ESDLIN1524BJ

SOD-323 LIN-BUS ESD Protection Diode
SOD-323 LIN 总线 ESD 保护二极管

1. Description 描述

This device is an asymmetrical diode designed specifically for one automotive LIN bus line against electrostatic discharge (ESD) protection.

This diode provide high overvoltage protection by clamping action and have instantaneous response to transient overvoltages.

该器件是一款非对称二极管，专门为汽车 LIN 总线线路提供 ESD 保护。

这款二极管通过钳位作用提供高过压保护，能对瞬态过压做出瞬时响应。

2. Features 特性

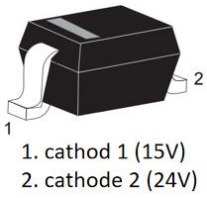
Feature 特性	Description 描述
Peak Pulse Power Dissipation 峰值脉冲耗散功率	$P_{pk} = 160W$ (8/20μs pulse)
Stand-off Voltage 截止电压	• -15V (to comply with reverse battery) -15V（兼容反向电池场景） • +24V (to comply with jump start) +24V（兼容应急启动场景）
Ultra low leakage current 超低漏电流	$I_R < 50nA$ @ V_{RWM}
Applications 应用	• USB 2.0 power and data line USB2.0 电源线与数据线 • Set-top box and digital TV 机顶盒与数字电视 • LINE BUS protection LIN 总线保护
Environmental Compliance 环保合规	Totally Lead-Free & Fully RoHS Compliant. 完全无铅和符合 RoHS 标准[1] Halogen and Antimony Free, "Green" Device. 无卤素和无锑，“绿色”器件[2]
Automotive Compliance 汽车合规	AEC-Q101 qualified. 通过了 AEC-Q101 认证。

[1] No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
无铅，完全符合欧盟标准 2002/95/EC（RoHS），2011/65/EU （RoHS 2）和 2015/863/EU （RoHS 3）。

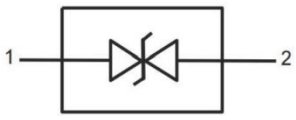
[2] Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
无卤素和无锑的“绿色”产品指溴含量<900ppm，氯含量<900ppm（溴+氯总含量<1500ppm）和锑化合物含量<1000ppm。

3. Mechanical Data 封装数据

Feature 特性	Description 描述
Package 封装	SOD-323
Moisture Sensitivity Level 湿敏感度等级	J-STD-020 MSL1
Material 材料	Molded Plastic, “Green” Molding Compound; UL Flammability Classification Rating 94V-0. 模塑塑料封装，“绿色”成型复合材料；UL 可燃性等级 94V-0。
Dimensions 尺寸	$1.7mm \times 1.25mm \times 0.95mm$ body 封装本体（不含引脚）尺寸为 $1.7mm \times 1.25mm \times 0.95mm$
Terminals Compliance 引脚合规	2 terminals, Tin Plated Leads, Solderable per MILSTD-202, Method 208 e3 2 个镀锡引脚，可焊性符合 MIL-STD-202 标准中 208 方法 e3 条款的要求
Weight 重量	0.005 grams (Approximate) 约 0.005 克
Polarity 极性	Asymmetrical bidirectional device, see Diagrams Below 非对称双向器件，极性见下图



SOD-323 Top View



Device Symbol

4. Ordering Information 订购信息

The marking can be rotated by multiples of 90° to differentiate assembly location.
可通过将器件丝印方向旋转 90° 的整数倍（90°、180° 或 270°）来区分不同的装配位置。

Part Number	Compliance	Package	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
ESDLIN1524BJ	Automotive	SOD-323	7	8	3000

5. Marking Information 丝印信息

Part Number	Marking Code
ESDLIN1524BJ	24

6. Absolute Maximum Ratings(T_a =+ 25℃) 绝对最大额定值

Characteristic 特性	Symbol 符号	Value 值	Unit 单位
Peak Pulse Power Dissipation (8/20μs pulse) 峰值脉冲耗散功率 (8/20μs脉冲)	P_{pk}	160	W

7. Thermal Characteristics(T_a =+ 25℃) 热特性

Characteristic 特性	Symbol 符号	Value 值	Unit 单位
Operating Junction Temperature 运行结温	T_J	-55 ~ +125	℃
Storage Temperature 储藏温度	T_{stg}	-55 ~ +150	℃

8. ESD Ratings(T_a =+ 25℃) ESD 评级

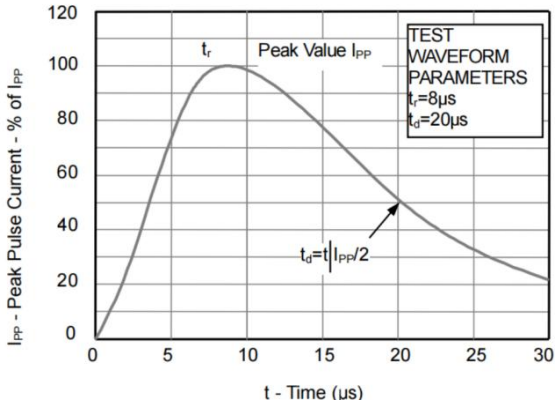
Characteristic 特性	Symbol 符号	Standard 标准	Value 值	Unit 单位
Air Discharge 空气放电	V_{ESD}	IEC 61000-4-2	±25	KV
Contact Discharge 接触放电	V_{ESD}	IEC 61000-4-2	±23	KV

