Elektronische Bauelemente

MMPLxxxC-C

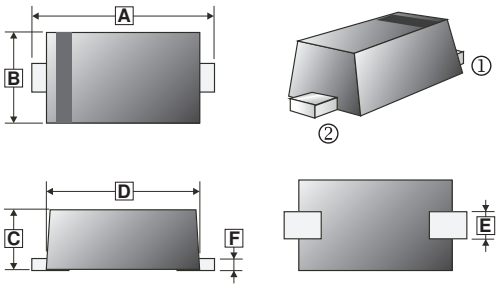
200mW, 2V~75V
Surface Mount Zener Diodes

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- Constant Voltage Control
- Wide Voltage Range Selection 2V~75V
- Tight Voltage Tolerance: ±5% for C-series
- Matte Tin (Sn) Lead Finish

SOD-323L



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.30	2.80	D	1.60	2.10
B	1.05	1.60	E	0.25	0.70
C	0.60	1.08	F	0.05	0.25

MECHANICAL DATA

- Case: SOD-323L, Molded Plastic
- Mounting Position: Any
- Polarity: As Marked

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-323L	3K	7 inch

ORDER INFORMATION

Part Number	Type
MMPLxxxC-C	Lead (Pb)-free and Halogen-free

ABSOLUTE MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Power Dissipation	P_D	200	mW
Operating and Storage Temperature Range	T_J, T_{STG}	150, -55~150	℃

ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Part Number	Marking	Zener Voltage Range [1]				Maximum Zener Impedance			Maximum Reverse Current	
		V_Z @I_{ZT}			I_{ZT}	Z_{ZT} @I_{ZT}	Z_{ZK} @I_{ZK}	I_{ZK}	I_R	V_R
		Min.	Nom.	Max.						
		V			mA	Ω		mA	μA	V
MMPL2V0C-C	2v0	1.9	2	2.1	5	100	600	1	120	1
MMPL2V2C-C	2v2	2.09	2.2	2.31	5	100	600	1	120	1
MMPL2V4C-C	2v4	2.2	2.4	2.6	5	90	600	1	120	1
MMPL2V7C-C	2v7	2.5	2.7	2.9	5	90	600	1	100	1
MMPL3V0C-C	3v0	2.8	3	3.2	5	85	600	1	50	1
MMPL3V3C-C	3v3	3.1	3.3	3.5	5	85	600	1	20	1
MMPL3V6C-C	3v6	3.4	3.6	3.8	5	85	600	1	10	1
MMPL3V9C-C	3v9	3.7	3.9	4.1	5	85	600	1	5	1
MMPL4V3C-C	4v3	4	4.3	4.6	5	80	600	1	5	1

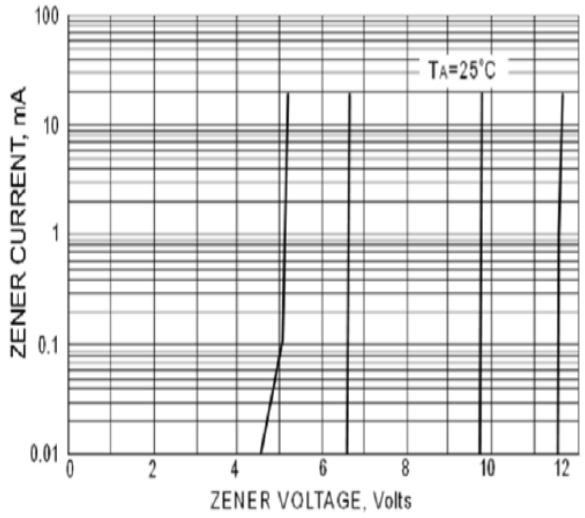
ELECTRICAL CHARACTERISTICS (T_A=25℃ unless otherwise specified)

