

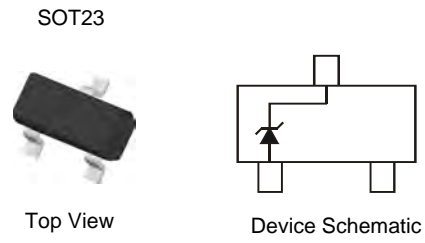
SURFACE MOUNT PRECISION ZENER DIODE

Features

- Very Sharp Breakdown Characteristics
- 300mW Power Dissipation on FR-4 PCB
- Very Tight Tolerance on V_z
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- **Totally Lead-Free & Fully RoHS Compliant (Notes 1 & 2)**
- **Halogen and Antimony Free. "Green" Device (Notes 3 & 4)**
- **Qualified to AEC-Q101 Standards for High Reliability**

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: Finish - Matte Tin annealed over Alloy 42 leadframe. Solderable per MIL-STD-202, Method 208
- Polarity: See Diagram
- Weight: 0.008 grams (approximate)

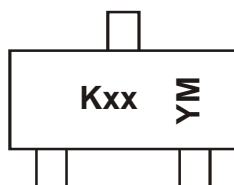


Ordering Information (Note 5)

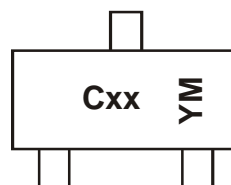
Part Number	Case	Packaging
(Type Number)-7 (Note 6)	SOT23	3,000/Tape & Reel
(Type Number)-13 (Note 7)	SOT23	10,000/Tape & Reel

- 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> 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. 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.
 5. For Packaging Details, go to our website at <http://www.diodes.com>.
 6. Add "-7" to the appropriate type number in Electrical Characteristics Table. Example: 6.2V Zener = DDZX6V2B-7.
 7. Add "-13" to the appropriate type number in Electrical Characteristics Table. Example: 10V Zener = DDZX10C-13. Please note: Not all voltages are available in 13" reel size. Please contact the Diodes Inc. Sales Department for assistance in ordering 13" reel size devices.

Marking Information



K = SAT (Shanghai Assembly / Test site)
 xx = Product Type Marking Code
 See Electrical Characteristics Table
 YM = Date Code Marking
 Y = Year (ex: Z = 2012)
 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: Z = 2012)
 M = Month (ex: 9 = September)

Date Code Key

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Code	T	U	V	W	X	Y	Z	A	B	C	D	E

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 @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Forward Voltage @ $I_F = 10\text{mA}$	V_F	0.9	V

Thermal Characteristics

Characteristic	Symbol	Value	Unit
Power Dissipation (Note 8)	P_D	300	mW
Thermal Resistance, Junction to Ambient Air (Note 8)	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

Notes: 8. Device mounted on FR-4 PCB with recommended pad layout, which can be found on our website at <http://www.diodes.com>.

Electrical Characteristics @ $T_A = 25^\circ\text{C}$ unless otherwise specified

Type Number	Marking Code	Zener Voltage Range (Notes 9 & 10)			Maximum Zener Impedance $f = 1\text{kHz}$			Maximum Reverse Current (Note 11)	
		$V_Z @ I_{ZT}$		I_{ZT}	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK}$	I_{ZK}	I_R	@ V_R
		Min (V)	Max (V)	mA	Ω	Ω	mA	μA	V
DDZX5V1B	KM	4.94	5.20	20	17	480	1	5	1.5
DDZX5V6B	KN	5.45	5.73	20	11	400	1	0.5	2.5
DDZX6V2B	KO	5.96	6.27	20	7	150	1	0.5	4.0
DDZX6V8C	YP	6.66	7.01	20	5	150	0.5	0.1	5.0
DDZX7V5C	YQ	7.29	7.67	20	6	120	0.5	0.1	6.0
DDZX8V2C	YR	8.03	8.45	20	8	120	0.5	0.1	6.5
DDZX9V1C	YS	8.83	9.30	20	8	120	0.5	0.1	7.0
DDZX10C	YT	9.70	10.20	20	8	120	0.5	0.1	8.0
DDZX11C	YU	10.82	11.38	10	10	120	0.5	0.1	8.4
DDZX12C	YV	11.74	12.35	10	12	110	0.5	0.1	9.1
DDZX13B	KW	12.55	13.21	10	14	110	0.5	0.1	10.0
DDZX14	GX	13.65	14.35	10	16	110	0.5	0.05	11.0
DDZX15	GY	14.80	15.57	10	18	150	0.5	0.05	12.0
DDZX16	YY	15.69	16.51	10	18	150	0.5	0.05	12.0
DDZX18C	YZ	17.42	18.33	10	23	150	0.5	0.05	14.0
DDZX20C	PJ	19.23	20.22	10	28	200	0.5	0.05	15.0
DDZX22D	2K	21.52	22.63	5	30	200	0.5	0.05	17.0
DDZX24C	PL	23.12	24.31	5	35	200	0.5	0.05	19.0
DDZX26	ZM	24.97	26.26	5	45	250	0.5	0.05	21.0
DDZX27D	2M	26.29	27.64	5	45	250	0.5	0.05	21.0
DDZX30D	2N	29.02	30.51	5	55	250	0.5	0.05	23.0
DDZX33	RP	32.14	33.79	5	75	250	0.5	0.05	27.0
DDZX36	ZQ	35.36	37.19	5	85	250	0.5	0.05	30.0
DDZX39F	5Q	38.02	39.98	5	85	250	0.5	0.05	30.0
DDZX43	ZR	42.14	43.86	5	90	—	—	0.05	33.0

