SMF5V0A

SOD-123FL Transient Voltage Suppressors Diode
SOD-123FL 瞬态电压抑制二极管

1. Description 描述

The TVS diode encapsulated in a small SOD-123FL Surface-Mounted Device (SMD) plastic package.

这种 TVS 瞬态电压抑制二极管采用小型 SOD-123FL 表面贴装（SMD）塑料封装。

2. Features 特性

Feature 特性	Description 描述
Peak Pulse Power Dissipation 峰值脉冲耗散功率	$P_{pk} = 200W$
Low Leakage Current 低漏电流	$I_R < 200\mu A$
ESD 静电放电	ESD 30KV Air, 30KV contact 静电释放电压：30KV 空气放电与 30KV 接触放电
Applications 应用	• Personal digital assistants 个人数码助手 • Handhelds and notebooks 手持式笔记本 • Portable devices 桌面设备 • Digital cameras 数码相机
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	Qualified according to AEC-Q101 and recommended for use in automotive applications. 通过了 AEC-Q101 认证，推荐用于汽车电子应用场景。

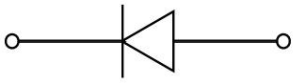
[1] No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
无铅，完全符合欧盟标准 2002/95/EC（RoHS），2011/65/EU （RoHS 2）和 2015/863/EU （RoHS 3）。

[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-123FL
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 易燃等级 94V-0。
Dimensions 尺寸	$3mm \times 1.9mm \times 1mm$ body 封装本体（不含引脚）尺寸为 $3mm \times 1.9mm \times 1mm$
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	0.0169 grams (Approximate) 约 0.0169 克
Polarity 极性	See Diagrams Below 具体极性见下图

SOD-123FL Top View



Device Symbol

4. Ordering Information 订购信息

Part Number	Compliance	Package	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
SMF5V0A	Automotive	SOD-123FL	7	8	3000

5. Marking Information 丝印信息

Part Number	Marking Code
SMF5V0A	AE

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 峰值脉冲耗散功率	P_{pk}	200	W
Reverse Stand-off Work Voltage 反向工作电压	V_{RWM}	5	V
Peak Pulse Current 峰值脉冲电流	I_{PP}	21.7	A
Forward Voltage $I_F = 40A$ 正向电压	V_F	2.5	V

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

Characteristic 特性	Symbol 符号	Value 值	Unit 单位
Thermal Resistance From Junction To Ambient 结到环境的热阻	$R_{\theta JA}$	125	℃/W
Junction Temperature 结温	T_J	-55 ~ +150	℃
Storage Temperature 储藏温	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	±30	KV
Contact Discharge 接触放电	V_{ESD}	IEC 61000-4-2	±30	KV
Electrostatic Discharge-Human Body Model（ESD HBM） 人体放电模型	-	H3B	>8000	V

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
Breakdown Voltage 击穿电压	V_{BR}	6.4	-	7.1	V	$I_T = 10mA$
Reverse Leakage Current 反向漏电流	I_R	-	-	200	μA	$V_R = V_{RWM}$
Clamping Voltage 钳位电压	V_C	-	-	9.2	V	$I_{PP} = 21.7A$