Part Number	Marking	Zener Voltage Range [1]				Maximum Zener Impedance			Maximum Reverse Current	
		V_Z @I_{ZT}			I_{ZT}	Z_{ZT} @I_{ZT}	Z_{ZK} @I_{ZK}	I_{ZK}	I_R	V_R
		Min.	Nom.	Max.						
		V			mA	Ω		mA	μA	V
MMPL4V7C-C	4v7	4.4	4.7	5	5	70	500	1	2	1
MMPL5V1C-C	5v1	4.8	5.1	5.4	5	50	480	1	2	1.5
MMPL5V6C-C	5v6	5.32	5.6	5.88	5	30	400	1	1	2
MMPL6V2C-C	6v2	5.89	6.2	6.51	5	10	150	1	1	3
MMPL6V8C-C	6v8	6.46	6.8	7.14	5	10	80	1	0.5	4
MMPL7V5C-C	7v5	7.11	7.5	7.86	5	10	50	1	0.5	5
MMPL8V2C-C	8v2	7.79	8.2	8.61	5	10	50	1	0.5	6
MMPL9V1C-C	9v1	8.65	9.1	9.56	5	10	50	1	0.5	7
MMPL10VC-C	10	9.5	10	10.5	5	15	70	1	0.1	7.5
MMPL11VC-C	11	10.45	11	11.55	5	20	70	1	0.1	8
MMPL12VC-C	12	11.4	12	12.6	5	20	90	1	0.1	9
MMPL13VC-C	13	12.35	13	13.65	5	26	110	1	0.1	10
MMPL15VC-C	15	14.25	15	15.75	5	30	110	1	0.1	11
MMPL16VC-C	16	15.2	16	16.8	5	40	170	1	0.1	12
MMPL18VC-C	18	17.1	18	18.9	5	45	170	1	0.1	14
MMPL20VC-C	20	19	20	21	5	55	220	1	0.1	15
MMPL22VC-C	22	20.9	22	23.1	5	55	220	1	0.1	17
MMPL24VC-C	24	22.8	24	25.2	5	70	220	1	0.1	19
MMPL27VC-C	27	26.65	27	28.35	5	80	220	1	0.1	20
MMPL30VC-C	30	28.5	30	31.5	5	80	220	1	0.1	22
MMPL33VC-C	33	31.35	33	34.65	5	80	220	1	0.1	24
MMPL36VC-C	36	34.2	36	37.8	5	80	220	1	0.1	27
MMPL39VC-C	39	37.05	39	40.95	2.5	90	500	0.5	0.1	29
MMPL43VC-C	43	40.85	43	45.15	2.5	90	600	0.5	0.1	32
MMPL47VC-C	47	44.65	47	49.35	2.5	110	700	0.5	0.1	35
MMPL51VC-C	51	48.45	51	53.55	2.5	125	700	0.5	0.1	38
MMPL56VC-C	56	53.2	56	58.8	2.5	135	1000	0.5	0.1	42
MMPL62VC-C	62	58.9	62	65.1	2.5	150	1000	0.5	0.1	47
MMPL68VC-C	68	64.6	68	71.4	2.5	200	1000	0.5	0.1	51
MMPL75VC-C	75	71.25	75	78.75	2.5	250	1500	0.5	0.1	56

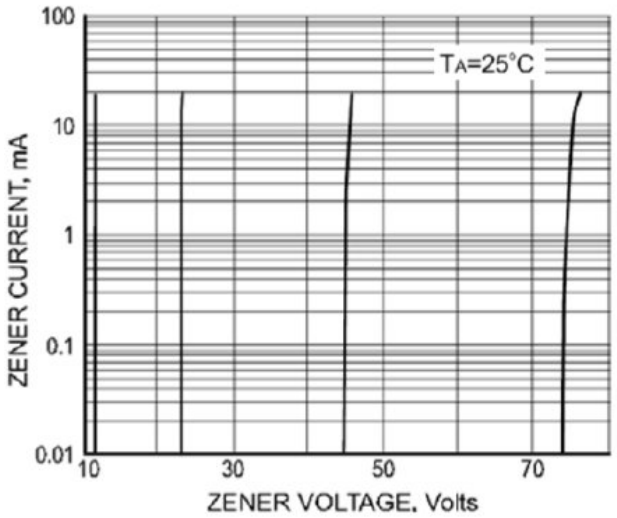
Note:
1. Pule width=10ms.

