THE DATASHEET OF

C0603C302K5GACTU

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DDZX5V6AQ - DDZX12CQ

SURFACE-MOUNT PRECISION ZENER DIODE

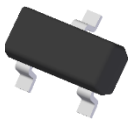
Features

- 300mW Power Dissipation on FR-4 PCB
- Very Tight Tolerance on V_Z
- Ideally Suited for Automated Assembly Processes
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **The DDZX5V6AQ - DDZX12CQ are suitable for automotive applications requiring specific change control; these parts are AEC-Q101 qualified, PPAP capable, and manufactured in IATF 16949 certified facilities.**
  https://www.diodes.com/quality/product-definitions/

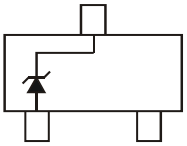
Mechanical Data

- Package: SOT23
- Package Material: Molded Plastic, "Green" Molding Compound. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Terminals: Finish - Matte Tin Annealed over Alloy 42 Leadframe. Solderable per MIL-STD-202, Method 208 (e3)
- Polarity: See Diagram
- Weight: 0.008 grams (Approximate)

SOT23



Top View



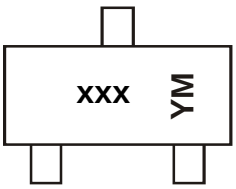
Device Schematic

Ordering Information (Note 4)

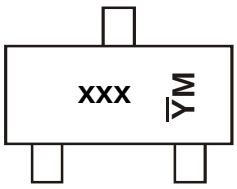
Part Number	Package	Packing	
		Qty.	Carrier
DDZX5V6AQ-7	SOT23	3000	Tape & Reel
DDZX12CQ-7	SOT23	3000	Tape & Reel

Notes:
1. No purposely added lead. Fully EU Directive 2002/95/EC (RoHS), 2011/65/EU (RoHS 2) & 2015/863/EU (RoHS 3) compliant.
2. See https://www.diodes.com/quality/lead-free/ 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. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



xxx = Product Type Marking Code
(See *Electrical Characteristics* Table)
YM = Date Code Marking for Shanghai Assembly/Test Site
Y = Year (ex: L = 2024)
M = Month (ex: 3 = March)



xxx = Product Type Marking Code
(See *Electrical Characteristics* Table)
$\overline{Y}$M = Date Code Marking for Chengdu Assembly/Test Site
$\overline{Y}$ = Year (ex: L = 2024)
M = Month (ex: 3 = March)

Date Code Key

Year	2020	-	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033
Code	H	-	L	M	N	P	R	S	T	U	V	W

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

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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 5)	P_D	300	mW
Thermal Resistance, Junction to Ambient Air (Note 5)	$R_{\Theta JA}$	417	°C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	°C

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

Part Number	Marking Code	Zener Voltage Range (Note 6)			Maximum Zener Impedance f = 1kHz				Maximum Reverse Current (Note 7)	
		V_Z @ I_{ZT}		I_{ZT}	I_{ZT}	Z_{ZT} @ I_{ZT}	Z_{ZK} @ I_{ZK}	I_{ZK}	I_R	@ V_R
		Min (V)	Max (V)	mA	mA	Ω		mA	µA	V
DDZX5V6AQ-7	KZ2	5.28	5.55	20	20	80	460	1	7.0	2.0
		5.15	5.45	5						
DDZX12CQ-7	KYV	11.74	12.35	10	10	12	110	0.5	0.1	9.1

Notes: 5. Device mounted on FR-4 PCB with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.
6. The zener voltage is measured < 40ms after power is supplied.
7. Short duration pulse test used to minimize self-heating effect.

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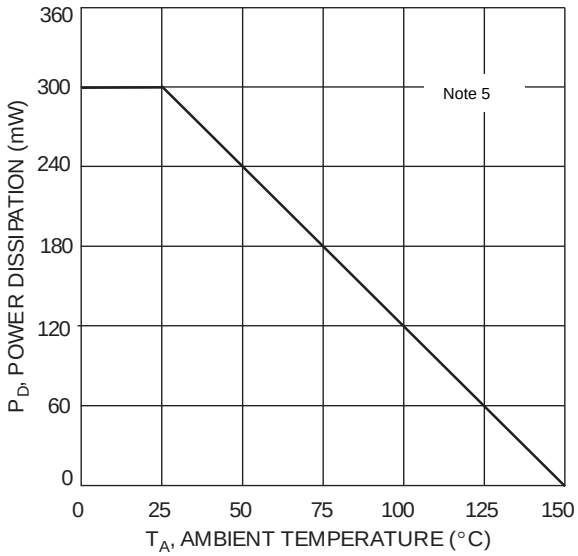

