SPICE MODEL: DDZX9688W DDZX9689W DDZX9690W DDZX9691W DDZX9692W DDZX9693W DDZX9694W DDZX9696W DDZX9697W DDZX9699W DDZX9700W DDZX9702W DDZX9703W DDZX9705W DDZX9707W DDZX9708W DDZX9709W DDZX9711W DDZX9712W DDZX9713W DDZX9714W DDZX9715W DDZX9716W

DDZX9682W - DDZX9716W

SURFACE MOUNT PRECISION ZENER DIODE

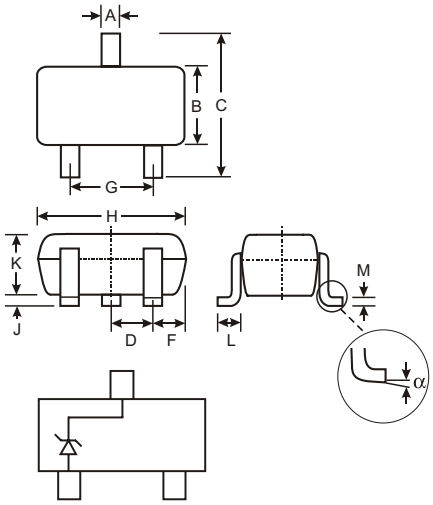
NEW PRODUCT

Features

- Very Sharp Breakdown Characteristics
- Very Tight Tolerance on V_Z
- Ideally Suited for Automated Assembly Processes
- Very Low Leakage Current
- Lead Free Device

Mechanical Data

- Case: SOT-323, Plastic
- Plastic Material: UL Flammability Classification Rating 94V-0
- Moisture sensitivity: Level 1 per J-STD-020A
- Terminals: Finish - Matte Tin Solderable per MIL-STD-202, Method 208 (Note 1)
- Polarity: See diagram
- Marking: See Below
- Weight: 0.006 grams (approx.)



TOP VIEW

SOT-323		
Dim	**Min**	**Max**
A	0.25	0.40
B	1.15	1.35
C	2.00	2.20
D	0.65 Nominal	
E	0.30	0.40
G	1.20	1.40
H	1.80	2.20
J	0.0	0.10
K	0.90	1.00
L	0.25	0.40
M	0.10	0.18
α	0°	8°
All Dimensions in mm		

Maximum Ratings @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Forward Voltage @ I_F = 10mA	V_F	0.9	V
Power Dissipation (Note 2)	P_d	200	mW
Thermal Resistance, Junction to Ambient Air (Note 2)	$R_{\theta JA}$	625	°C/W
Operating and Storage Temperature Range	T_j, T_{STG}	-65 to +150	°C

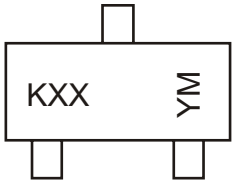
Notes: 1. If lead-bearing terminal plating is required, please contact your Diodes Inc. sales representative for availability and minimum order details.
2. Device mounted on FR-4 PC board with recommended pad layout, which can be found on our website at http://www.diodes.com/datasheets/ap02001.pdf.

Ordering Information (Note 3)

Device	Packaging	Shipping
(Type Number)-7*	SOT-323	3000/Tape & Reel

* Example: The part number for the 6.2 Volt device would be DDZX9691W-7.
Note : 3. For Packaging Details, go to our website at http://www.diodes.com/datasheets/ap02007.pdf.

Marking Information



KXX = Product Type Marking Code (See Table 1)
YM = Date Code Marking
Y = Year (ex: P = 2003)
M = Month (ex: 9 = September)