CHARACTERISTIC CURVE

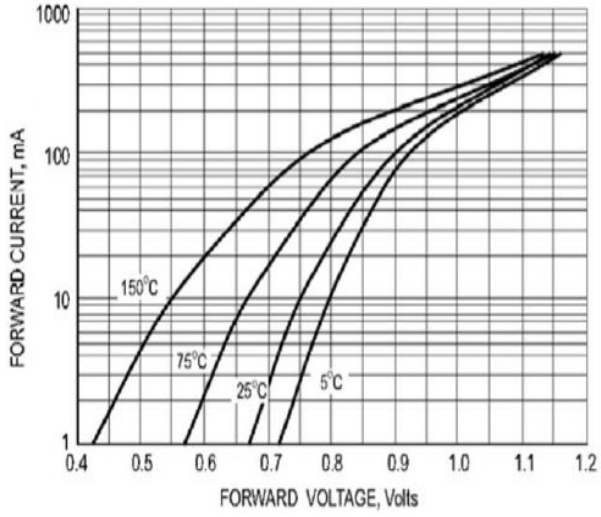
Zener Breakdown Characteristic



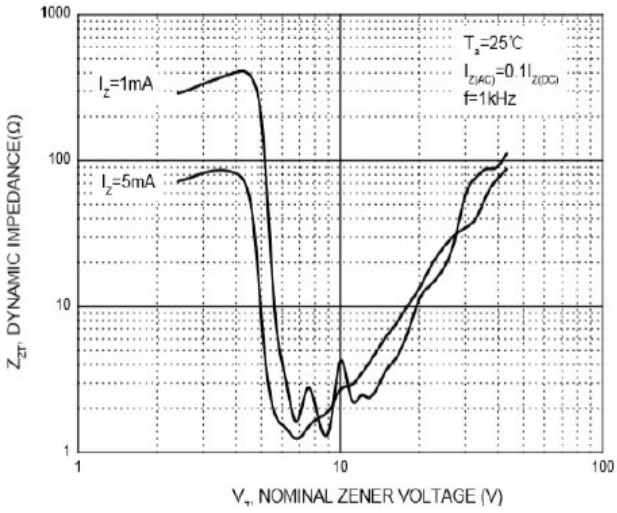
Zener Breakdown Characteristic



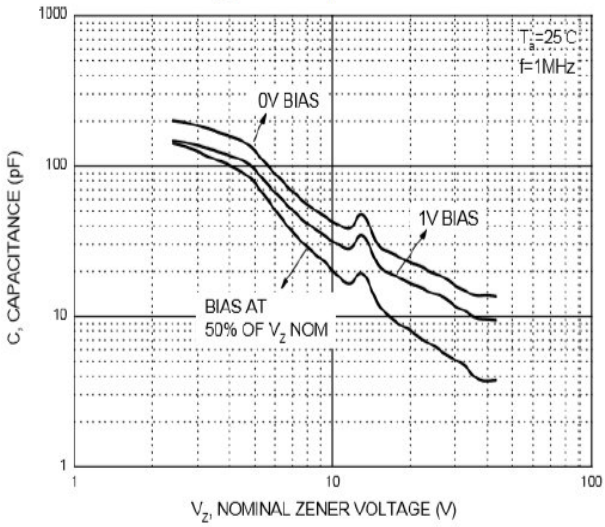
Typical Forward Voltage



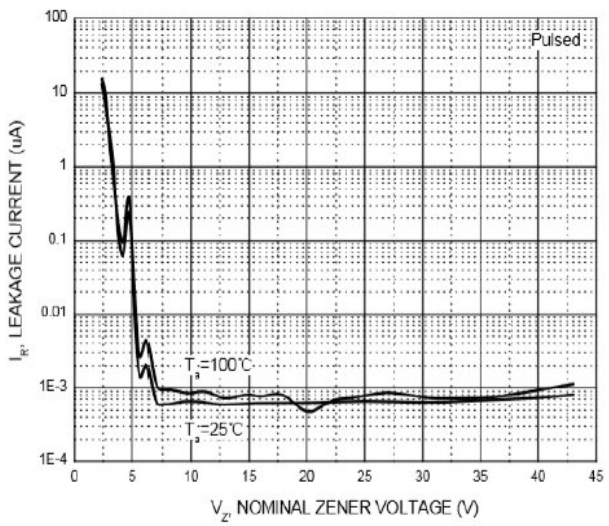
Effect of Zener Voltage on Zener Impedance



