

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

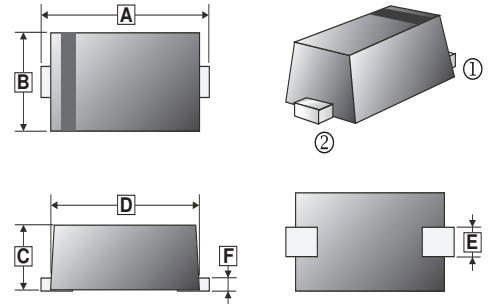
## FEATURES

- Large Selection of Zener Voltages: 1.8V~43V
- Tight Voltage Tolerance:  $\pm 5\%$
- MSL Class 1 Compatible
- Ultra Low-profile Package Well Suited for Automated Assembly

## APPLICATIONS

- General Voltage Regulation
- Mobile & Handheld Systems

### SOD-523



## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-523	3K	7 inch

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.50	1.70	D	1.10	1.30
B	0.70	0.90	E	0.25	0.35
C	0.50	0.77	F	0.05	0.20

## ORDER INFORMATION

Part Number	Type
MM5Z46xx-C	Lead (Pb)-free and Halogen-free



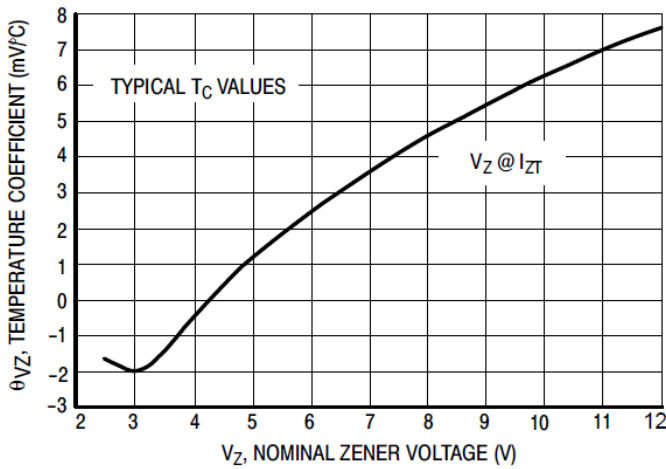
## ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Rating	Unit
Forward Voltage @ I <sub>F</sub> =10mA	V <sub>F</sub>	0.9	V
Power Dissipation	P <sub>D</sub>	150	mW
Thermal Resistance Junction to Ambient	R <sub>θJA</sub>	834	°C/W
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 ~ 150	°C