Notes: 9. The Zener voltage is measured 40ms after power is supplied.
 10. For inquiries on tighter tolerances, or alternate nominal zener voltages, please contact your Diodes Inc. sales representative for availability and minimum order details.
 11. Short duration pulse test used to minimize self-heating effect.

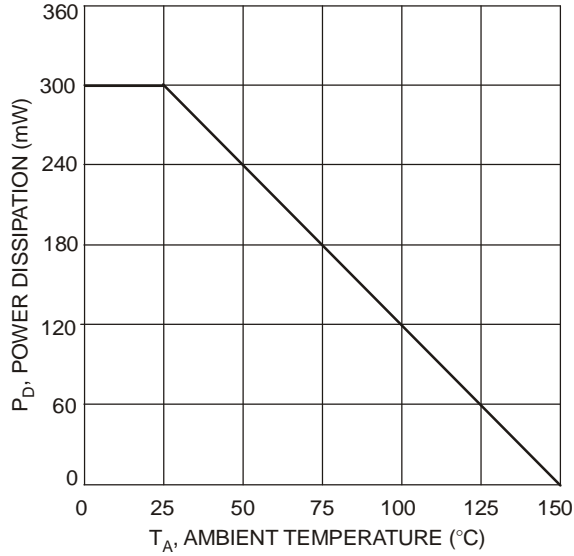


Fig. 1 Power Derating Curve

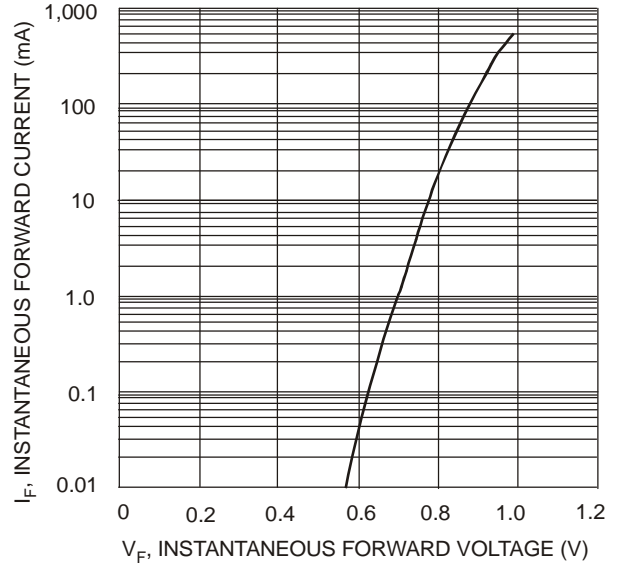


Fig. 2 Typical Forward Characteristics

