1N4148WQ

SOD-123 Switching Diode
SOD-123 开关二极管

1. Description 描述

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

这种高速开关二极管采用小型 SOD-123 表面贴装（SMD）塑料封装。

2. Features 特性

Feature 特性	Description 描述
Low-Forward Voltage 低正向电压	$V_F < 0.715V@I_F = 1mA$
Reverse Recovery Time 反向恢复时间	$t_{rr} < 4ns$
Applications 应用	• Fast switching speed 高速开关 • For general-purpose switching applications 适用于通用开关应用
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）。

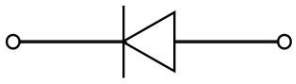
[2] Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

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-123
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	$2.675mm \times 1.6mm \times 1.15mm$ body 封装本体（不含引脚）尺寸为 $2.675mm \times 1.6mm \times 1.15mm$
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	0.01 grams (Approximate) 约 0.01 克
Polarity 极性	See Diagrams Below 具体极性见下图

SOD-123 Top View



Device Symbol

4. Ordering Information 订购信息

Part Number	Compliance	Package	Reel Size (inches)	Tape Width (mm)	Quantity Per Reel
1N4148WQ	Automotive	SOD-123	7	8	3000

5. Marking Information 丝印信息

Part Number	Marking Code
1N4148WQ	T4

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
Repetitive Peak Reverse Voltage 重复峰值反向电压	V_{RRM}	100	V
Reverse Work Voltage 反向工作电压	V_{RWM}	100	V
DC Reverse Voltage 直流反向电压	V_R	100	V
RMS Reverse Voltage 反向电压均方根值	$V_{R(RMS)}$	71	V
Forward Work Current 正向工作电流	I_O	200	mA
Forward Continuous Current 正向连续电流	I_F	300	mA
Non-Repetitive Peak Forward Surge Current $@t_p = 1\mu s$ 不重复峰值浪涌电流 $@t_p = 1s$	I_{FSM}	4 1	A

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

Characteristic 特性	Symbol 符号	Value 值	Unit 单位
Power Dissipation 耗散功率	P_D	400	mW
Thermal Resistance From Junction To Ambient 结到环境的热阻	$R_{\theta JA}$	357	℃/W
Junction Temperature 结温	T_J	-65 ~ +150	℃
Storage Temperature 储藏温	T_{stg}	-65 ~ +150	℃

8. 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 Breakdown Voltage 反向击穿电压	$V_{(BR)R}$	100	-	-	V	$I_R = 1\mu A$
Reverse Leakage Current 反向漏电流	I_R	-	-	25	nA	$V_R = 20V$
		-	-	1	μA	$V_R = 75V$
Forward Voltage 正向电压	V_F	-	-	0.715	V	$I_F = 1mA$
		-	-	0.855	V	$I_F = 10mA$
		-	-	1	V	$I_F = 50mA$
		-	-	1.25	V	$I_F = 150mA$
Diode Capacitance 二极管电容	C_D	-	-	2	pF	$V_R = 0,\ f = 1MHz$
Reverse Recovery Time 反向恢复时间	t_{rr}	-	-	4	ns	$I_F = I_R = 10mA,$ $I_{rr} = 0.1 * I_R,$ $R_L = 100\Omega$