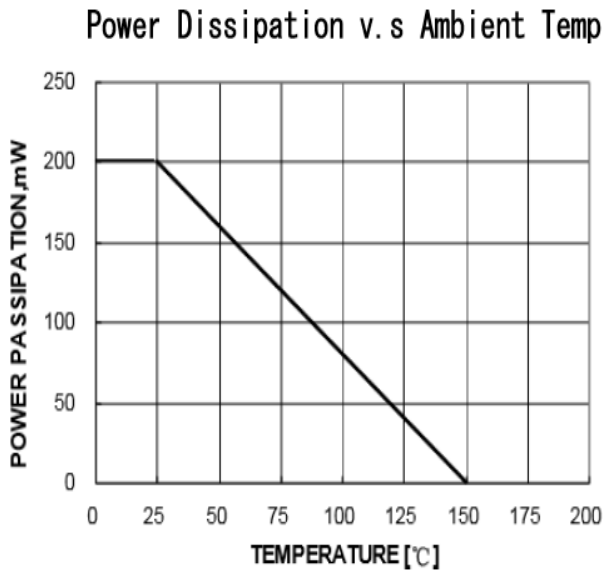
Typical Capacitance



Typical Leakage Current



CHARACTERISTIC CURVE



Elektronische Bauelemente

MMSZ46xxS-C

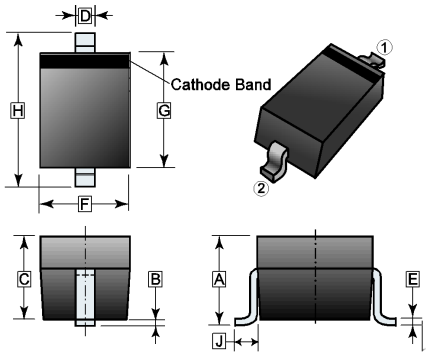
200mW, SOD-323 Series
Surface Mount Zener Diodes

RoHS Compliant Product
A suffix of "-C" specifies halogen & lead-free

FEATURES

- Large Selection of Zener Voltage: 1.8V~43V
- Tight Voltage Tolerance: ±5%
- Ultra-low Profile Package Well Suited for Automated Assembly
- MSL Class 1 Compatible

SOD-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.05 REF.		F	1.15	1.45
B	0.20 REF.		G	1.60	1.80
C	0.80	1.00	H	2.30	2.75
D	0.25	0.40	J	0.475 REF	
E	0.05	0.18			

MECHANICAL DATA

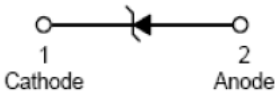
- Case: SOD-323, Plastic
- Case Material–UL Flammability Rating Classification 94V-0
- Terminals: Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band

APPLICATIONS

- General Voltage Regulating
- Mobile & Handheld Systems

PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-323	3K	7 inch



ORDER INFORMATION

Part Number	Type
MMSZ46xxS-C	Lead (Pb)-free and Halogen-free

MAXIMUM RATINGS (T_A=25℃ unless otherwise specified)

Parameter	Symbol	Value	Unit
Forward Voltage @I_F=10mA	V_F	0.9	V
Power Dissipation	P_D	200	mW
Thermal Resistance from Junction-Ambient	$R_{\theta JA}$	625	℃/W
Thermal Resistance from Junction-Case	$R_{\theta JC}$	337	
Operating Junction Temperature Range	T_J	-55~150	℃
Storage Temperature Range	T_{STG}	-65~150	

Note:
1. These ratings are limiting values above which the serviceability of the diodes may be impaired.

ELECTRICAL RATINGS (T_A=25℃ unless otherwise specified)

Part Number	Marking	Zener Voltage Range				Maximum Reverse Leakage Current	
		V_Z @I_{ZT}			I_{ZT}	I_R @V_R	
		Min. (V)	Nom. (V)	Max. (V)	μA	μA	V
MMSZ4678S-C	CC	1.71	1.8	1.89	50	7.5	1
MMSZ4679S-C	CD	1.9	2	2.1	50	5	1
MMSZ4680S-C	CE	2.09	2.2	2.31	50	4	1
MMSZ4681S-C	CF	2.28	2.4	2.52	50	2	1
MMSZ4682S-C	CH	2.57	2.7	2.84	50	1	1
MMSZ4683S-C	CJ	2.85	3	3.15	50	0.8	1
MMSZ4684S-C	CK	3.14	3.3	3.47	50	7.5	1.5
MMSZ4685S-C	CM	3.42	3.6	3.78	50	7.5	2
MMSZ4686S-C	CN	3.71	3.9	4.1	50	5	2
MMSZ4687S-C	CP	4.09	4.3	4.52	50	4	2
MMSZ4688S-C	CT	4.47	4.7	4.94	50	10	3
MMSZ4689S-C	CU	4.85	5.1	5.36	50	10	3
MMSZ4690S-C	CV	5.32	5.6	5.88	50	10	4
MMSZ4691S-C	CA	5.89	6.2	6.51	50	10	5
MMSZ4692S-C	CX	6.46	6.8	7.14	50	10	5.1
MMSZ4693S-C	CY	7.13	7.5	7.88	50	10	5.7
MMSZ4694S-C	CZ	7.79	8.2	8.61	50	1	6.2
MMSZ4695S-C	DC	8.27	8.7	9.14	50	1	6.6
MMSZ4696S-C	DD	8.65	9.1	9.56	50	1	6.9
MMSZ4697S-C	DE	9.5	10	10.5	50	1	7.6
MMSZ4698S-C	DF	10.45	11	11.55	50	0.05	8.4
MMSZ4699S-C	DH	11.4	12	12.6	50	0.05	9.1
MMSZ4700S-C	DJ	12.35	13	13.65	50	0.05	9.8
MMSZ4701S-C	DK	13.3	14	14.7	50	0.05	10.6
MMSZ4702S-C	DM	14.25	15	15.75	50	0.05	11.4
MMSZ4703S-C	DN	15.2	16	16.8	50	0.05	12.1
MMSZ4704S-C	DP	16.15	17	17.85	50	0.05	12.9
MMSZ4705S-C	DT	17.1	18	18.9	50	0.05	13.6
MMSZ4706S-C	DU	18.05	19	19.95	50	0.05	14.4
MMSZ4707S-C	DV	19	20	21	50	0.01	15.2