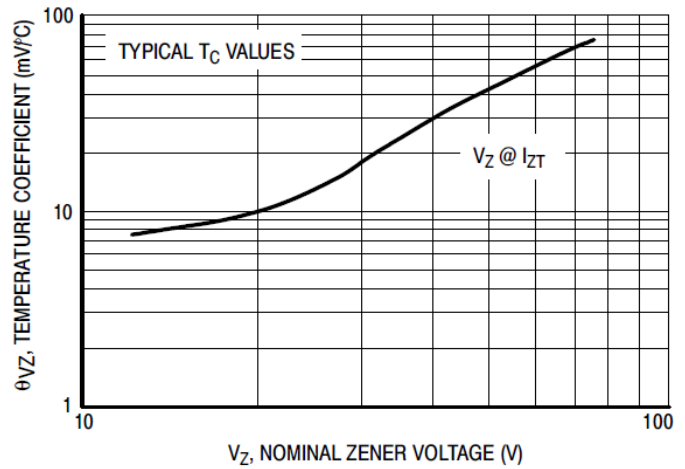
**ELECTRICAL CHARACTERISTICS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Type 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)	$\mu\text{A}$	$\mu\text{A}$	V
MM5Z4678-C	CC	1.71	1.8	1.89	50	7.5	1
MM5Z4679-C	CD	1.9	2	2.1	50	5	1
MM5Z4680-C	CE	2.09	2.2	2.31	50	4	1
MM5Z4681-C	CF	2.28	2.4	2.52	50	2	1
MM5Z4682-C	CH	2.57	2.7	2.84	50	1	1
MM5Z4683-C	CJ	2.85	3	3.15	50	0.8	1
MM5Z4684-C	CK.	3.14	3.3	3.47	50	7.5	1.5
MM5Z4685-C	CM	3.42	3.6	3.78	50	7.5	2
MM5Z4686-C	CN	3.71	3.9	4.1	50	5	2
MM5Z4687-C	CP	4.09	4.3	4.52	50	4	2
MM5Z4688-C	CT	4.47	4.7	4.94	50	10	3
MM5Z4689-C	CU	4.85	5.1	5.36	50	10	3
MM5Z4690-C	CV	5.32	5.6	5.88	50	10	4
MM5Z4691-C	CA	5.89	6.2	6.51	50	10	5
MM5Z4692-C	CX	6.46	6.8	7.14	50	10	5.1
MM5Z4693-C	CY	7.13	7.5	7.88	50	10	5.7
MM5Z4694-C	CZ	7.79	8.2	8.61	50	1	6.2
MM5Z4695-C	DC	8.27	8.7	9.14	50	1	6.6
MM5Z4696-C	DD	8.65	9.1	9.56	50	1	6.9
MM5Z4697-C	DE	9.5	10	10.5	50	1	7.6
MM5Z4698-C	DF	10.45	11	11.55	50	0.05	8.4
MM5Z4699-C	DH	11.4	12	12.6	50	0.05	9.1
MM5Z4700-C	DJ	12.35	13	13.65	50	0.05	9.8
MM5Z4701-C	DK	13.3	14	14.7	50	0.05	10.6
MM5Z4702-C	DM	14.25	15	15.75	50	0.05	11.4
MM5Z4703-C	DN	15.2	16	16.8	50	0.05	12.1
MM5Z4704-C	DP	16.15	17	17.85	50	0.05	12.9
MM5Z4705-C	DT	17.1	18	18.9	50	0.05	13.6
MM5Z4706-C	DU	18.05	19	19.95	50	0.05	14.4
MM5Z4707-C	DV	19	20	21	50	0.01	15.2
MM5Z4708-C	DA	20.9	22	23.1	50	0.01	16.7
MM5Z4709-C	DX	22.8	24	25.2	50	0.01	18.2
MM5Z4710-C	DY	23.75	25	26.25	50	0.01	19
MM5Z4711-C	EA	25.65	27	28.35	50	0.01	20.4
MM5Z4712-C	EC	26.6	28	29.4	50	0.01	21.2
MM5Z4713-C	ED	28.5	30	31.5	50	0.01	22.8
MM5Z4714-C	EE	31.35	33	34.65	50	0.01	25
MM5Z4715-C	EF	34.2	36	37.8	50	0.01	27.3
MM5Z4716-C	EH	37.05	39	40.95	50	0.01	29.6
MM5Z4717-C	EJ	40.85	43	45.15	50	0.01	32.6

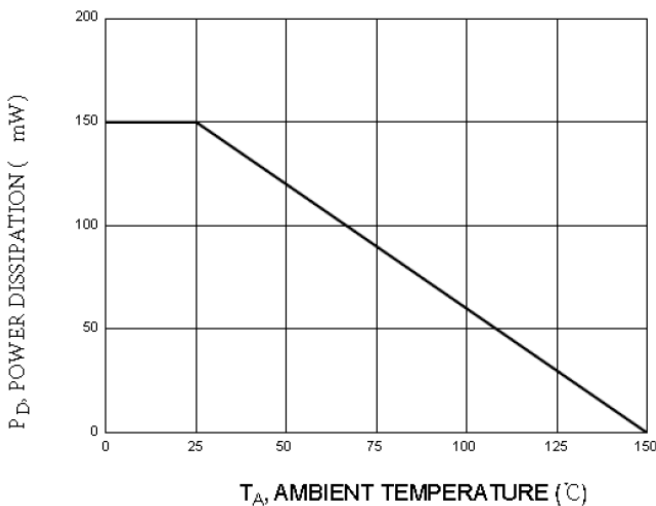
**TYPICAL CHARACTERISTICS CURVE**



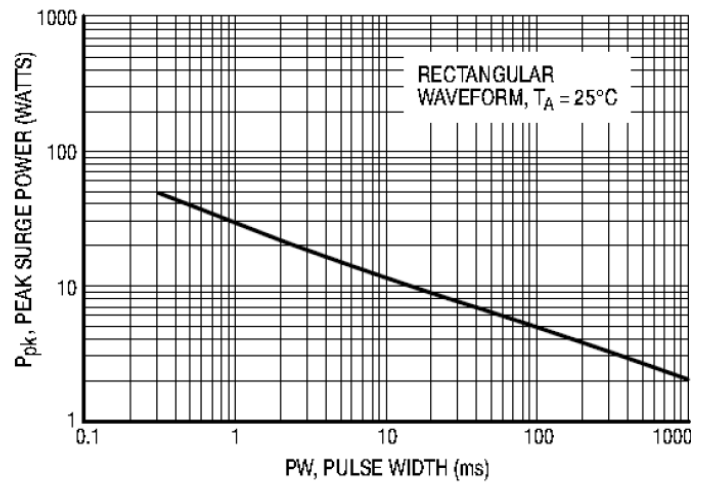
**Figure 1. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