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

Fig.1 Power Derating Curve

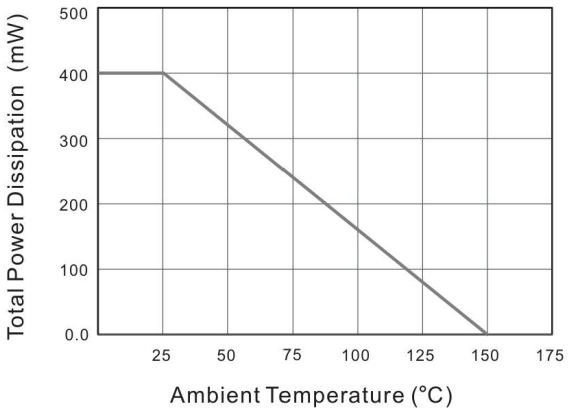


Fig.2 Typical Reverse Characteristics

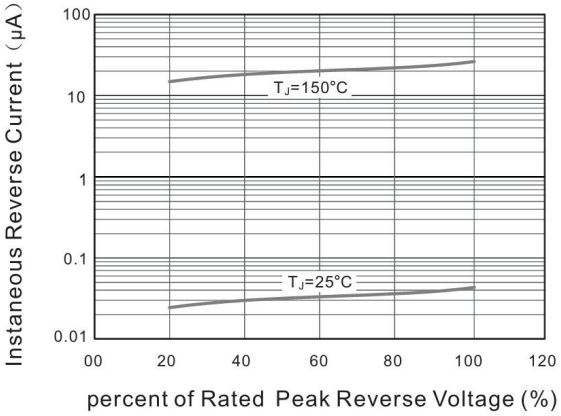


Fig.3 Typical Instaneous Forward Characteristics

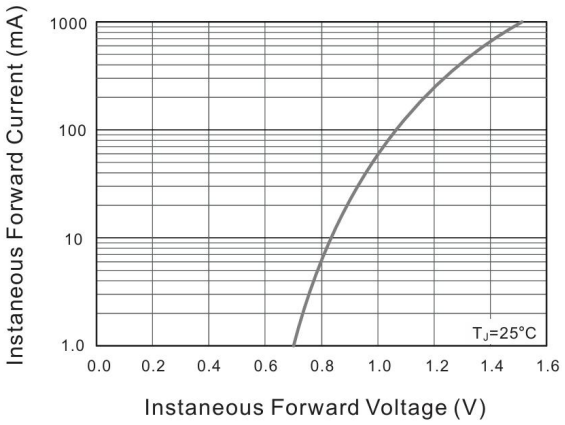
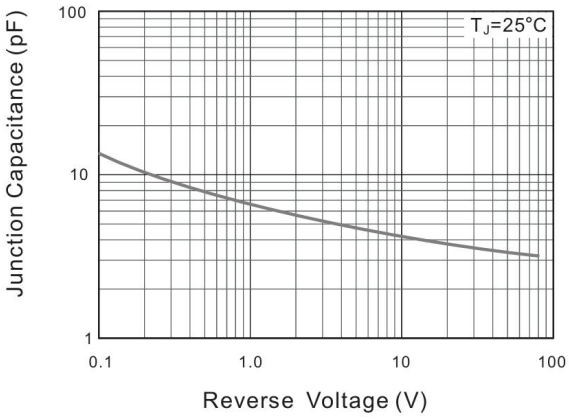
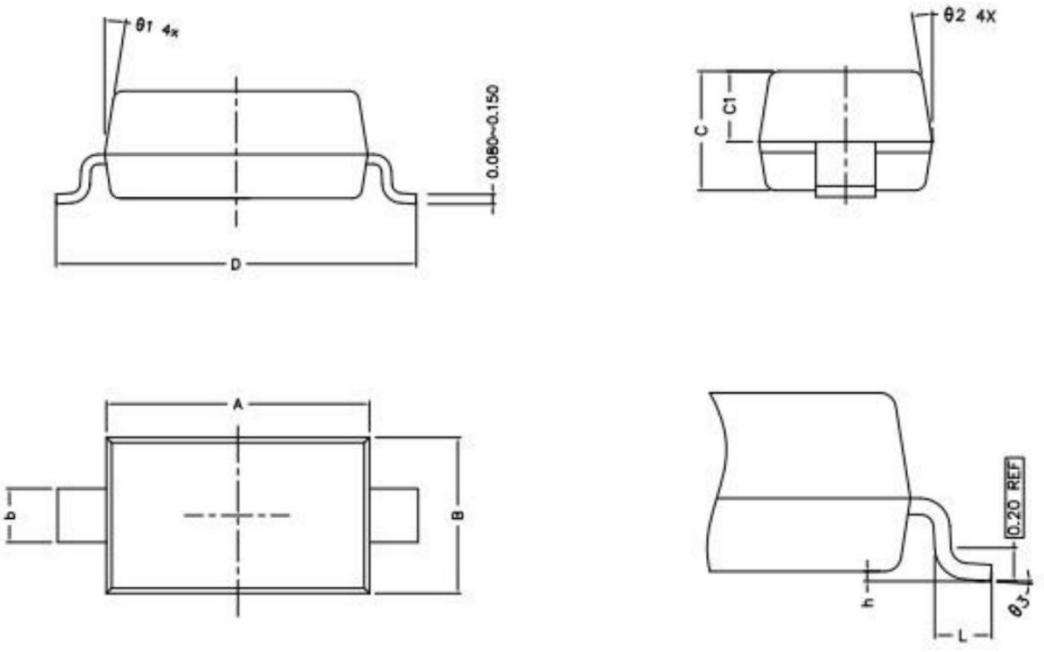


Fig.4 Typical Junction Capacitance



10. Package Outline Dimensions 封装外形尺寸

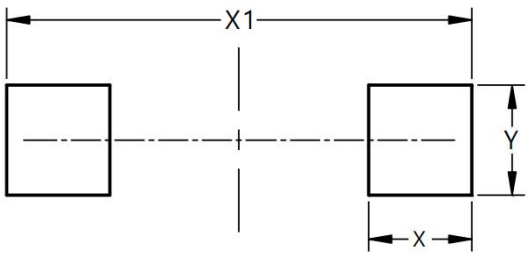
SOD-123



Symbol 符号	Millimeters 毫米	
	Min.最小值	Max.最大值
A	2.600	2.800
B	1.500	1.700
C	1.050	1.150
C1	0.600	0.700
D	3.550	3.850
L	0.250	0.450
b	0.450	0.650
h	0.020	0.120
$\theta 3$	0°	7°

11. Suggested Pad Layout 推荐焊盘布局

SOD-123



Dimensions 尺寸	Millimeters 毫米
X	0.90
X1	4.05
Y	0.95

Fig. Soldering footprint for SOD-123

图 SOD-123 的引脚焊接

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