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

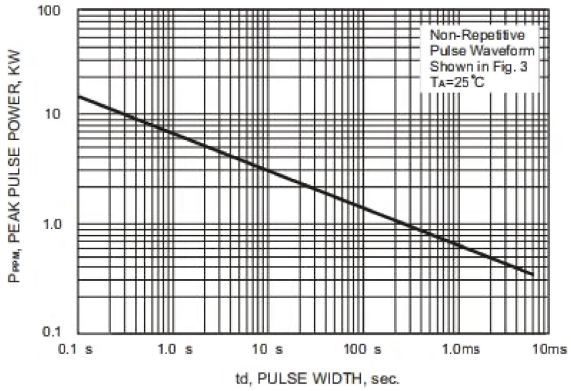


Figure1. Peak Pulse Power Derating Curve

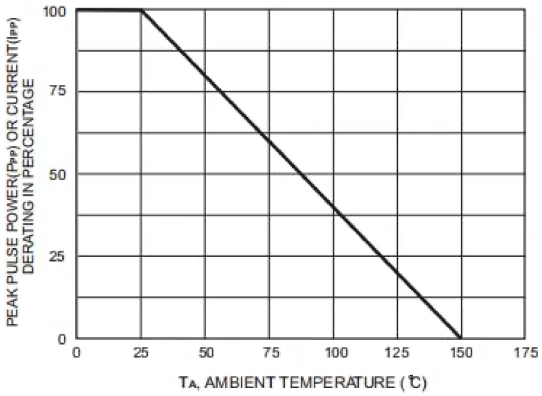


Figure2. Pulse Derating Curve

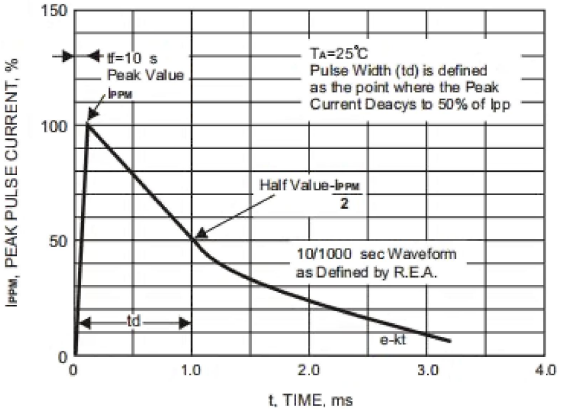


Figure3. Pulse Wave Form

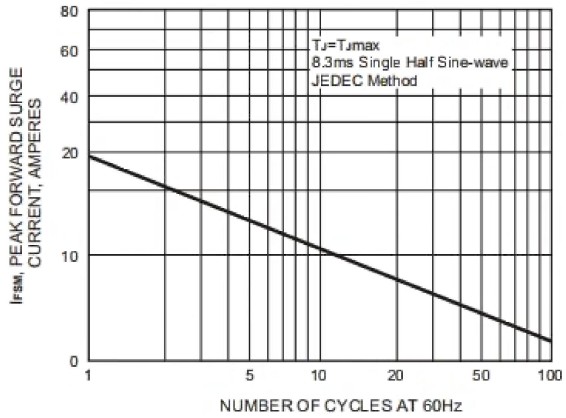
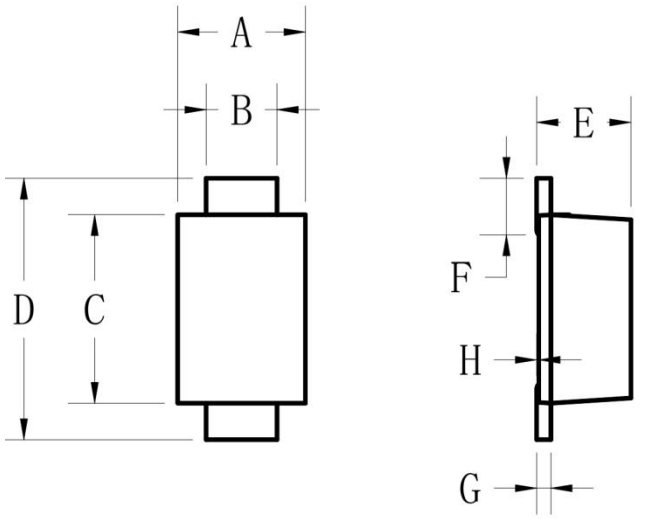


Figure4. Maximum Non-repetitive Peak Forward Surge Current

11. Package Outline Dimensions 封装外形尺寸

SOD-123FL



Symbol 符号	Millimeters 毫米	
	Min.最小值	Max.最大值
A	1.75	1.95
B	0.80	1.10
C	2.60	2.90
D	3.55	3.75
E	0.95	1.15
F	0.55	0.85
G	0.12	0.20
H	0.02	0.05

12. Suggested Pad Layout 推荐焊盘布局

SOD-123FL

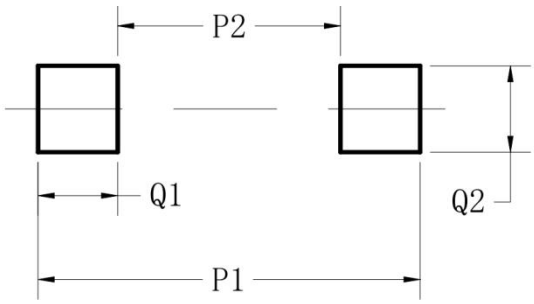


Fig. Soldering footprint for SOD-123FL

图 SOD-123FL 的引脚焊接

Dimensions 尺寸	Millimeters 毫米
P1	3.90
P2	1.90
Q1	1.00
Q2	1.50

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