300mW DUAL SURFACE MOUNT ZENER DIODE

Features

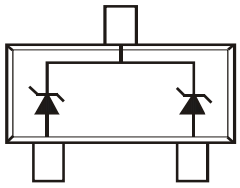
- Dual Zeners in Common Cathode Configuration
- 300mW Power Dissipation
- Ideally Suited for Automated Insertion
- ΔV_Z For Both Diodes in One Case is ≤ 5%
- Common Anode Style Available, See AZ Series
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Note 3)**
- **Qualified to AEC-Q101 Standards for High Reliability**
- **PPAP Capable (Note 4)**

Mechanical Data

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

SOT23

Top View



Device Schematic

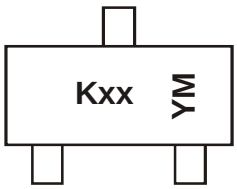
Ordering Information (Notes 5 and 6)

Part Number	Qualification	Packaging	Shipping
(Type Number)-7-F*	Commercial	SOT23	3000/Tape & Reel
(Type Number)Q-7-F*	Automotive	SOT23	3000/Tape & Reel

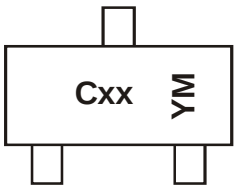
*Add "-7-F" to the appropriate type number in Electrical Characteristics Table on Page 2. Example: 6.2V Zener = DZ23C6V2-7-F.

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. Automotive products are AEC-Q101 qualified and are PPAP capable. Refer to https://www.diodes.com/quality/.
5. Product manufactured with Date Code OW (week 42, 2009) and newer are built with Green Molding Compound. Product manufactured prior to Date Code OW are built with Non-Green Molding Compound and may contain Halogens or Sb_2O_3 Fire Retardants.
6. For packaging details, go to our website at https://www.diodes.com/design/support/packaging/diodes-packaging/.

Marking Information



K = SAT (Shanghai Assembly / Test Site)
xx = Product Type Marking Code
See Electrical Characteristics Table
YM = Date Code Marking
Y = Year (ex: G = 2019)
M = Month (ex: 9 = September)



C = CAT (Chengdu Assembly / Test Site)
xx = Product Type Marking Code
See Electrical Characteristics Table
YM = Date Code Marking
Y = Year (ex: G = 2019)
M = Month (ex: 9 = September)

Date Code Key

Year	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Code	A	B	C	D	E	F	G	H	I	J	K

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

Thermal Characteristics

Characteristic		Symbol	Value	Unit
Power Dissipation	(Note 7)	P_D	300	mW
Thermal Resistance, Junction to Ambient Air	(Note 7)	$R_{\theta JA}$	417	°C/W
Operating and Storage Temperature Range		T_J, T_{STG}	-65 to +150	°C

Note: 7. Mounted on FR4 PC Board with recommended pad layout which can be found on our website at http://www.diodes.com.