Date Code Key

Year	2003	2004	2005	2006	2007	2008	2009
Code	P	R	S	T	U	V	W

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

Electrical Characteristics @ T_A = 25°C unless otherwise specified — Table 1

Type Number	Type Code	Zener Voltage Range (Note 4)				Maximum Reverse Leakage Current (Note 5)	
		V_Z @ I_{ZT}			I_{ZT}	I_R @ V_R	
		Nom (V)	Min (V)	Max (V)	μA	μA	V
DDZX9682W	HA	2.7	2.565	2.835	50	1	1
DDZX9683W	HB	3.0	2.85	3.15	50	0.8	1
DDZX9684W	HC	3.3	3.13	3.47	50	7.5	1.5
DDZX9685W	HD	3.6	3.42	3.78	50	7.5	2
DDZX9686W	HE	3.9	3.70	4.10	50	5	2
DDZX9687W	HF	4.3	4.09	4.52	50	4	2
DDZX9688W	HG	4.7	4.47	4.94	50	5	3
DDZX9689W	HH	5.1	4.85	5.36	50	5	3
DDZX9690W	HJ	5.6	5.32	5.88	50	2	4
DDZX9691W	HK	6.2	5.89	6.51	50	1	5
DDZX9692W	HL	6.8	6.46	7.14	50	0.1	5.1
DDZX9693W	HM	7.5	7.13	7.88	50	0.1	5.7
DDZX9694W	HN	8.2	7.79	8.61	50	0.1	6.2
DDZX9696W	HP	9.1	8.65	9.56	50	0.1	6.9
DDZX9697W	HQ	10	9.50	10.50	50	0.1	7.6
DDZX9698W	HR	11	10.45	11.55	50	0.05	8.4
DDZX9699W	HS	12	11.40	12.60	50	0.05	9.1
DDZX9700W	HT	13	12.35	13.65	50	0.05	9.8
DDZX9701W	HU	14	13.30	14.70	50	0.05	10.6
DDZX9702W	HV	15	14.25	15.75	50	0.05	11.4
DDZX9703W	HW	16	15.20	16.80	50	0.05	12.1
DDZX9705W	HY	18	17.10	18.90	50	0.05	13.6
DDZX9707W	MD	20	19.00	21.00	50	0.05	15.2
DDZX9708W	ME	22	20.90	23.10	50	0.05	16.7
DDZX9709W	MF	24	22.80	25.20	50	0.05	18.2
DDZX9711W	MH	27	25.65	28.35	50	0.05	20.4
DDZX9712W	MJ	28	26.60	29.40	50	0.05	21.2
DDZX9713W	MK	30	28.50	31.50	50	0.05	22.8
DDZX9714W	ML	33	31.35	34.65	50	0.05	25.0
DDZX9715W	MM	36	34.20	37.80	50	0.05	27.3
DDZX9716W	MN	39	37.05	40.95	50	0.05	29.6

Notes: 4. Nominal Zener voltage is measured with the device junction in thermal equilibrium at T_T = 30°C ±1°C.
5. Short duration pulse test used to minimize self-heating effect.

