

单通道ESD保护二极管阵列

UM50125 SOD523

UM50129 DFN2 1.0×0.6

描述

UM50125/UM50129 ESD 保护二极管设计用于取代便携式仪器、笔记本电脑、数字功率计、数码相机和通讯系统等应用中的 MLV。与 MLV 相比，该器件内置可传导高瞬态电流的大截面积结，具有板级保护的完美电气特性，包括快速响应时间、较低的工作电压、较低的钳位电压和无器件劣化。UM50125/UM50129 ESD 保护二极管可保护敏感半导体元件免受静电放电 (ESD) 和其他瞬态电压事件造成的损坏或破坏。UM50125 采用 SOD523 封装，而 UM50129 采用 DFN2 1.0×0.6（与 SOD923&SOD882 兼容）封装，工作电压为 12 V。在阵列不实用的应用中，设计人员可灵活地使用该器件保护一条单向线路。此外，在电路板空间有限的应用中，该器件可采用分散布置的布局方案。UM50125/UM50129 可满足 IEC 61000-4-2 标准的静电抗扰度要求：±30kV 空气间隙放电和 ±30kV 接触放电。

应用

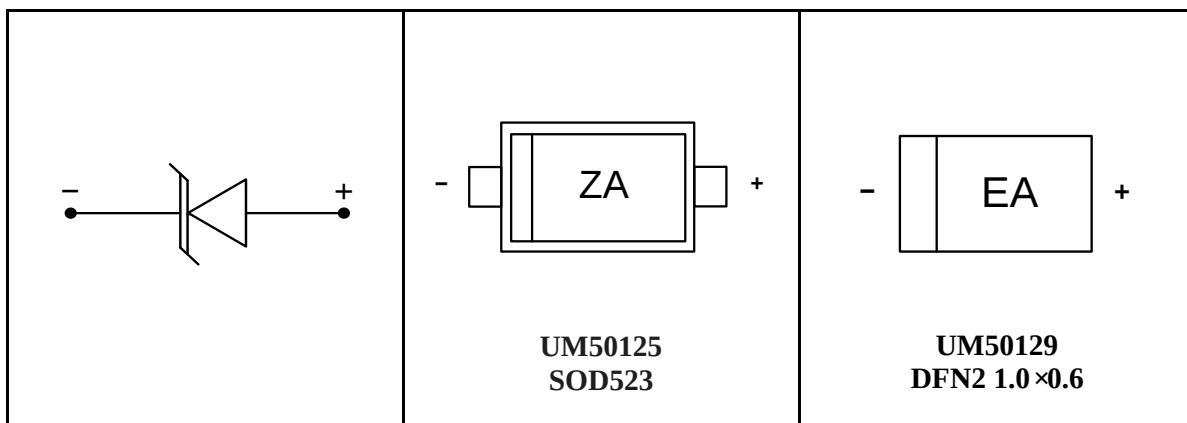
- 手机听筒和配件
- 笔记本电脑、台式机和服务器
- 便携式设备和配件
- 数字功率仪器
- 数码相机
- 通信系统

特性

- 数据线瞬态保护，符合IEC 61000-4-2标准：±30kV（空气间隙放电）±30kV（接触放电）
- 用于便携式电子设备的小型封装
- ESD保护应用中MLV的合适替代品
- 保护一条I/O或电源线路
- 低钳位电压
- 反向工作电压：12V
- 低漏电流
- 固态硅雪崩技术