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

Type Number	Marking Code	Zener Voltage Range (Note 8)	Maximum Zener Impedance f = 1kHz		Typical Temperature Coefficient	Minimum Reverse Voltage (Note 8)
		@ I_{ZT} = 5.0mA	Z_{ZT} @ I_{ZT} = 5.0mA	Z_{ZK} @ I_{ZK} = 1.0mA		@ I_R = 0.1µA
		V_Z (V)	Ω	Ω	TC (%/°C)	V_R (V)
DZ23C2V7	V1	2.5 to 2.9	83	500	-0.065	—
DZ23C3V0	V2	2.8 to 3.2	95	500	-0.060	—
DZ23C3V3	V3	3.1 to 3.5	95	500	-0.055	—
DZ23C3V6	V4	3.4 to 3.8	95	500	-0.055	—
DZ23C3V9	V5	3.7 to 4.1	95	500	-0.050	—
DZ23C4V3	V6	4.0 to 4.6	95	500	-0.035	—
DZ23C4V7	V7	4.4 to 5.0	78	500	-0.015	—
DZ23C5V1	V8	4.8 to 5.4	60	480	+0.005	0.8
DZ23C5V6	V9	5.2 to 6.0	40	400	+0.020	1.0
DZ23C6V2	VA	5.8 to 6.6	10	200	+0.030	2.0
DZ23C6V8	VB	6.4 to 7.2	8.0	150	+0.045	3.0
DZ23C7V5	VC	7.0 to 7.9	7.0	50	+0.050	5.0
DZ23C8V2	VD	7.7 to 8.7	7.0	50	+0.055	6.0
DZ23C9V1	VE	8.5 to 9.6	10	50	+0.065	7.0
DZ23C10	VF	9.4 to 10.6	15	70	+0.065	7.5
DZ23C11	VG	10.4 to 11.6	20	70	+0.070	8.5
DZ23C12	VH	11.4 to 12.7	20	90	+0.075	9.0
DZ23C13	VI	12.4 to 14.1	25	110	+0.080	10.0
DZ23C15	VJ	13.8 to 15.6	30	110	+0.080	11.0
DZ23C16	VK	15.3 to 17.1	40	170	+0.090	12.0
DZ23C18	VL	16.8 to 19.1	50	170	+0.090	14.0
DZ23C20	VM	18.8 to 21.2	50	220	+0.090	15.0
DZ23C22	VN	20.8 to 23.3	55	220	+0.090	17.0
DZ23C24	VO	22.8 to 25.6	80	220	+0.090	18.0
DZ23C27	VP	25.1 to 28.9	80	250	+0.090	20.0
DZ23C30	VQ	28 to 32	80	250	+0.090	22.5
DZ23C33	VR	31 to 35	80	250	+0.090	25.0
DZ23C36	VS	34 to 38	90	250	+0.090	27.0
DZ23C39	VT	37 to 41	90	300	+0.110	29.0
DZ23C43	VU	40 to 46	100	700	+0.110	32.0
DZ23C47	VV	44 to 50	100	750	+0.110	35.0
DZ23C51	VW	48 to 54	100	750	+0.110	38.0

Note: 8. Short duration pulse test used to minimize self-heating effect.