9. Electrical Characteristics(T_a =+ 25℃) 电特性

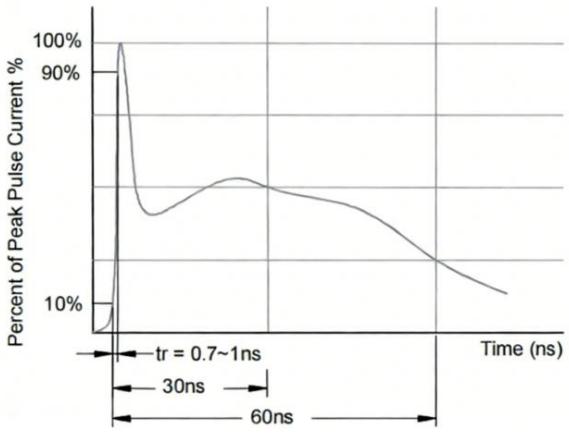
Characteristic 特性	Symbol 符号	Min. 最小值	Typ. 典型值	Max. 最大值	Unit 单位	Conditions 条件	
Reverse Working Voltage 反向工作电压	V_{RWM}	-	-	15	V	Pin1 to Pin2	
		-	-	24		Pin2 to Pin1	
Breakdown Voltage 击穿电压	V_{BR}	17.1	18.9	20.3	V	Pin1 to Pin2	$I_R = 5mA,$ $t_P < 50ms$
		25.4	27.8	30.3		Pin2 to Pin1	
Reverse Leakage Current 反向漏电流	I_R	-	-	0.05	μA	$V_{RWM} = 15V$ $V_{RWM} = 24V$	
Clamping Voltage 钳位电压 PESD1LIN($15V$)	V_{CL}	-	-	25	V	$I_{PP} = 1A$ [3]	8/20μs pulse
		-	-	44		$I_{PP} = 5A$ [3]	
Clamping Voltage 钳位电压 PESD1LIN($24V$)	V_{CL}	-	-	40		$I_{PP} = 1A$ [3]	
		-	-	70		$I_{PP} = 3A$ [3]	
Junction Capacitance 结电容	C_J	-	13	-	pF	$V_R = 0$, $f = 1MHz$	

[3] I_{PP}: Peak pulse current. 峰值脉冲电流。

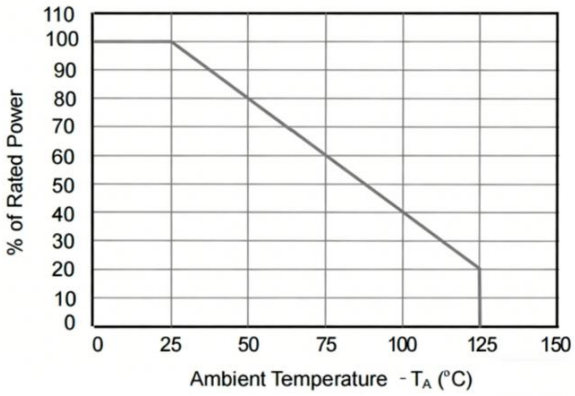
10. Typical Electrical Characteristics Curve 典型电特性曲线



$8/20\mu s$ Pulse Waveform



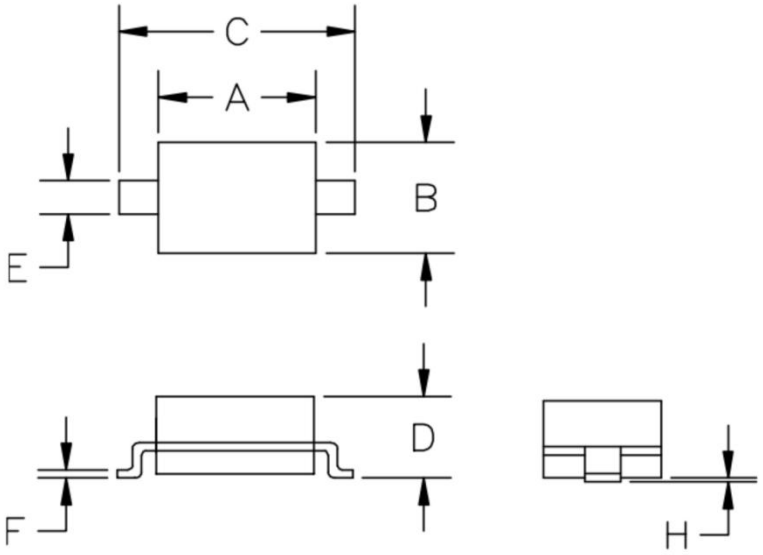
ESD Pulse Waveform (according to IEC 61000-4-2)



Power Derating Curve

11. Package Outline Dimensions 封装外形尺寸

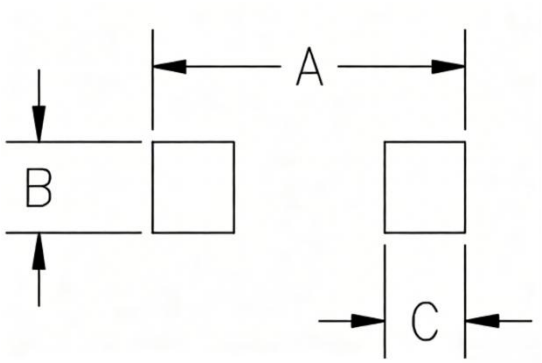
SOD-323



Symbol 符号	Millimeters 毫米	
	Min.最小值	Max.最大值
A	1.500	1.800
B	1.200	1.400
C	2.300	2.700
D	-	1.100
E	0.300	0.400
F	0.100	0.250
H	0	0.100

12. Suggested Pad Layout 推荐焊盘布局

SOD-323



Dimensions 尺寸	Millimeters 毫米
A	3.15
B	0.80
C	0.80

Fig. Soldering footprint for SOD-323

图 SOD-323 的引脚焊接

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