ELECTRICAL RATINGS (T_A=25℃ unless otherwise specified)

Part Number	Marking	Zener Voltage Range				Maximum Reverse Leakage Current	
		V_Z @I_{ZT}			I_{ZT}	I_R @V_R	
		Min. (V)	Nom. (V)	Max. (V)	μA	μA	V
MMSZ4708S-C	DA	20.9	22	23.1	50	0.01	16.7
MMSZ4709S-C	DX	22.8	24	25.2	50	0.01	18.2
MMSZ4710S-C	DY	23.75	25	26.25	50	0.01	19
MMSZ4711S-C	EA	25.65	27	28.35	50	0.01	20.4
MMSZ4712S-C	EC	26.6	28	29.4	50	0.01	21.2
MMSZ4713S-C	ED	28.5	30	31.5	50	0.01	22.8
MMSZ4714S-C	EE	31.35	33	34.65	50	0.01	25
MMSZ4715S-C	EF	34.2	36	37.8	50	0.01	27.3
MMSZ4716S-C	EH	37.05	39	40.95	50	0.01	29.6
MMSZ4717S-C	EJ	40.85	43	45.15	50	0.01	32.6

CHARACTERISTIC CURVES

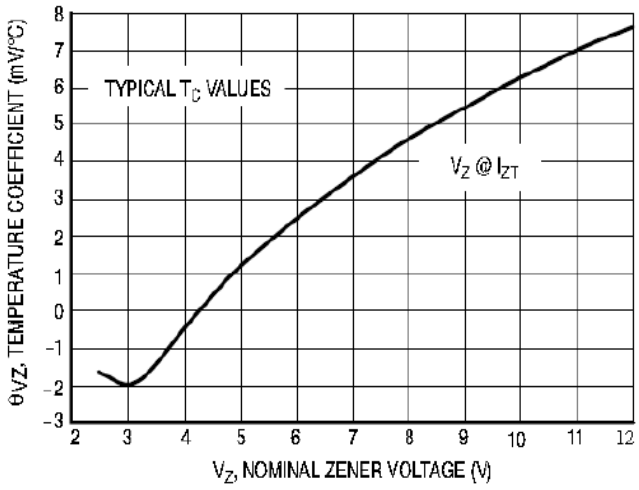


Figure 1 Temperature Coefficients (Temperature Range −55°C to +150°C)

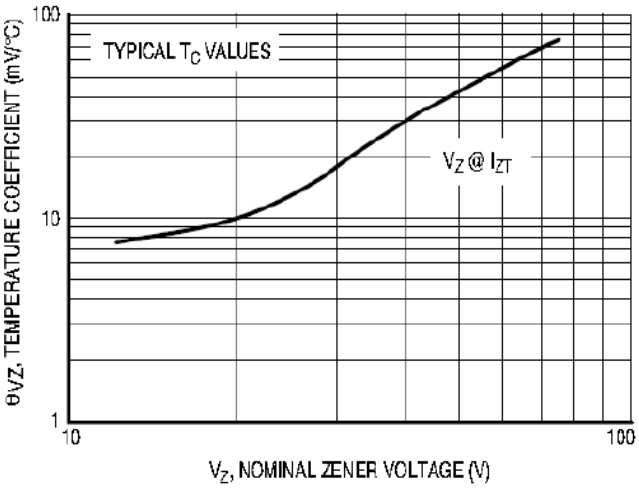


Figure 2 Temperature Coefficients (Temperature Range −55°C to +150°C)