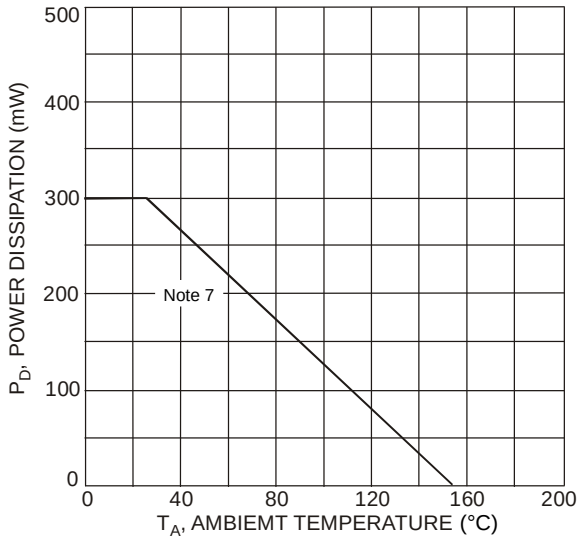


Fig. 1 Power Derating Curve

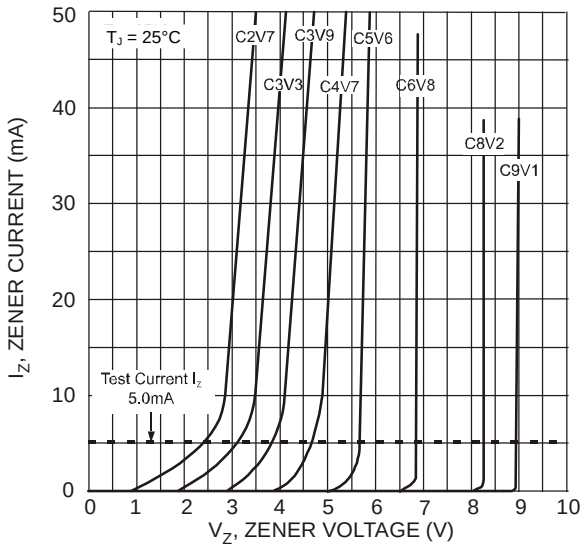


Fig. 2 Typical Zener Breakdown Characteristics

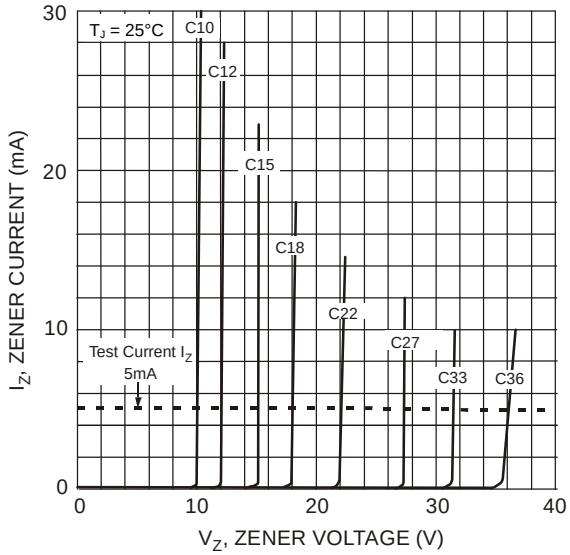


Fig. 3 Typical Zener Breakdown Characteristics

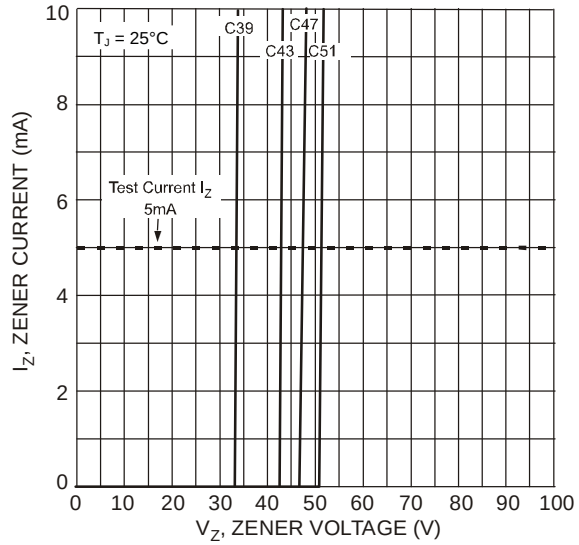


Fig. 4 Typical Zener Breakdown Characteristics

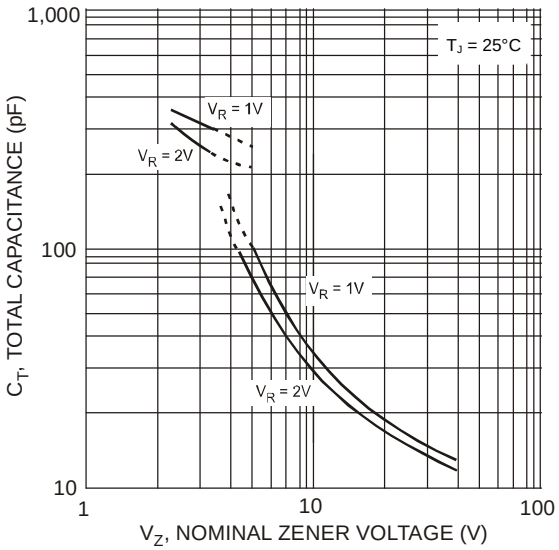
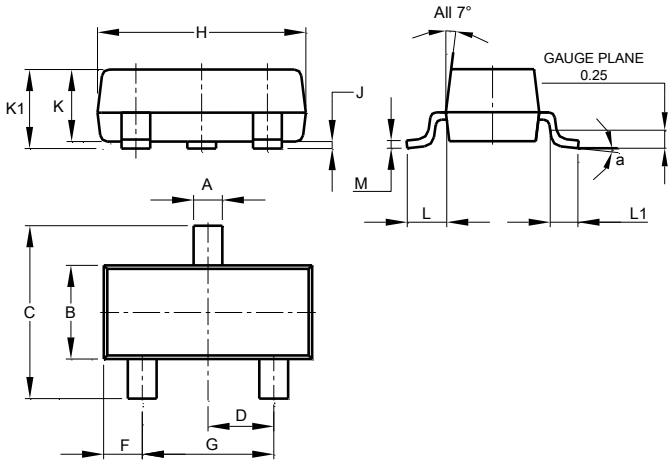


Fig. 5 Typical Total Capacitance vs. Nominal Zener Voltage

Package Outline Dimensions

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

SOT23

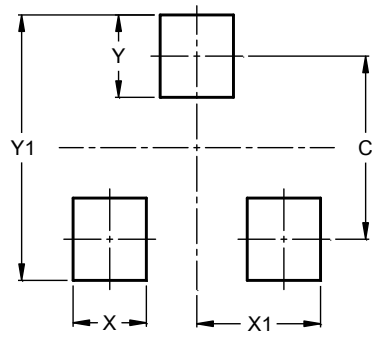


SOT23			
Dim	**Min**	**Max**	**Typ**
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

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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