

## Micro Packaged TVS Diodes for ESD Protection

The CMTLSD523Z Series is designed to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD. Because of its small size, it is suited for use in cellular phones, MP3 players, digital cameras and many other portable applications where board space comes at a premium.

This series has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

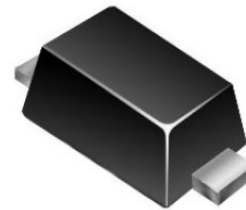
### ◆ FEATURES

- 1、 Peak Power Dissipation – 150 W (8 x 20 us Waveform)
- 2、 Replacement for MLV (0603)
- 3、 Protects power & I/O Port
- 4、 Low Clamping Voltage
- 5、 Low Leakage
- 6、 Response Time is < 1 ns
- 7、 Available in Multiple Voltages Ranging From 2.5V to 24V
- 8、 Device Meets MSL 1 Requirements
- 9、 Low Body Height: 1.68mg
- 10、 Solid-state silicon avalanche technology
- 11、 ROHS compliant

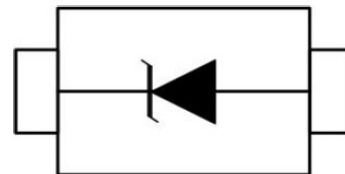
### ◆ Applications

- 1、 Cellular handsets and accessories
- 2、 Portable instrumentation
- 3、 Peripherals
- 4、 Serial and Parallel Ports
- 5、 Notebooks, Desktops, Servers
- 6、 Projection TV

### ◆ SOD-523



### ◆ Pin Configuration



### ◆ IEC COMPATIBILITY

- 1、 IEC61000-4-2 (ESD)  $\pm 15\text{kV}$  (air),  
 $\pm 8\text{kV}$  (contact)
- 2、 IEC61000-4-4 (EFT) 40A (5/50ns)

### ◆ MECHANICAL CHARACTERISTICS

- 1、 JEDEC SOD-523 Package
- 2、 Molding Compound Flammability  
Rating : UL 94V-O
- 3、 Weight 2.0 Milligrams (Approximate)
- 4、 Quantity Per Reel : 3,000pcs
- 5、 Reel Size : 7 inch
- 6、 Lead Finish : Lead Free

◆ **MAXIMUM RATINGS (@ 25°C Unless Otherwise Specified)**

Symbol	Parameter	Value	Units
P <sub>PPP</sub>	Peak Pulse Power (tp=8/20µs waveform)	150	Watts
	ESD Rating per IEC61000-4-2: Contact	± 30	KV
	Air	± 30	
T <sub>L</sub>	Lead Soldering Temperature	260 (10 sec.)	°C
T <sub>J</sub>	Operating Temperature Range	-55 ~ 150	°C
T <sub>STG</sub>	Storage Temperature Range	-55 ~ 150	°C

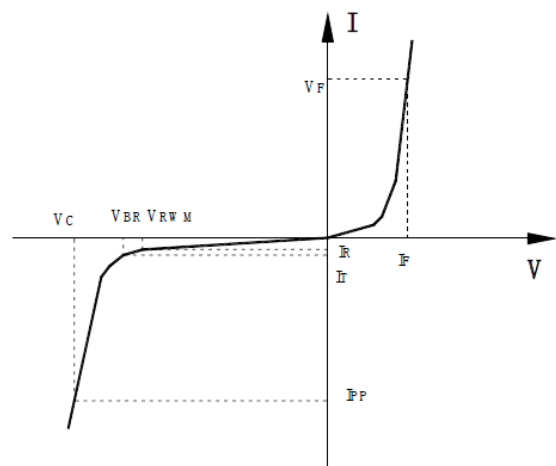
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