引脚配置

顶部视图



Ordering Information

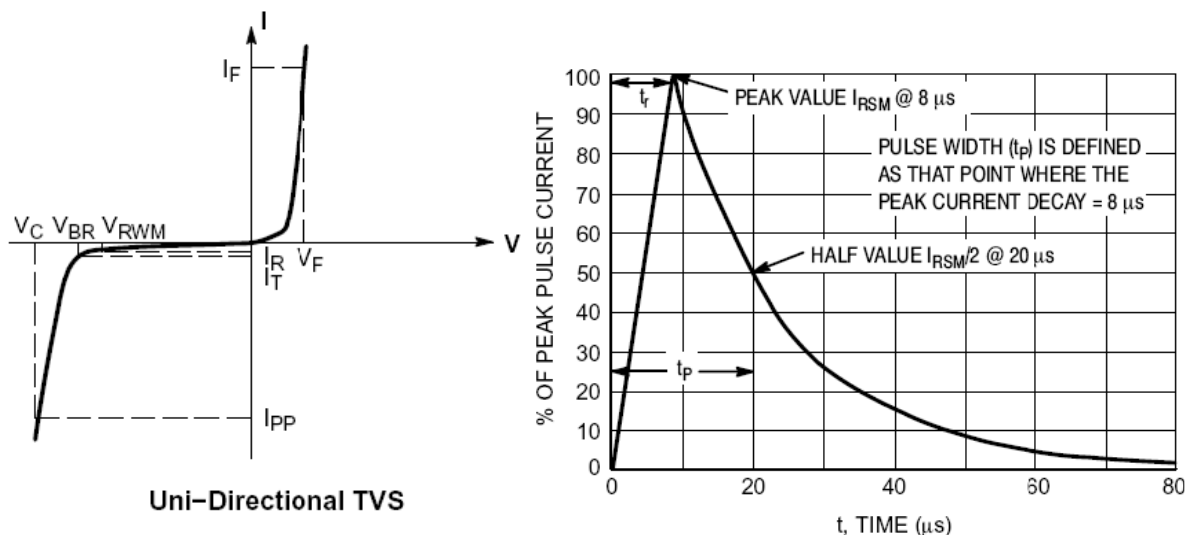
Part Number	Working Voltage	Packaging Type	Channel	Marking Code	Shipping Qty
UM50125	12.0V	SOD523	1	ZA	3000pcs/7 Inch Tape & Reel
UM50129	12.0V	DFN2 1.0×0.6	1	EA	5000pcs/7 Inch Tape & Reel

Absolute Maximum Ratings

Rating	Symbol	Value	Unit
Peak Pulse Power ($t_p=8/20\mu s$)	P_{PK}	140	Watts
Maximum Peak Pulse Current ($t_p=8/20\mu s$)	I_{PP}	5.9	Amps
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_J	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

Symbol Definition

Parameter	Symbol
Maximum Reverse Peak Pulse Current	I_{PP}
Clamping Voltage @ I_{PP}	V_C
Working Peak Reverse Voltage	V_{RWM}
Maximum Reverse Leakage Current @ V_{RWM}	I_R
Breakdown Voltage @ I_T	V_{BR}
Test Current	I_T
Forward Current	I_F
Forward Voltage @ I_F	V_F
Peak Power Dissipation	P_{PK}
Max. Capacitance @ $V_R=0V$, $f=1MHz$	C



Electrical Characteristics

(T=25 °C, Device for 12.0V Reverse Stand-Off Voltage)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_T=1mA$	16		18	V
Reverse Leakage Current	I_R	$V_{RWM}=12V$, $T=25\text{ °C}$			0.5	μA
Clamping Voltage	V_C	$I_{PP}=5.9A$, $t_p=8/20\mu s$			23	V
Junction Capacitance	C_J	$V_R=0V$, $f=1MHz$		20	30	pF

Applications Information**Device Connection Options**

UM50125/50129 ESD protection diode is designed to protect one data, I/O, or power supply line. The device is unidirectional and may be used on lines where the signal polarity is above ground. The cathode dot should be placed towards the line that is to be protected.

