



# KNESD56241D22

## Transient Voltage Suppressors for ESD Protection

### APPLICATIONS

Ethernet - 10/100/1000 Base T  
 Cellular Phones  
 Handheld - Wireless Systems  
 Personal Digital Assistant (PDA)  
 USB Interface

### IEC COMPATIBILITY (EN61000-4)

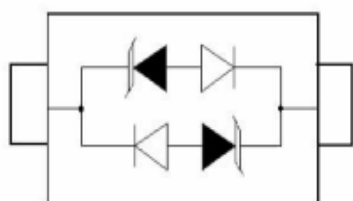
61000-4-2 (ESD): Air - 15kV, Contact - 8kV  
 61000-4-4 (EFT): 40A - 5/50ns  
 61000-4-5 (Surge): 24A, 8/20 $\mu$ s - Level 2(Line-Gnd) & Level 3(Line-Line)

### FEATURES

350 Watts Peak Pulse Power per Line ( $t_p=8/20\mu s$ )  
 Unidirectional & Bidirectional Configurations  
 Replacement for MLV (0805)  
 Protects One Power or I/O Port  
 ESD Protection > 40 kilovolts  
 Low Clamping Voltage  
 Available in Multiple Voltage Types Ranging From 24V  
 Ultra Low Capacitance: 0.6pF Typical  
 RoHS Compliant

### MECHANICAL CHARACTERISTICS

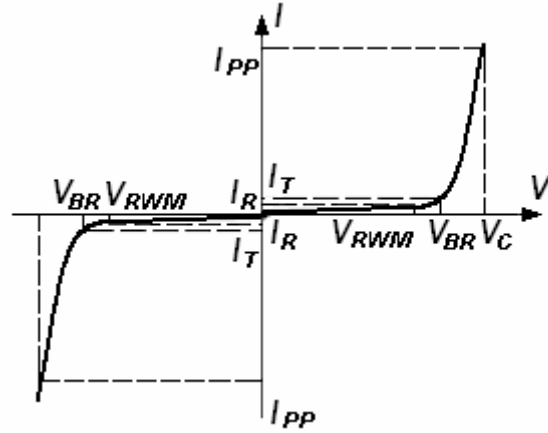
Molded JEDEC SOD-323 Package  
 Weight 5 milligrams (Approximate)  
 Available in Lead-Free Pure-Tin Plating(Annealed)  
 Solder Reflow Temperature:  
     Pure-Tin - Sn, 100: 260-270°C  
 Consult Factory for Leaded Device Availability  
 Flammability Rating UL 94V-0  
 8mm Tape and Reel Per EIA Standard 481  
 Device Marking: Marking Code & Polarity Band (*Unidirectional Only*)



### Absolute Ratings ( $T_{amb}=25^{\circ}C$ )

Symbol	Parameter	Value	Units
$P_{PP}$	Peak Pulse Power ( $t_p = 8/20 \mu s$ )	150	W
$T_L$	Maximum lead temperature for soldering during 10s	260	°C
$T_{stg}$	Storage Temperature Range	-55 to +155	°C
$T_{op}$	Operating Temperature Range	-40 to +125	°C
$T_j$	Maximum junction temperature	150	°C
	IEC61000-4-2 (ESD)	air discharge contact discharge	$\pm 15$ $\pm 8$ KV
	IEC61000-4-4 (EFT)		40 A
	ESD Voltage	Per Human Body Model	16 KV

Symbol	Parameter
$I_{PP}$	Maximum Reverse Peak Pulse Current
$V_C$	Clamping Voltage @ $I_{PP}$
$V_{RWM}$	Working Peak Reverse Voltage
$I_R$	Maximum Reverse Leakage Current @ $V_{RWM}$
$I_T$	Test Current
$V_{BR}$	Breakdown Voltage @ $I_T$