◆ **ELECTRICAL CHARACTERISTICS PER LINE (@ 25°C Unless Otherwise Specified)**

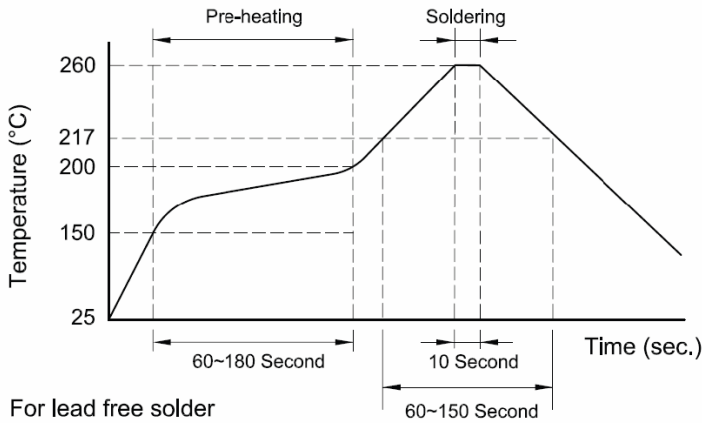
PART NUMBER	V <sub>RWM</sub>	IR	V <sub>B</sub>	IT	V <sub>C</sub>	P <sub>PK</sub>	C <sub>J</sub>
	(V)	@V <sub>RWM</sub> (µA)	(V) Min	(mA)	@5A (V)	(W) (max.)	(pF) (Max.)
CMTLSD523ZV2.5	2.5	6.00	5.0	1	8.5	120	145
CMTLSD523ZV3.3	3.3	0.90	5.0	1	9.4	158	105
CMTLSD523ZV5.0	5.0	0.08	6.2	1	11.6	174	80
CMTLSD523ZV6.0	6.0	0.05	6.2	1	12.4	180	70
CMTLSD523ZV7.0	7.0	0.03	7.5	1	13.5	200	65
CMTLSD523ZV13	13.0	0.03	14.1	1	20.0	145	45
CMTLSD523ZV15	15.0	0.50	16.0	1	23.0	120	28
CMTLSD523ZV24	24.0	5.00	26.0	1	35.0	120	35

Note: Junction capacitance is measured in VR=0V, F=1MHz.

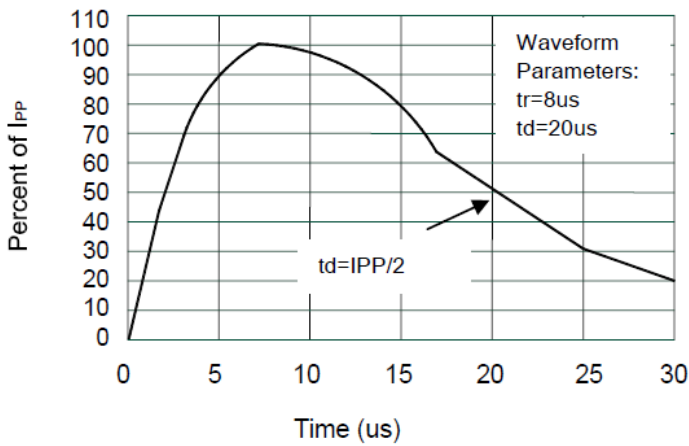
Symbol	Parameter
V <sub>RWM</sub>	Nominal Reverse Working Voltage
V <sub>BR</sub>	Breakdown Voltage @ I <sub>T</sub>
V <sub>C</sub>	Clamping Voltage @ I <sub>PP</sub>
I <sub>T</sub>	Test Current
I <sub>RM</sub>	Leakage current at VRWM
I <sub>PP</sub>	Peak pulse current
C <sub>O</sub>	Off-state Capacitance
C <sub>J</sub>	Junction Capacitance