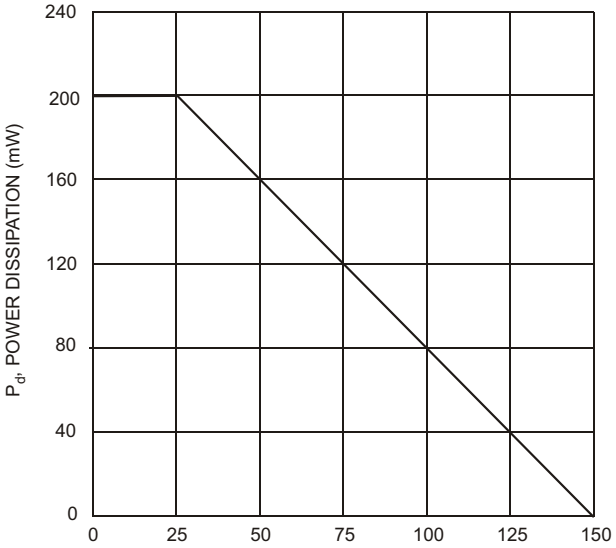


Fig. 1 Power Dissipation vs Ambient Temperature

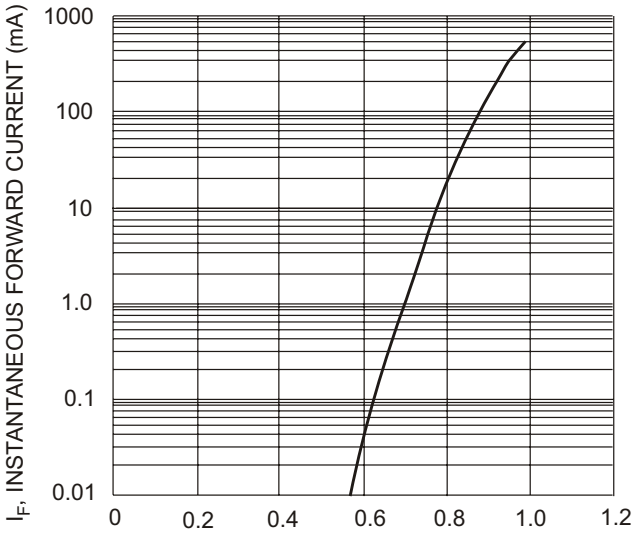


Fig. 2 Typical Forward Characteristics

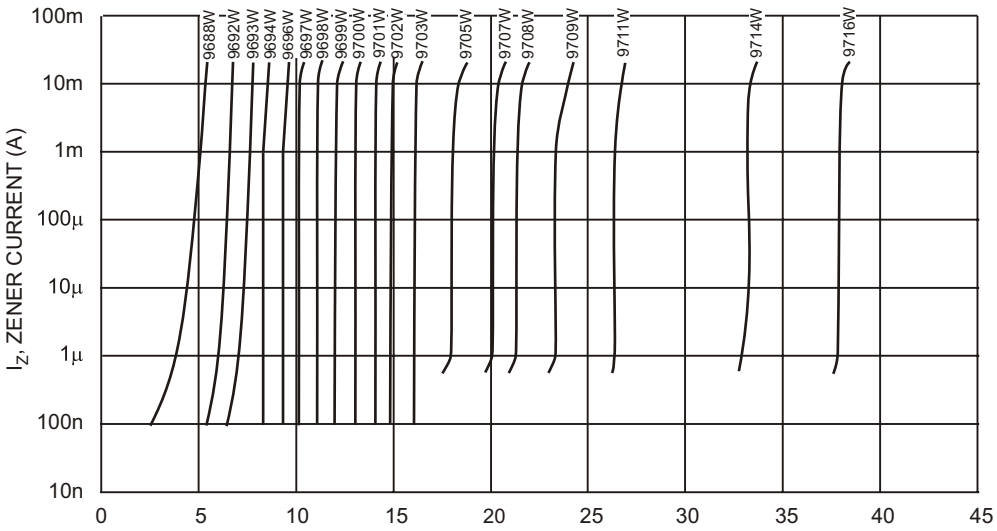


Fig. 3 Typical Reverse Characteristics

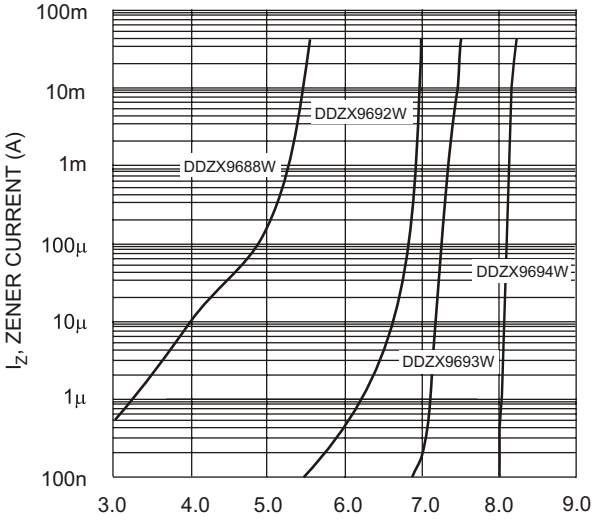


Fig. 4 Typical Reverse Characteristics, DDZX9688W - DDZX9694W

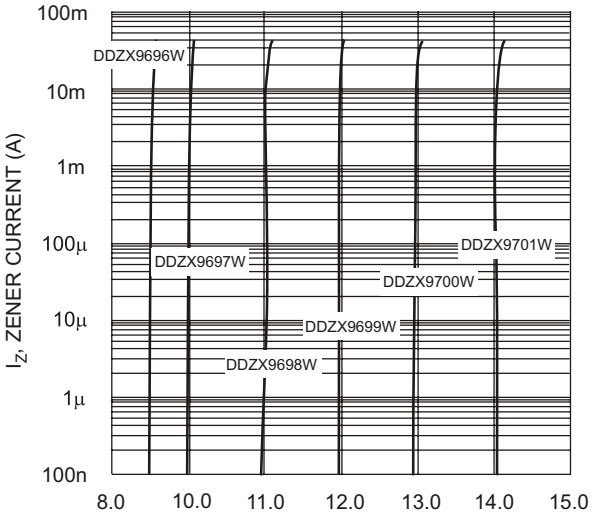