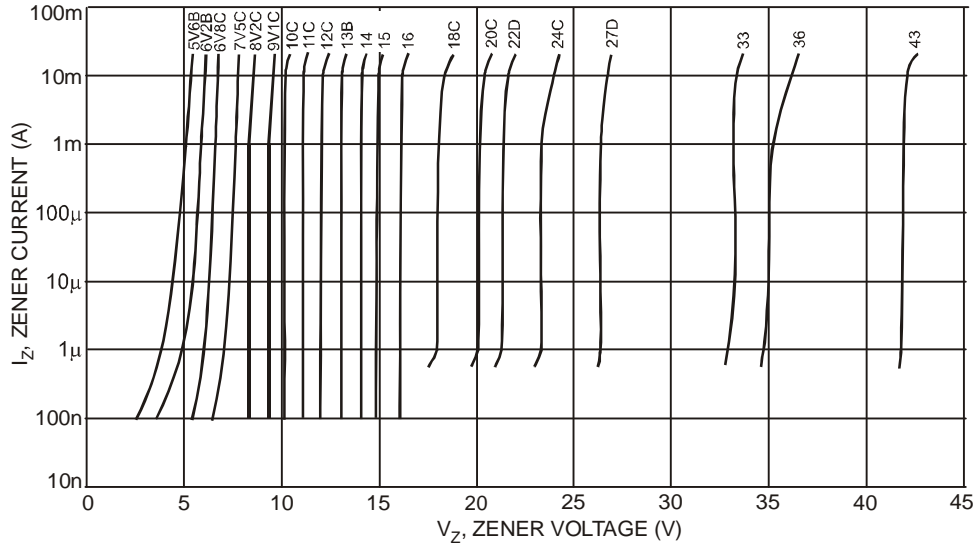


Fig. 3 Typical Zener Breakdown Characteristics

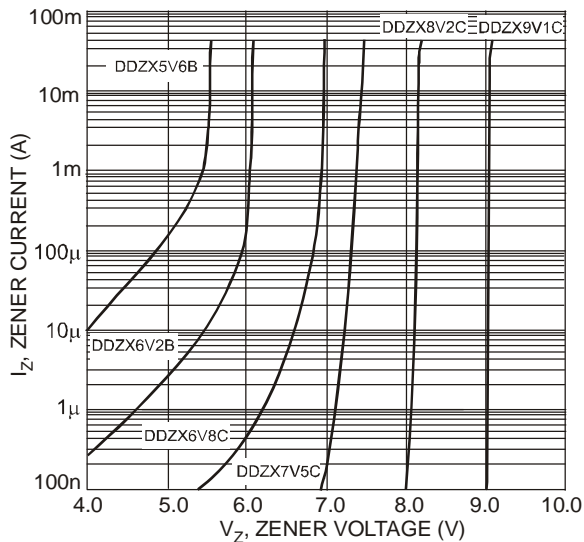


Fig. 4 Typical Zener Breakdown Characteristics
DDZX5V6B - DDZX9V1C

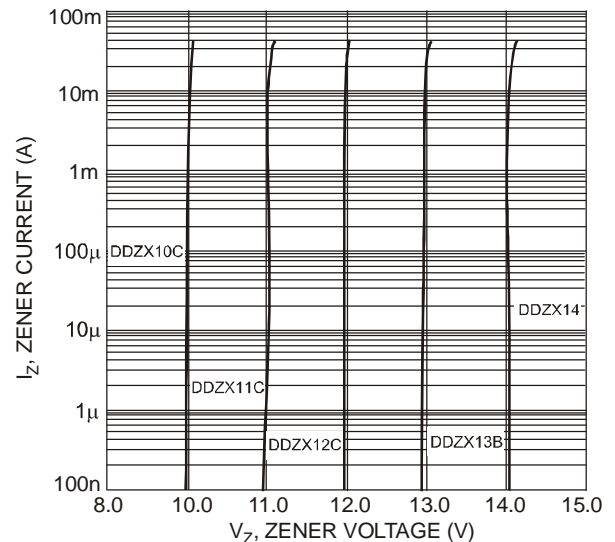


Fig. 5 Typical Zener Breakdown Characteristics
DDZX10C - DDZX14

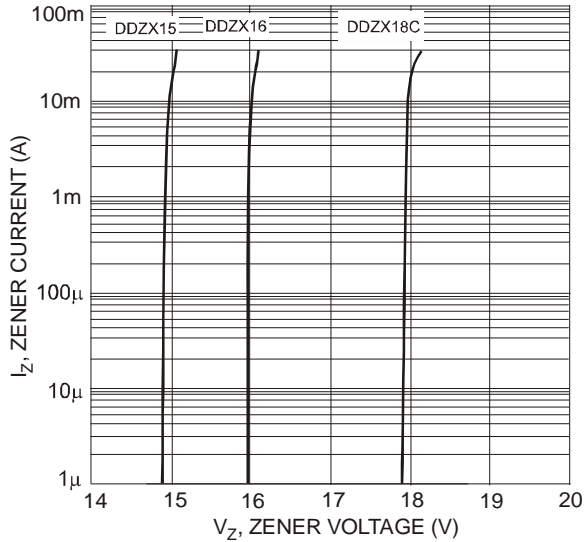


Fig. 6 Typical Zener Breakdown Characteristics DDZX15 - DDZX18C

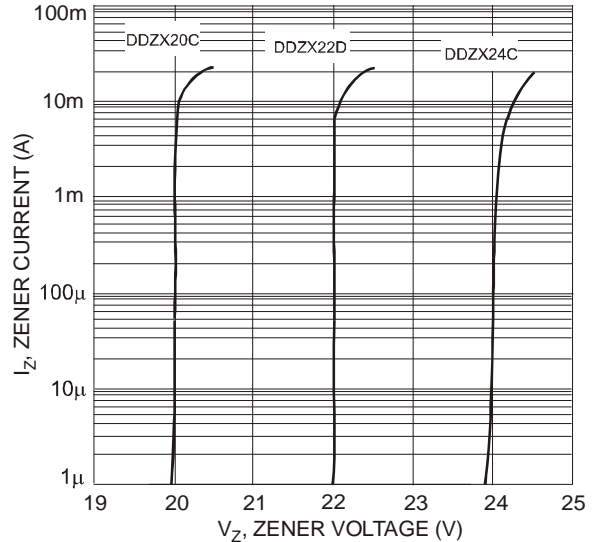