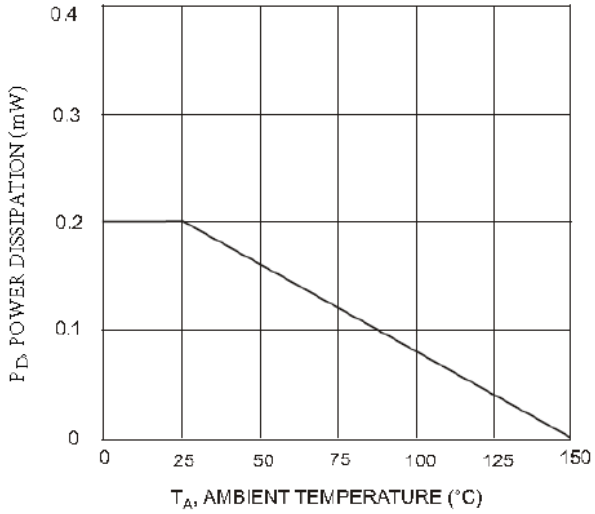


Figure 3 Steady State Power Derating

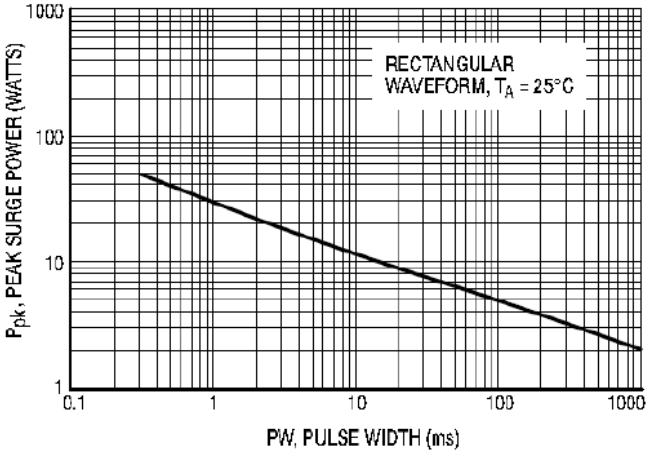


Figure 4 Maximum Nonrepetitive Surge Power

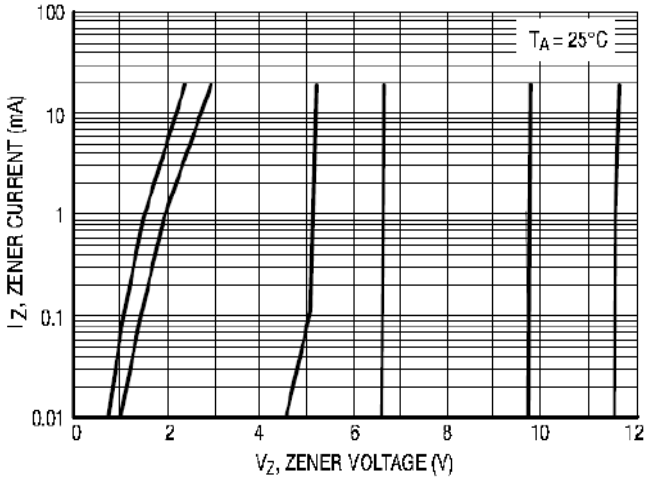


Figure 5 Zener Voltage versus Zener Current (V_Z Up to 12 V)

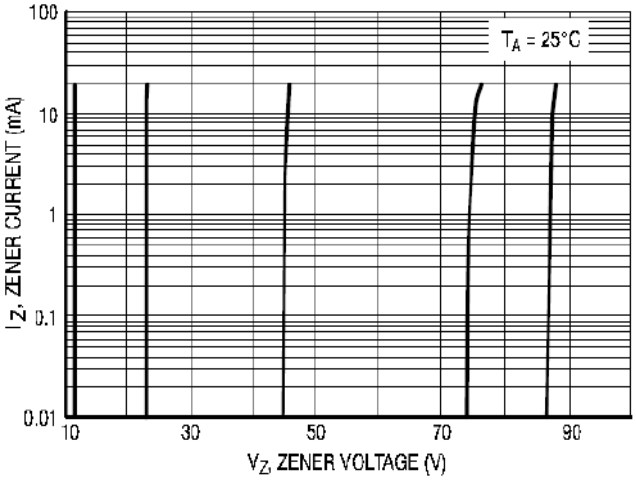


Figure 6 Zener Voltage versus Zener Current (12 V to 91 V)