Lead-free Green

SURFACE MOUNT LOW CURRENT ZENER DIODE

Features

- Specified at a Low Test Current (50µA), Ideal For Low Bias Portable Applications
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

- Case: SOD123
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminal Connections: Cathode Band
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 e3
- Weight: 0.01 grams (Approximate)

SOD123

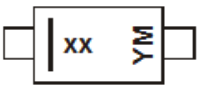
Top View

Ordering Information (Note 5)

Part Number	Compliance	Case	Packaging
DDZ9691Q -13	Automotive	SOD123	10,000/Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS) & 2011/65/EU (RoHS 2) compliant.
2. See http://www.diodes.com/quality/lead_free.html for more information about Diodes Incorporated's definitions of Halogen- and Antimony-free, "Green" and Lead-free.
3. Halogen- and Antimony-free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
4. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to http://www.diodes.com/quality/product_compliance_definitions/.
5. For packaging details, go to our website at http://www.diodes.com/products/packages.html.

Marking Information



xx = Product Type Marking Code -
(See Electrical Characteristics Table)
YM = Date Code Marking
Y = Year (ex: D = 2016)
M = Month (ex: 9 = September)

Date Code Key

Year	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Code	D	E	F	G	H	I	J	K	L	M	N	O	P

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Code	1	2	3	4	5	6	7	8	9	O	N	D

Maximum Ratings (@T_A = +25°C, unless otherwise specified.)

Characteristic	Symbol	Value	Unit
Forward Voltage @ I_F = 10mA	V_F	0.9	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 6)	P_D	500	mW
Power Dissipation (Note 7)	P_D	390	mW
Power Dissipation (Note 8)	P_D	290	mW
Thermal Resistance, Junction to Ambient Air (Note 7)	$R_{\theta JA}$	321	°C/W
Thermal Resistance, Junction to Ambient Air (Note 8)	$R_{\theta JA}$	431	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

Electrical Characteristics (@T_A = +25°C, unless otherwise specified.)

Type Number	Type Code	Zener Voltage Range (Note 9)				Maximum Reverse Leakage Current (Note 10)	
		V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R	
		Nom (V)	Min (V)	Max (V)	µA	µA	V
DDZ9691Q	HK	6.2	5.89	6.51	50	1	5

Notes:
6. For TL=+75°C.
7. Device mounted on Alumina ceramic PC board, single-sided, 12.5mm x 12.5mm x 1.0mm, 2oz copper traces, pad area 25mm^2
8. Device mounted on FR-4 PC board, single-sided, 25mm x 25mm x 1.6mm, 2oz copper trace, with 1x minimum recommended pad layout., which can be found on our website at http://www.diodes.com.
9. Nominal zener voltage is measured with the device junction in thermal equilibrium at T_T = +30°C ±1°C.
10. Short duration pulse test used to minimize self-heating effect.