Fig. 7 Typical Zener Breakdown Characteristics DDZX20C - DDZX24C

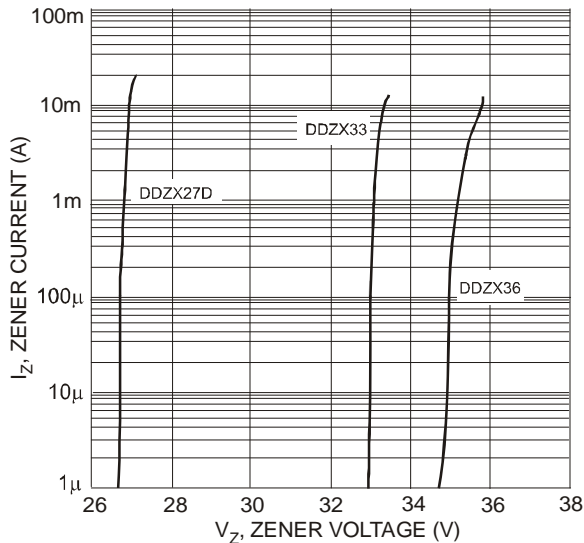


Fig. 8 Typical Zener Breakdown Characteristics DDZX27D - DDZX36

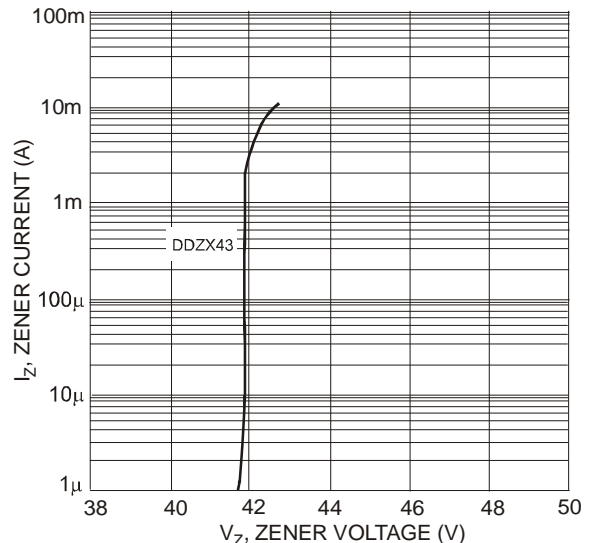


Fig. 9 Typical Zener Breakdown Characteristics, DDZX43

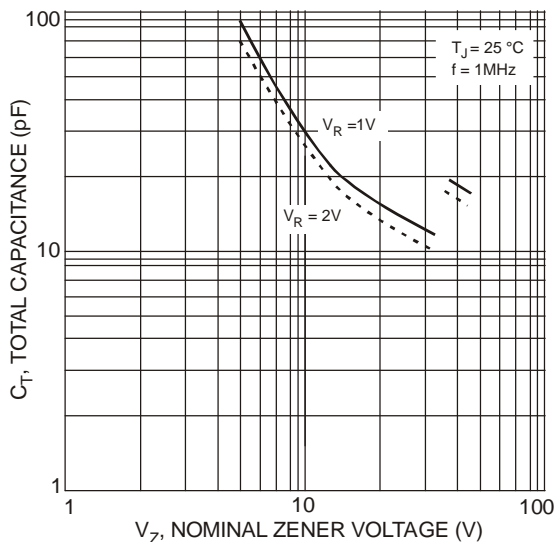


Fig. 10 Typical Total Capacitance vs. Nominal Zener Voltage

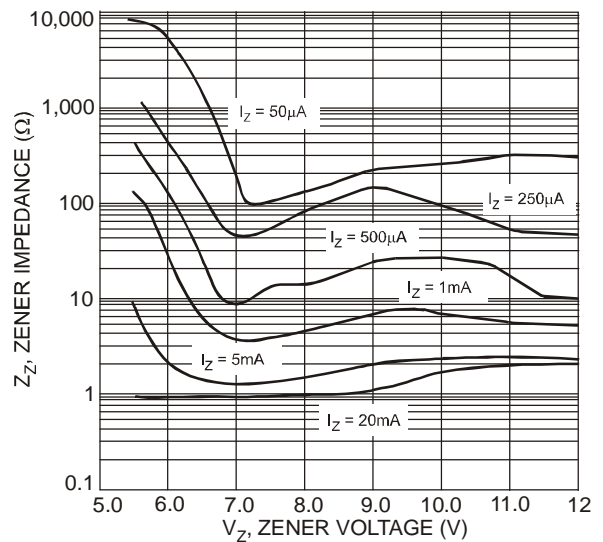