Fig. 1 Power Derating Curve

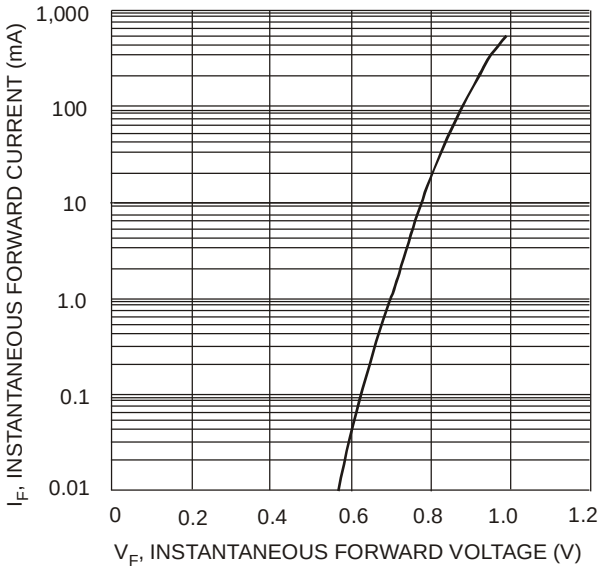

Fig. 2 Typical Forward Characteristics

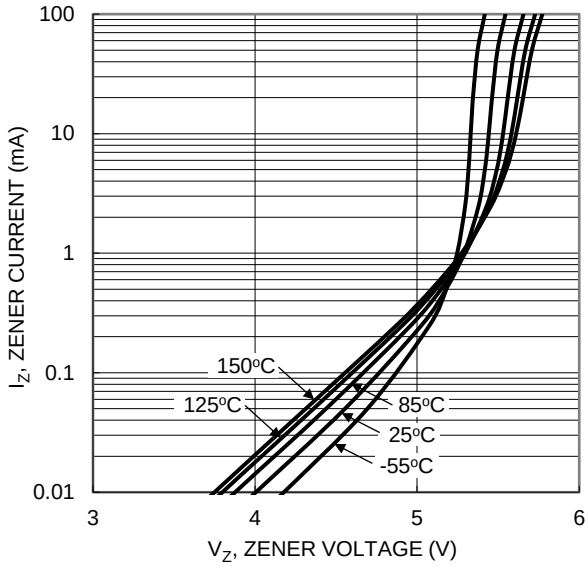

Fig. 3 Typical Reverse Characteristics
DDZX5V6AQ

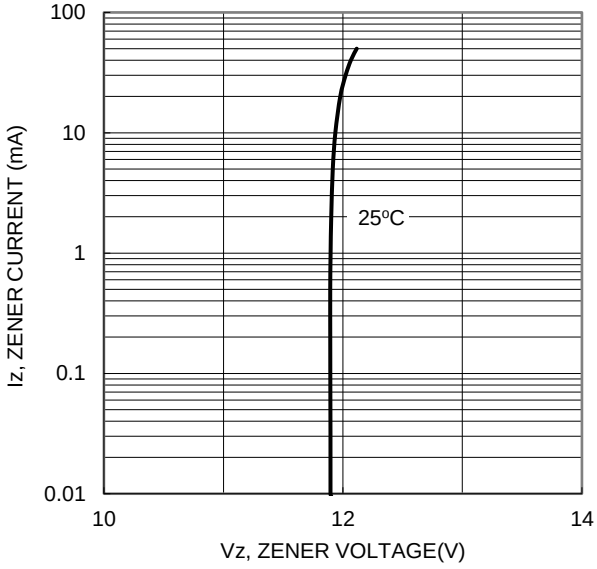

Fig. 4 Typical Reverse Characteristics
DDZX12CQ

Note: 5. Device mounted on FR-4 PCB with recommended pad layout, which can be found on our website at http://www.diodes.com/package-outlines.html.

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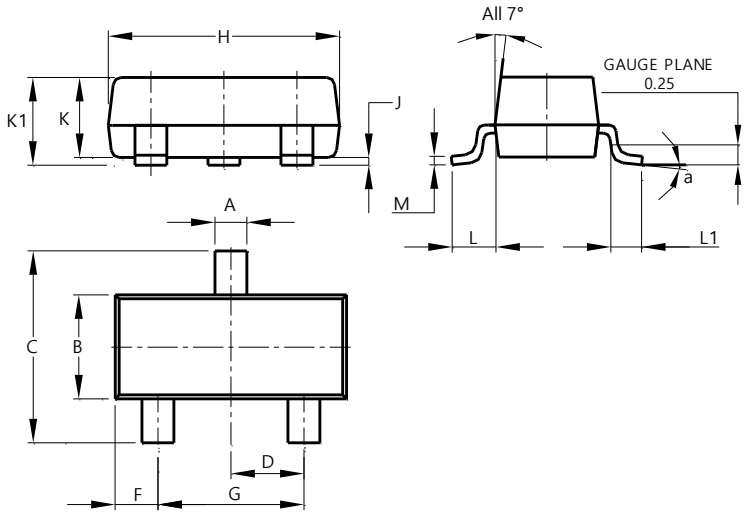
Package Outline Dimensions

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

SOT23

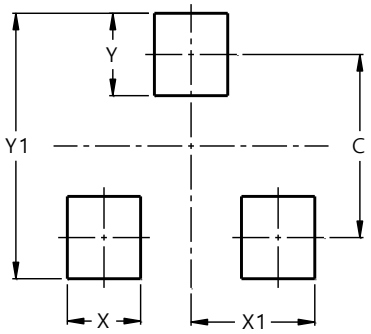


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Suggested Pad Layout

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

SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9

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