Circuit Board Layout Recommendations for Suppression of ESD

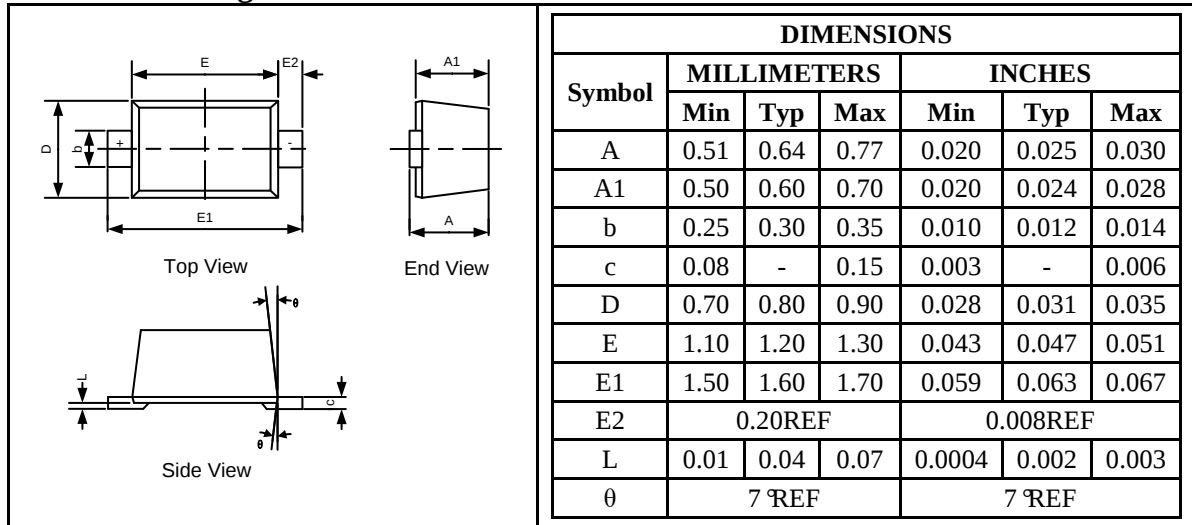
Good circuit board layout is critical for the suppression of ESD induced transients. The following guidelines are recommended:

1. Place the TVS near the input terminals or connectors to restrict transient coupling.
2. Minimize the path length between the TVS and the protected line.
3. Minimize all conductive loops including power and ground loops.
4. The ESD transient return path to ground should be kept as short as possible.
5. Never run critical signals near board edges.
6. Use ground planes whenever possible. For multilayer printed-circuit boards, use ground vias.
7. Keep parallel signal paths to a minimum.
8. Avoid running protection conductors in parallel with unprotected conductor.
9. Minimize all printed-circuit board conductive loops including power and ground loops.
10. Avoid using shared transient return paths to a common ground point.