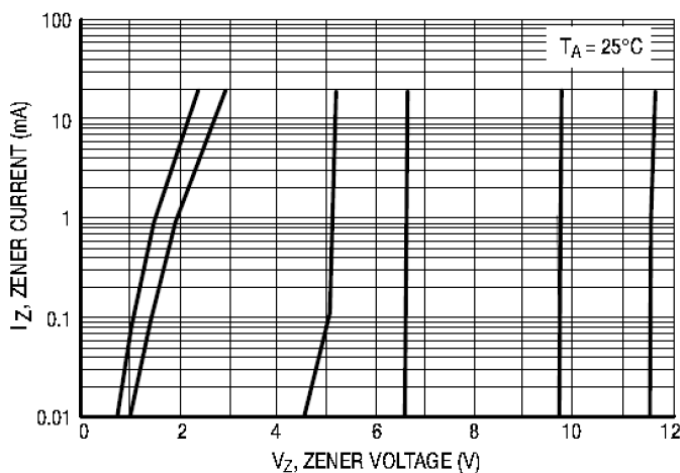
**Figure 2. Temperature Coefficients**  
(Temperature Range -55°C to +150°C)



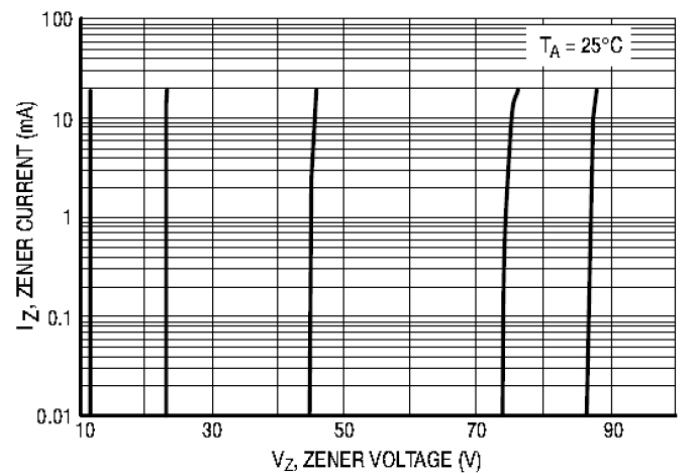
**Figure 3 Steady State Power Derating**



**Figure 4 Maximum Nonrepetitive Surge Power**



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



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

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

## FEATURES

- Large Selection of Zener Voltage: 2.4V~75V
- Tight Voltage Tolerance:  $\pm 5\%$
- Ultra low Profile Package Well Suited for Automated Assembly
- MSL Class 1 Compatible
- Qualified to AEC-Q101 Standards for High Reliability

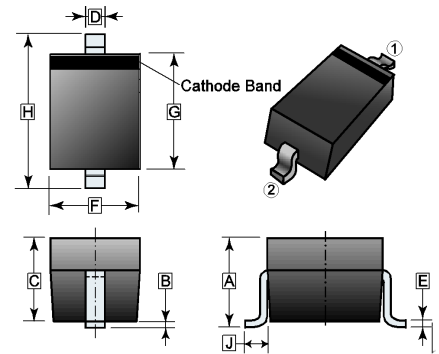
## MECHANICAL DATA

- 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

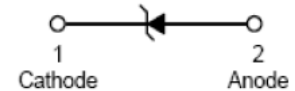
### SOD-323



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.05	REF.	F	1.15	1.45
B	0.20	REF.	G	1.6	1.8
C	0.80	1.00	H	2.30	2.75
D	0.25	0.40	J	0.475 REF.	
E	0.05	0.18			