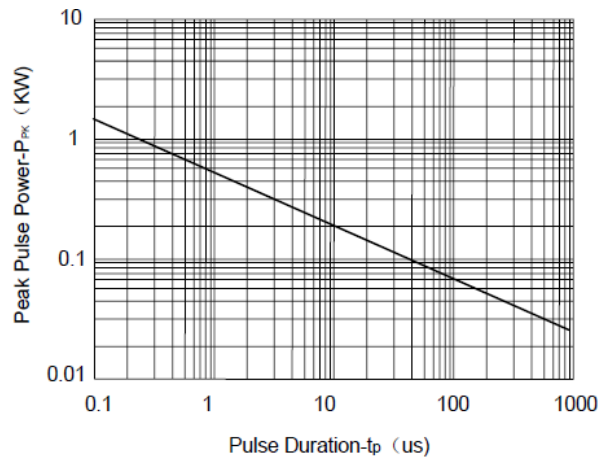
◆ Recommended Soldering conditions



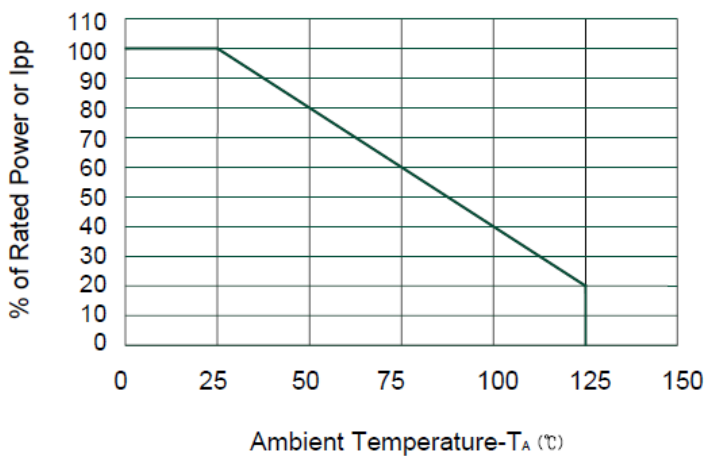
◆ TYPICAL ELECTRICAL CHARACTERISTICS CURVE



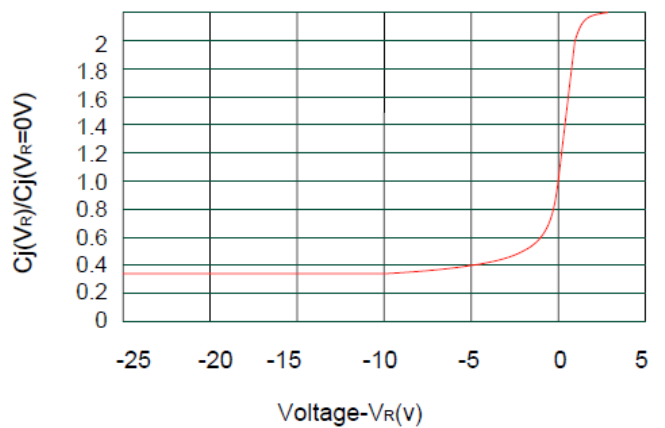
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

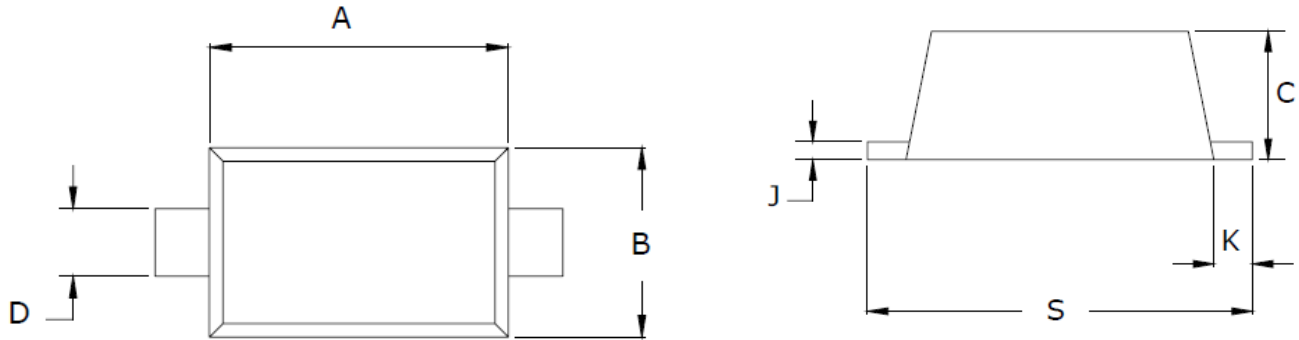


Power Derating Curve



Junction Capacitance vs. Reverse Voltage

**SOD-523**



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.10	1.30	0.043	0.051
B	0.70	0.90	0.045	0.053
C	0.50	0.70	0.031	0.043
D	0.25	0.35	0.004	0.012
J	0.07	0.20	0.0028	0.0079
K	0.15	0.25	0.006	0.010
S	1.50	1.70	0.059	0.067

◆ **Recommended Pad outline**