Fig. 5 Typical Reverse Characteristics, DDZX9696W - DDZX9701W

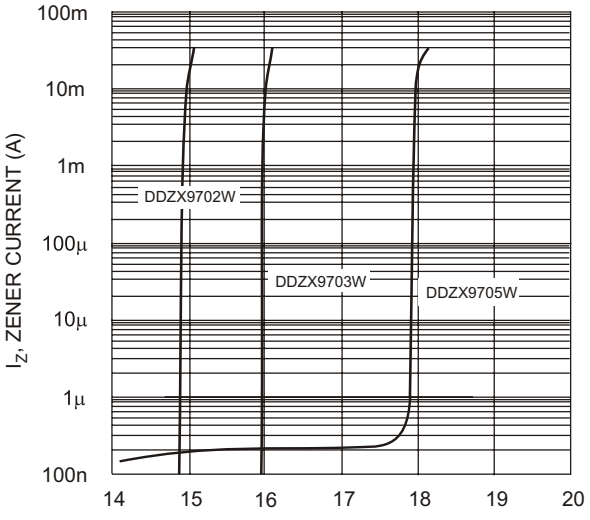


Fig. 6 Typical Reverse Characteristics, DDZX9702W - DDZX9705W

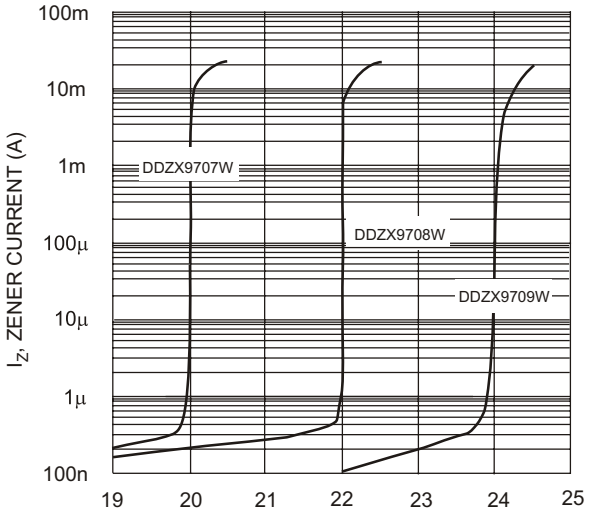


Fig. 7 Typical Reverse Characteristics, DDZX9707W - DDZX9709W

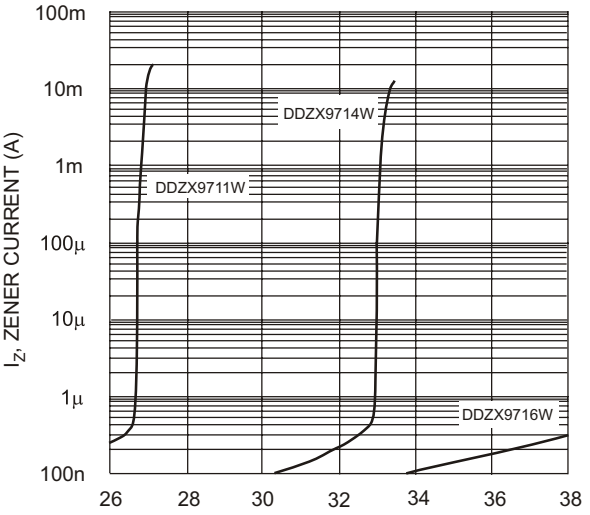


Fig. 8 Typical Reverse Characteristics, DDZX9711W - DDZX9715W

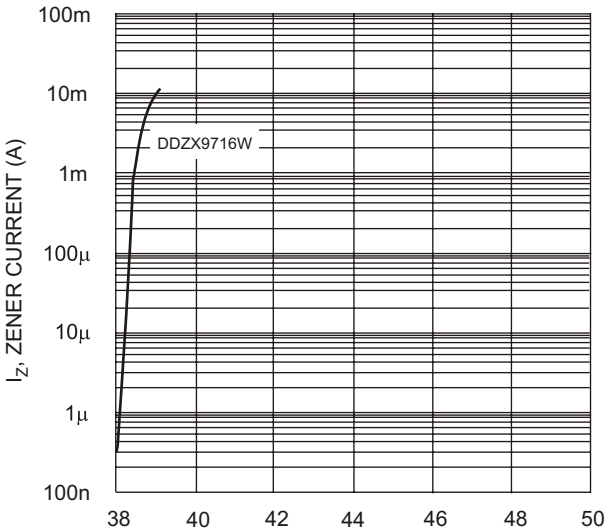


Fig. 9 Typical Reverse Characteristics, DDZX9716W

