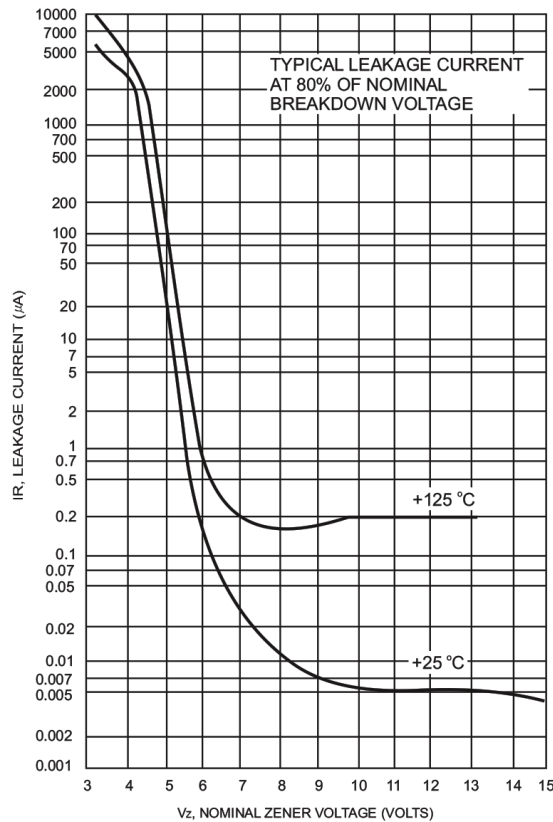


FIG.6- TYPICAL CAPACITANCE versus  $V_z$

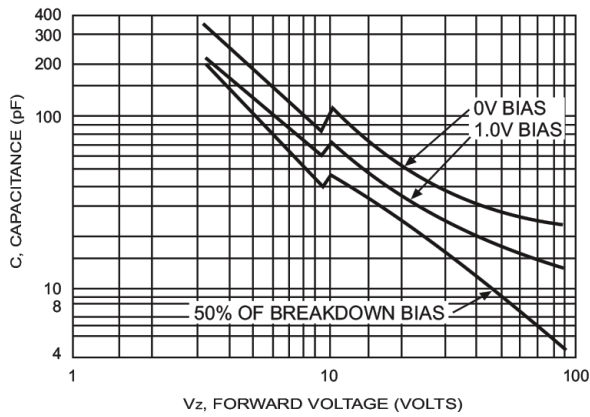


FIG.7- TEMPERATURE COEFFICIENTS

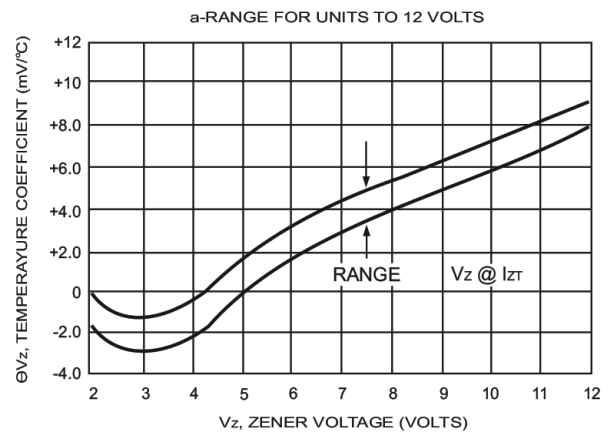


FIG.8- TEMPERATURE COEFFICIENTS

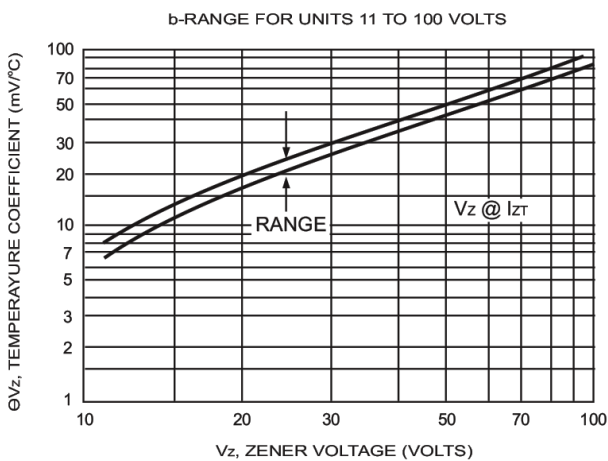


FIG.9- EFFECT OF ZENER CURRENT

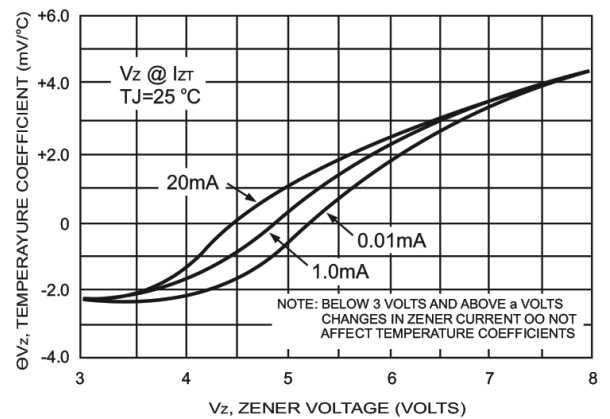
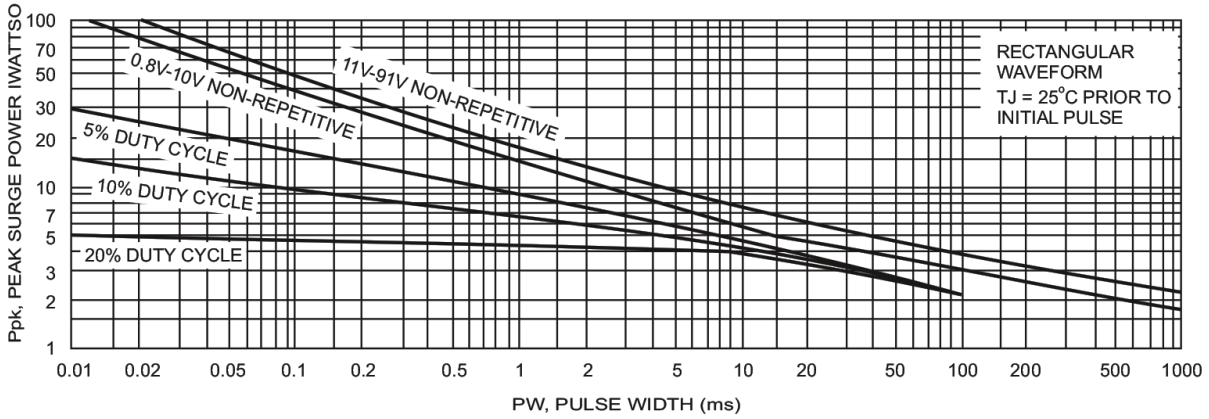
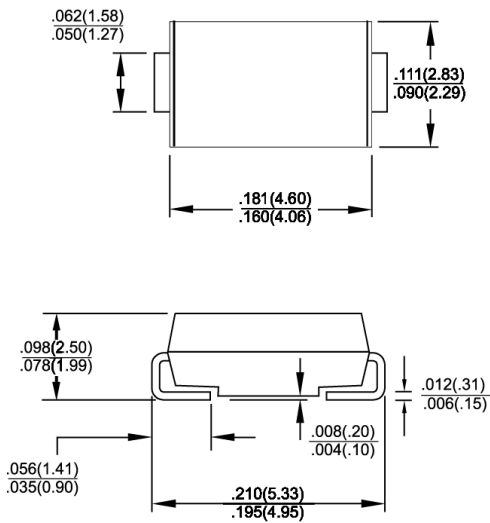


FIG.10- MAXIMUM SURGE POWER



### Dimensions:



Dimensions: Inches (Millimeters)

### Part Number Table

Description	Part Number
Diode, Zener, 7.5V, 1W	1SMA4737
Diode, Zener, 8.2V, 1W	1SMA4738
Diode, Zener, 9.1V, 1W	1SMA4739
Diode, Zener, 10V, 1W	1SMA4740

**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.