Fig. 11 Typical Zener Impedance Characteristics, DDZX5V6B - DDZX12C

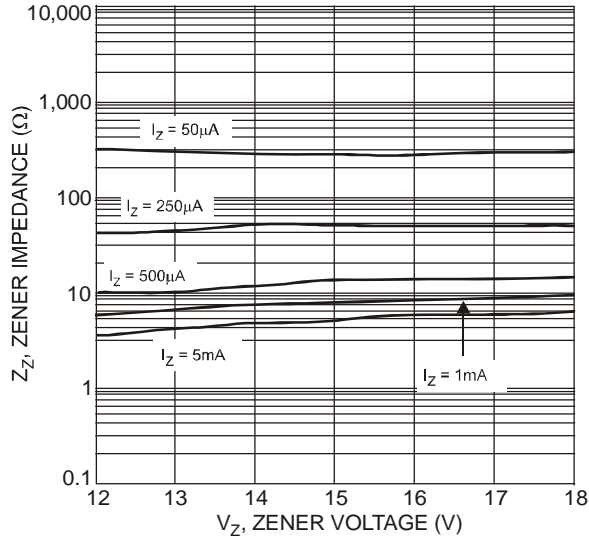


Fig. 12 Typical Zener Impedance Characteristics, DDZX12C - DDZX18C

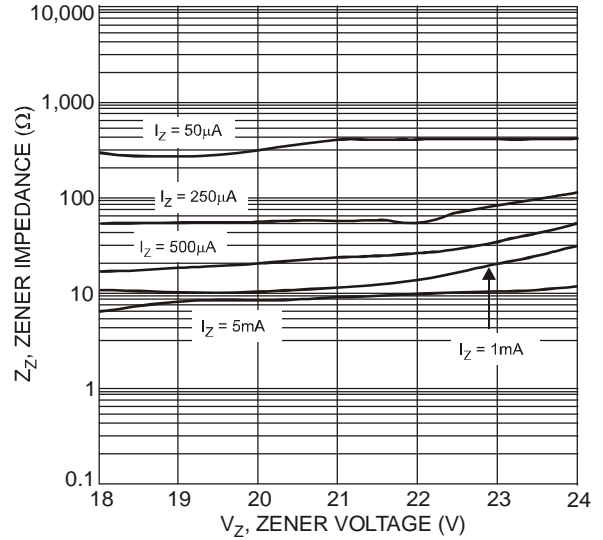


Fig. 13 Typical Zener Impedance Characteristics, DDZX18C - DDZX24C

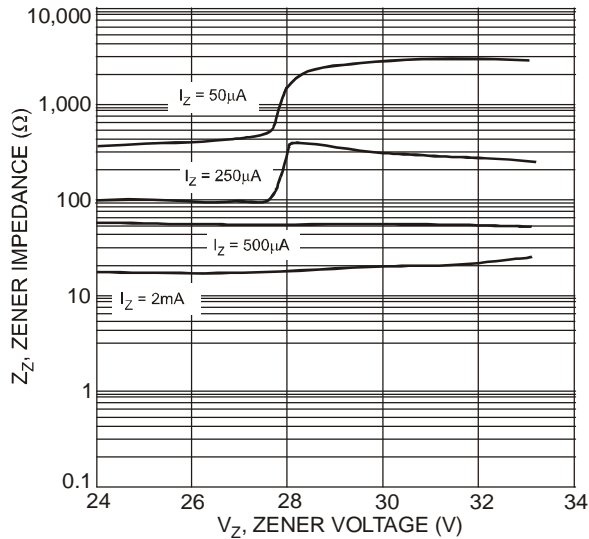


Fig. 14 Typical Zener Impedance Characteristics, DDZX24C - DDZX33

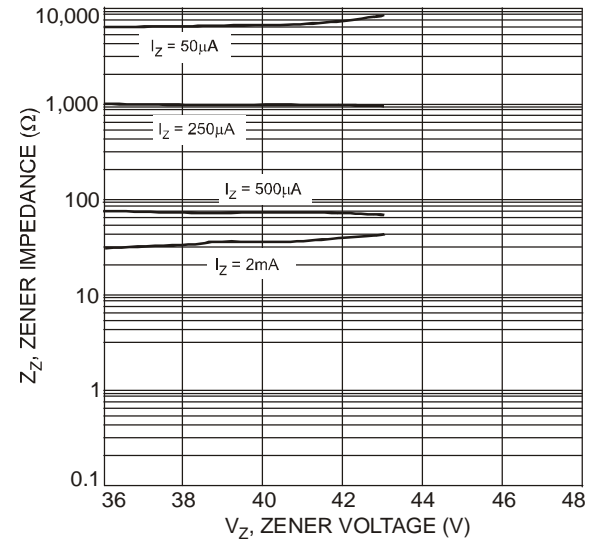


Fig. 15 Typical Zener Impedance Characteristics, DDZX36 - DDZX43