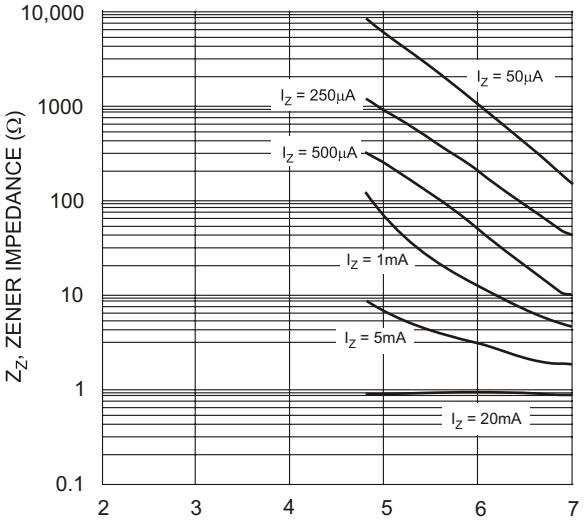


Fig. 10 Typical Zener Impedance Characteristics, DDZX9688W - DDZX9692W

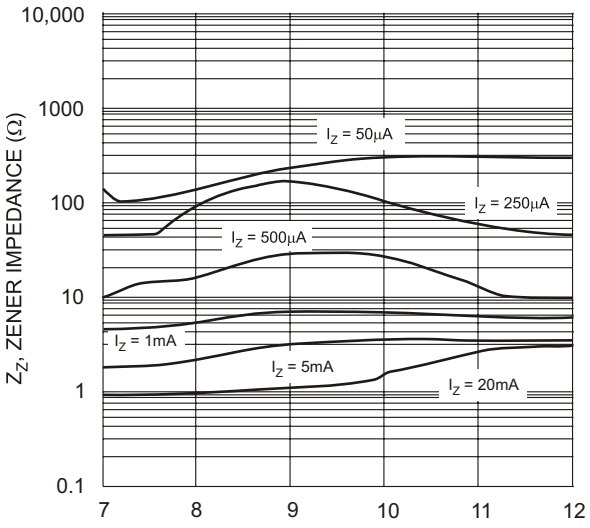


Fig. 11 Typical Zener Impedance Characteristics, DDZX9693W - DDZX9699W

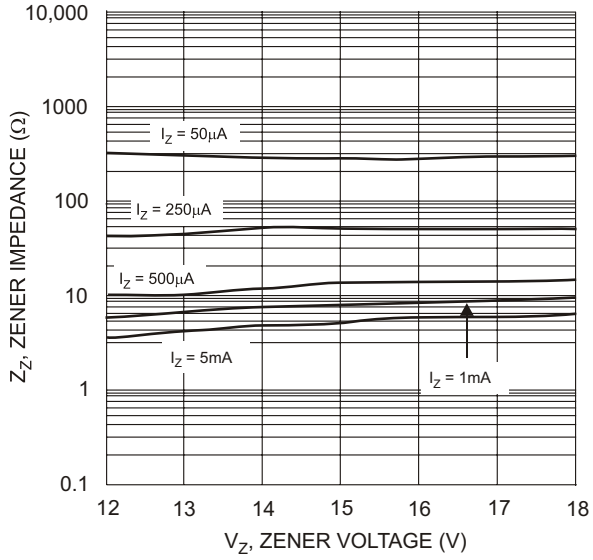


Fig. 12 Typical Zener Impedance Characteristics, DDZX9699W - DDZX9705W

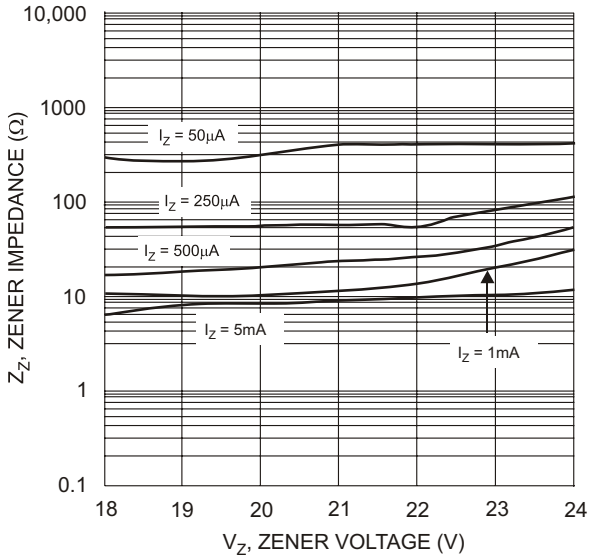


Fig. 13 Typical Zener Impedance Characteristics, DDZX9705W - DDZX9709W