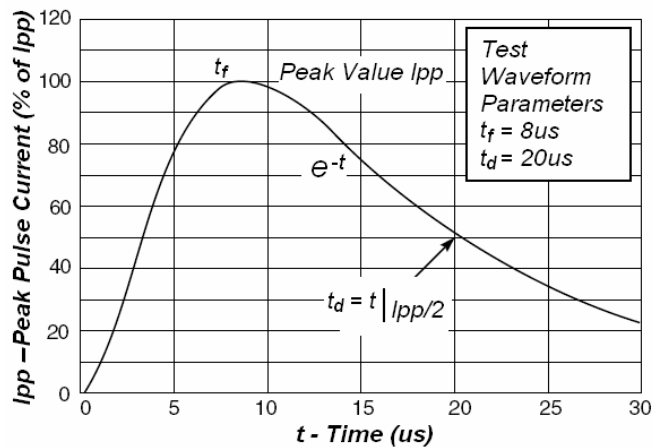


### Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified. VF = 0.9V at IF = 10mA

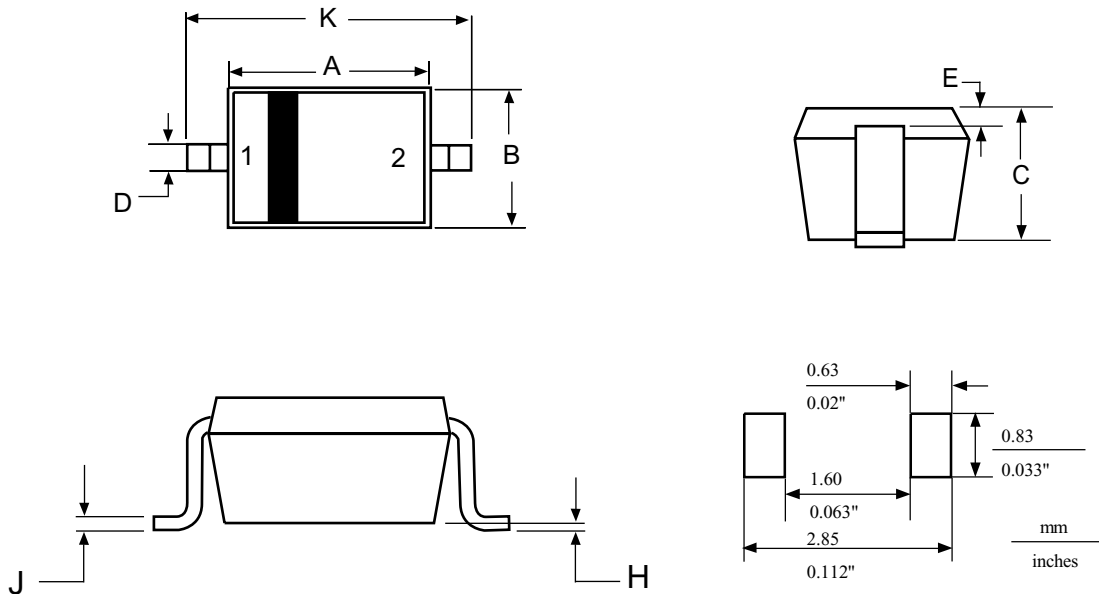
Device	Device Marking	$V_{RWM}$ (V)	$I_R$ (uA) @ $V_{RWM}$	$V_{BR}$ (V) @ $I_T$ (Note 1)	$I_T$	$V_C$ (V) @ $I_{PP}=1A^*$	$V_C$ (V) @ Max $I_{PP}^*$	$I_{PP}$ (A)*	$P_{PK}$ (W)*	$C$ (pF)
		Max	Max	Min	mA	Typ	Max	Max	Max	Typ
KNESD56241D22	HC	24	1.0	26.7	1.0	43	56	3.0	168	1.5

- $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of 25°C.



**Fig1. Pulse Waveform**

**SOD-323**



**NOTES:**

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
<b>A</b>	1.60	1.80	0.063	0.071
<b>B</b>	1.15	1.35	0.045	0.053
<b>C</b>	0.80	1.00	0.031	0.039
<b>D</b>	0.25	0.40	0.010	0.016
<b>E</b>	0.15 REF		0.006 REF	
<b>H</b>	0.00	0.10	0.000	0.004
<b>J</b>	0.089	0.177	0.0035	0.0070
<b>K</b>	2.30	2.70	0.091	0.106

PIN: 1. CATHODE  
2. ANODE