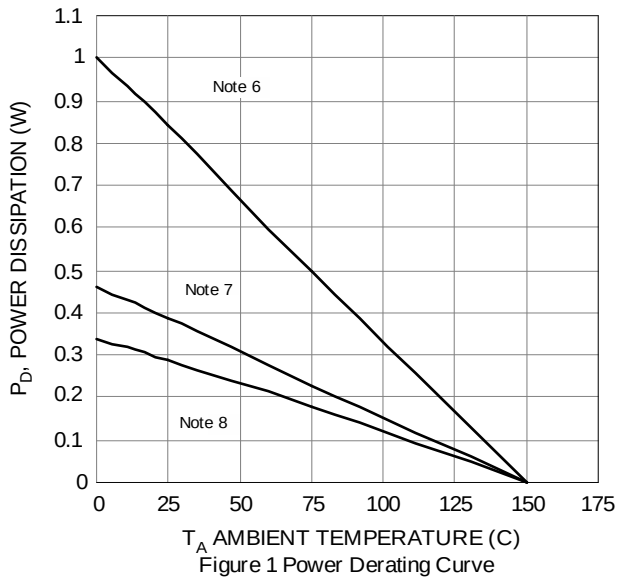


Figure 1 Power Derating Curve

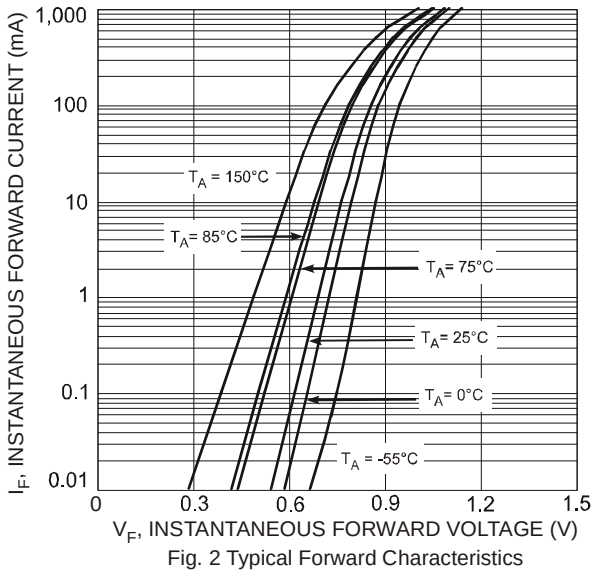


Fig. 2 Typical Forward Characteristics

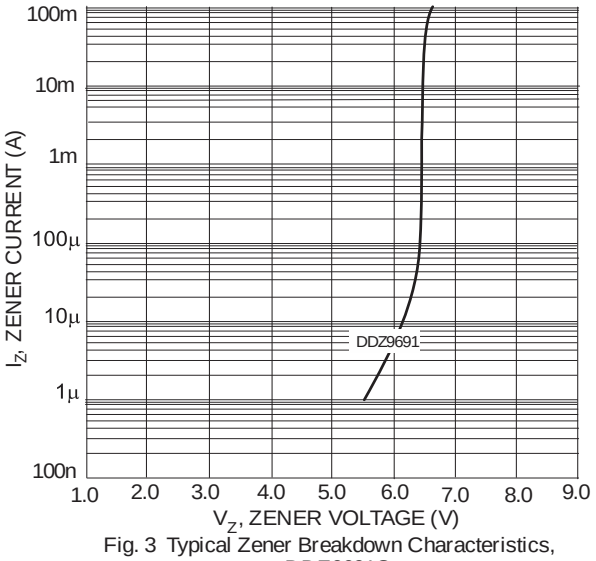
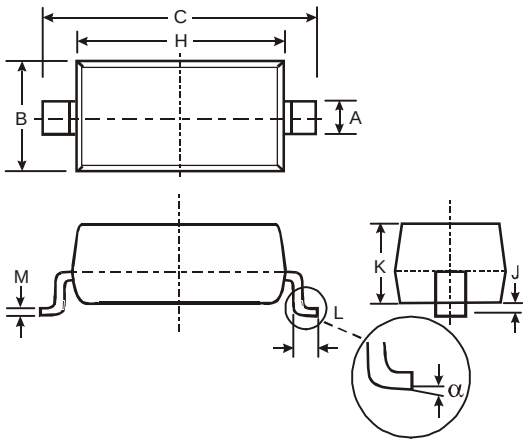


Fig. 3 Typical Zener Breakdown Characteristics, DDZ9691Q

Package Outline Dimensions

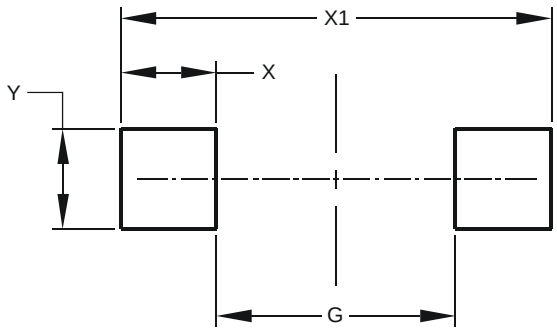
Please see http://www.diodes.com/package-outlines.html for the latest version.



SOD123		
Dim	**Min**	**Max**
A	0.55 Typ	
B	1.40	1.70
C	3.55	3.85
H	2.55	2.85
J	0.00	0.10
K	1.00	1.35
L	0.25	0.40
M	0.10	0.15
α	0	8°
All Dimensions in mm		

Suggested Pad Layout

Please see http://www.diodes.com/package-outlines.html for the latest version.



Dimensions	Value (in mm)
G	2.250
X	0.900
X1	4.050
Y	0.950

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