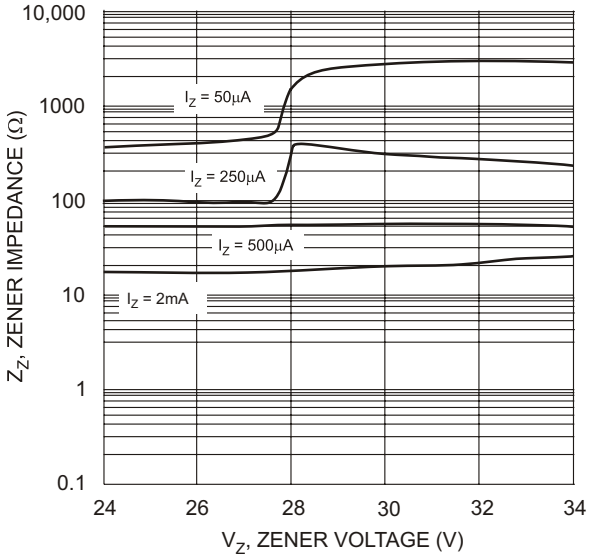


Fig. 14 Typical Zener Impedance Characteristics, DDZX9709W - DDZX9714W

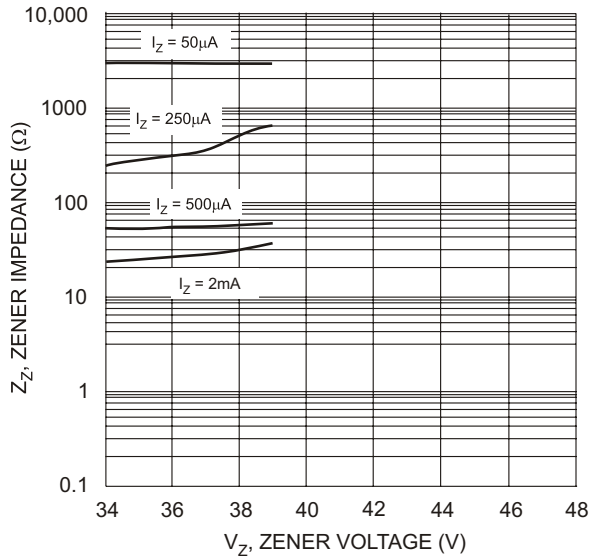


Fig. 15 Typical Zener Impedance Characteristics, DDZX9715W - DDZX9716W

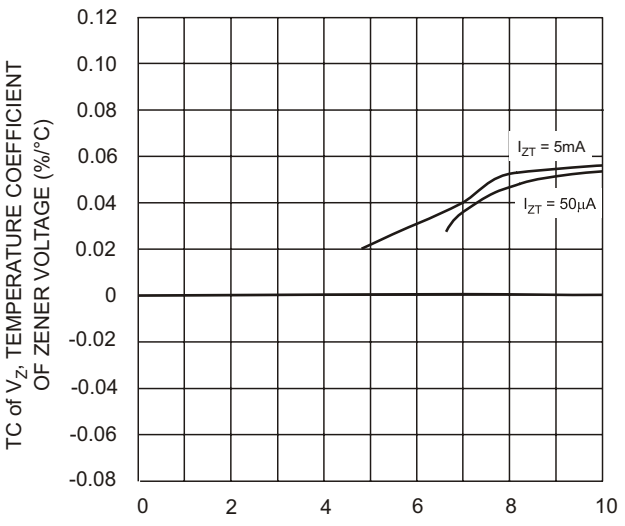


Fig. 16 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX9692W - DDZX9697W

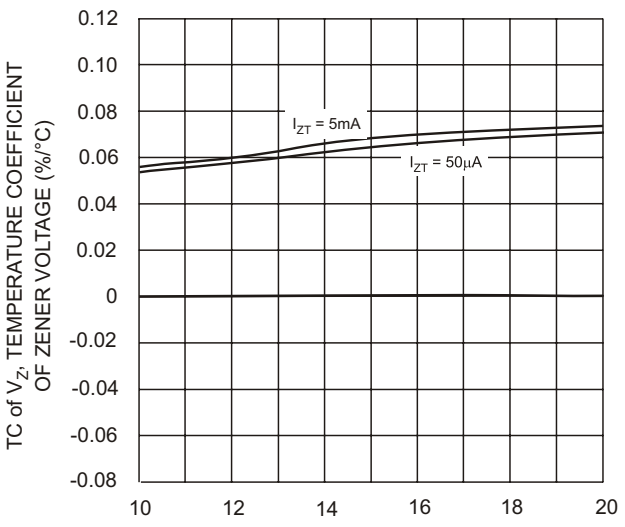