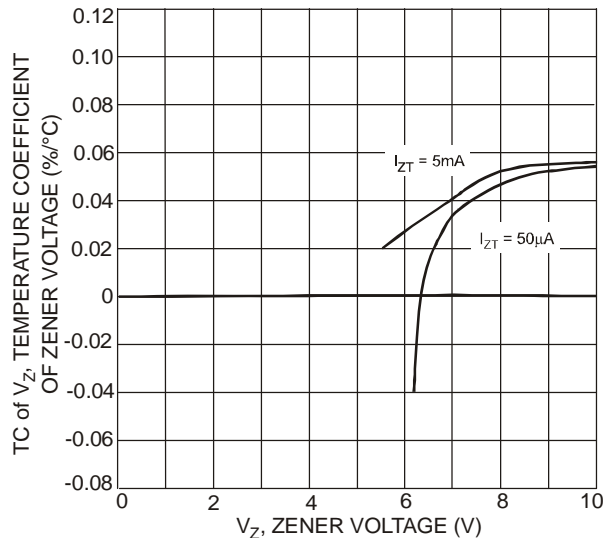


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX6V2B-DDZX10C

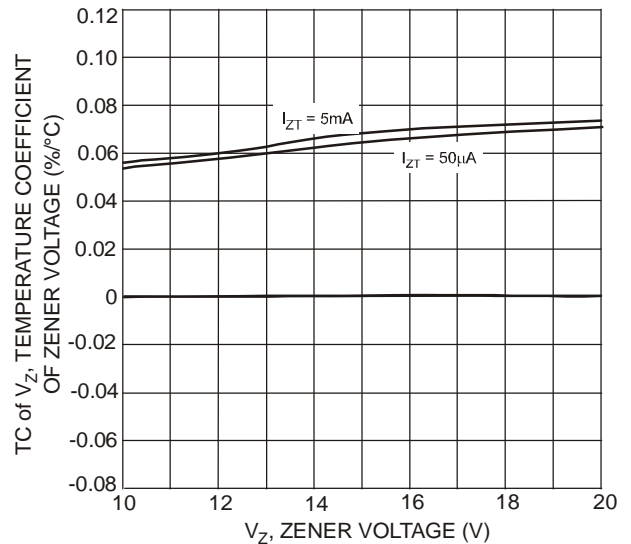


Fig. 17 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX10C-DDZX20C

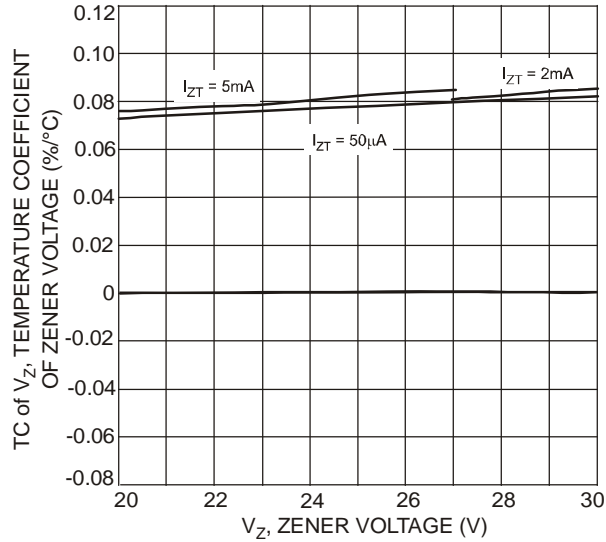


Fig. 18 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX20C-DDZX30D

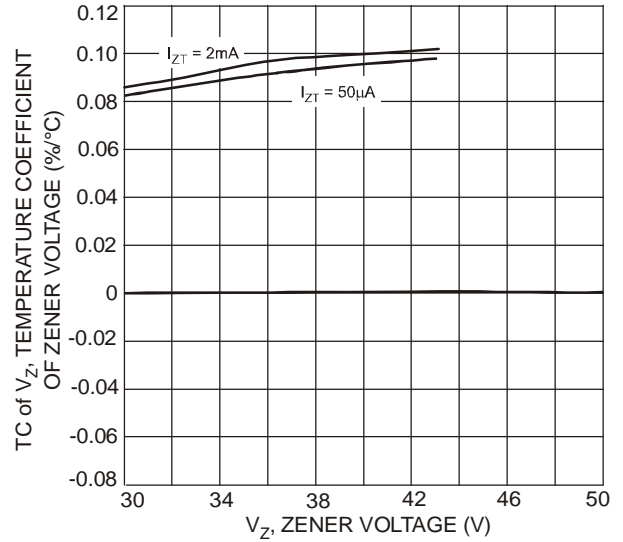
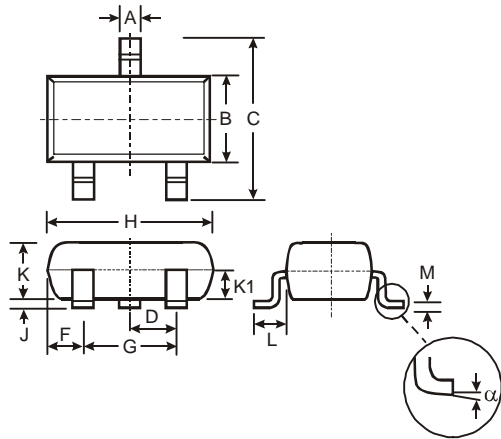


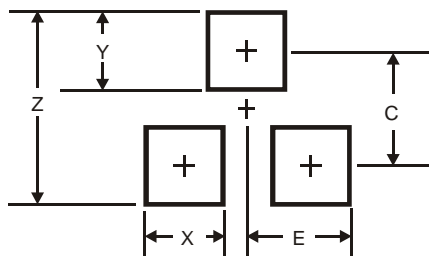
Fig. 19 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX30D-DDZX43

Package Outline Dimensions



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	0.903	1.10	1.00
K1	-	-	0.400
L	0.45	0.61	0.55
M	0.085	0.18	0.11
α	0°	8°	-
All Dimensions in mm			

Suggested Pad Layout



Dimensions	Value (in mm)
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

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