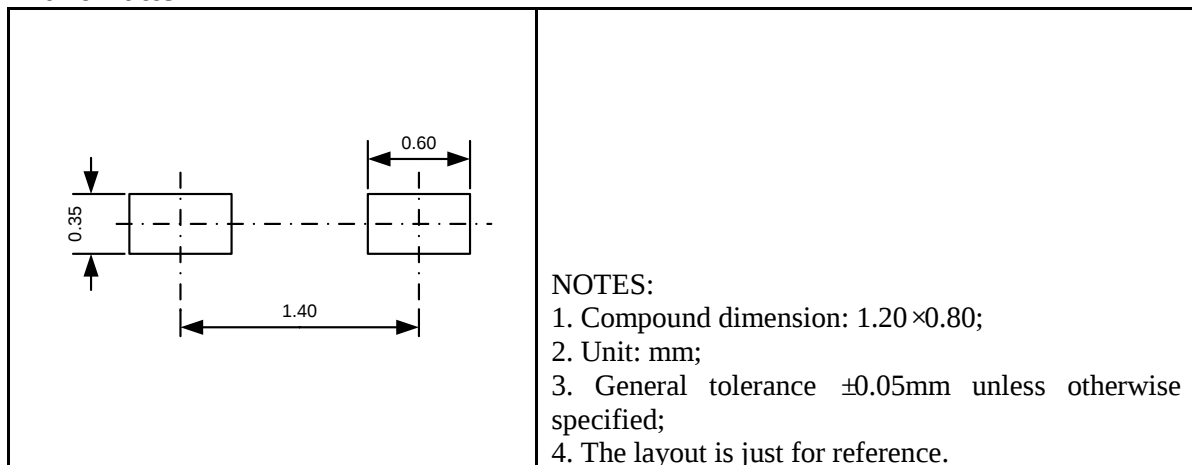
Package Information

UM50125 SOD523

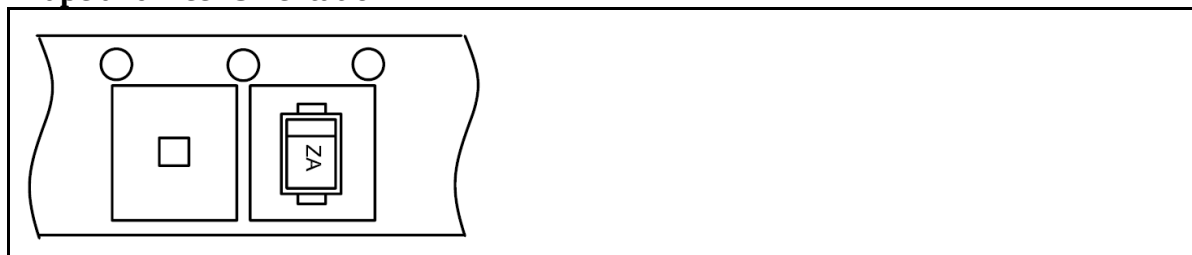
Outline Drawing



Land Pattern

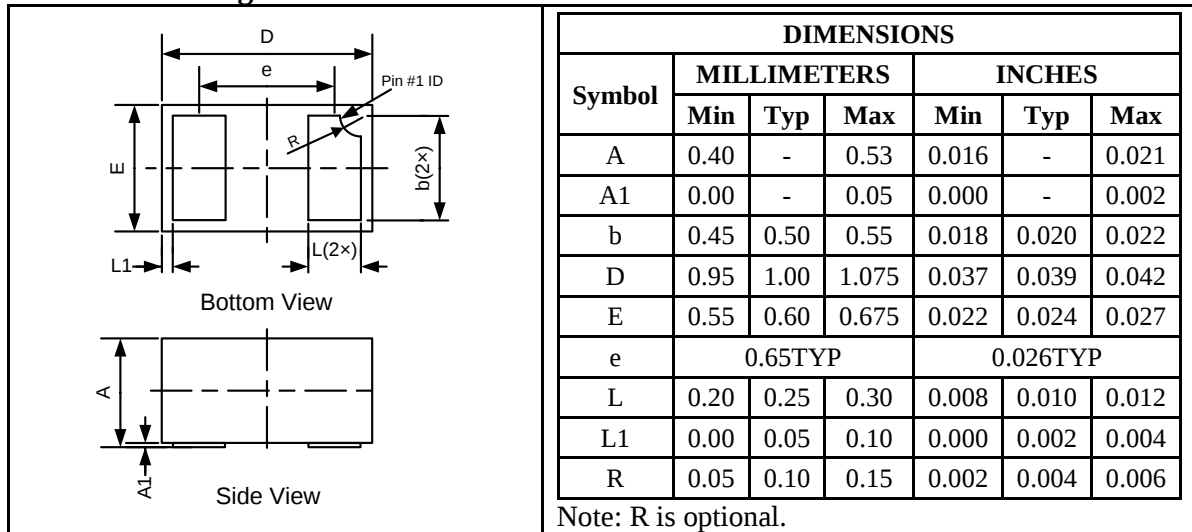


Tape and Reel Orientation

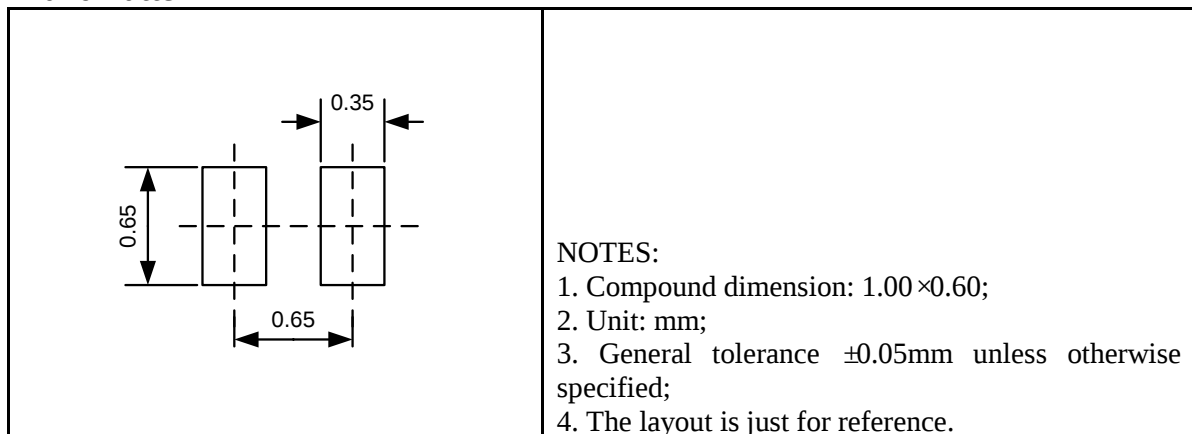


UM50129 DFN2 1.0×0.6

Outline Drawing



Land Pattern



Tape and Reel Orientation



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