Fig. 17 Typical Temperature Coefficient of Zener Voltage vs. Zener Voltage, DDZX9697W - DDZX9707W

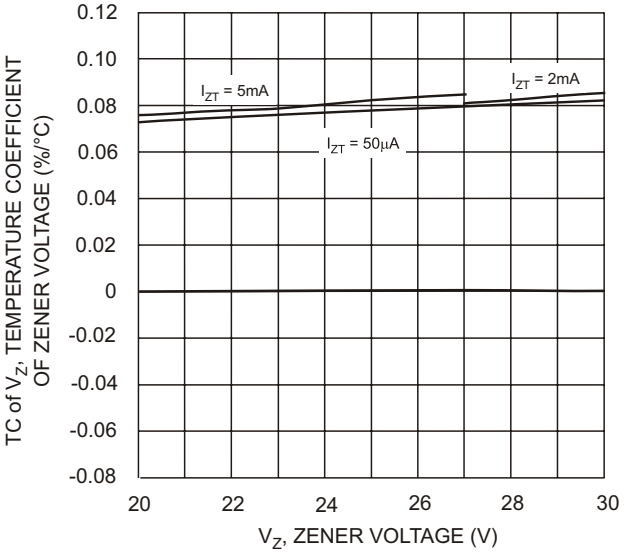


Fig. 18 Typical Temperature Coefficient of Zener Voltage, DDZX9707W - DDZX9713W

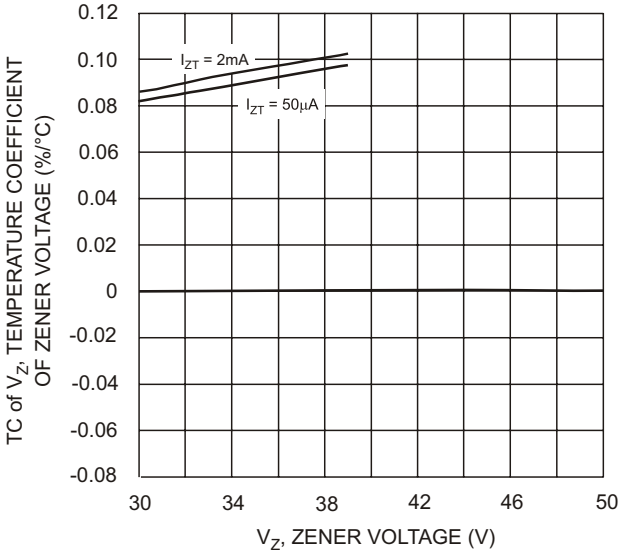


Fig. 19 Typical Temperature Coefficient of Zener Voltage, DDZ9713W - DDZ9716W

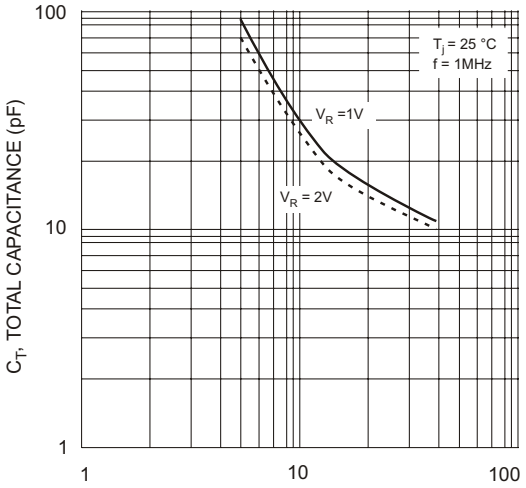


Fig. 20 Total Capacitance vs Nominal Zener Voltage