## PACKAGE INFORMATION

Package	MPQ	Leader Size
SOD-323	3K	7 inch



## ORDER INFORMATION

Part Number	Type
MMSZ52xxBSCR-C	Lead (Pb)-free and Halogen-free

## MAXIMUM RATINGS (T<sub>A</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Forward Voltage @ I <sub>F</sub> =10mA	V <sub>F</sub>	0.9	V
Power Dissipation	P <sub>D</sub>	200	mW
Thermal Resistance from Junction-Ambient	R <sub>θJA</sub>	625	°C / W
Thermal Resistance from Junction-Case	R <sub>θJC</sub>	337	
Operating and Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55~150, -65~150	°C

Note:

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

**ELECTRICAL RATINGS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Part Number	Marking	Zener Voltage Range				Maximum Zener Impedance		Maximum Reverse Leakage Current	
		$V_Z @ I_{ZT}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$	$I_R @ V_R$	
		Min. (V)	Nom. (V)	Max. (V)	mA	$\Omega$		$\mu\text{A}$	V
MMSZ5221BSCR-C	C1	2.28	2.4	2.52	20	30	1200	100	1.0
MMSZ5223BSCR-C	C3	2.57	2.7	2.84	20	30	1300	75	1.0
MMSZ5225BSCR-C	C5	2.85	3	3.15	20	30	1600	50	1.0
MMSZ5226BSCR-C	G1	3.14	3.3	3.47	20	28	1600	25	1.0
MMSZ5227BSCR-C	G2	3.42	3.6	3.78	20	24	1700	15	1.0
MMSZ5228BSCR-C	G3	3.71	3.9	4.1	20	23	1900	10	1.0
MMSZ5229BSCR-C	G4	4.09	4.3	4.52	20	22	2000	5.0	1.0
MMSZ5230BSCR-C	G5	4.47	4.7	4.94	20	19	1900	5.0	2.0
MMSZ5231BSCR-C	E1	4.85	5.1	5.36	20	17	1600	5.0	2.0
MMSZ5232BSCR-C	E2	5.32	5.6	5.88	20	11	1600	5.0	3.0
MMSZ5233BSCR-C	E3	5.7	6.0	6.3	20	7	1600	5.0	3.5
MMSZ5234BSCR-C	E4	5.89	6.2	6.51	20	7	1000	5.0	4.0
MMSZ5235BSCR-C	E5	6.46	6.8	7.14	20	5	750	3.0	5.0
MMSZ5236BSCR-C	F1	7.13	7.5	7.88	20	6	500	3.0	6.0
MMSZ5237BSCR-C	F2	7.79	8.2	8.61	20	8	500	3.0	6.5
MMSZ5238BSCR-C	F3	8.27	8.7	9.14	20	8	600	3.0	6.5
MMSZ5239BSCR-C	F4	8.65	9.1	9.56	20	10	600	3.0	7.0
MMSZ5240BSCR-C	F5	9.5	10	10.50	20	17	600	3.0	8.0
MMSZ5241BSCR-C	H1	10.45	11	11.55	20	22	600	2.0	8.4
MMSZ5242BSCR-C	H2	11.4	12	12.6	20	30	600	1.0	9.1
MMSZ5243BSCR-C	H3	12.35	13	13.65	9.5	13	600	0.5	9.9
MMSZ5244BSCR-C	H4	13.3	14	14.7	9	15	600	0.1	10
MMSZ5245BSCR-C	H5	14.25	15	15.75	8.5	16	600	0.1	11
MMSZ5246BSCR-C	J1	15.2	16	16.8	7.8	17	600	0.1	12
MMSZ5247BSCR-C	J2	16.15	17	17.85	7.5	19	600	0.1	13
MMSZ5248BSCR-C	J3	17.1	18	18.9	7.0	21	600	0.1	14
MMSZ5250BSCR-C	J5	19	20	21	6.2	25	600	0.1	15
MMSZ5251BSCR-C	K1	20.9	22	23.1	5.6	29	600	0.1	17
MMSZ5252BSCR-C	K2	22.8	24	25.2	5.2	33	600	0.1	18
MMSZ5253BSCR-C	K3	23.75	25	26.25	5.0	35	600	0.1	19

**ELECTRICAL RATINGS** ( $T_A=25^\circ\text{C}$  unless otherwise specified)

Part Number	Marking	Zener Voltage Range				Maximum Zener Impedance		Maximum Reverse Leakage Current	
		$V_Z @ I_{ZT}$			$I_{ZT}$	$Z_{ZT} @ I_{ZT}$	$Z_{ZK} @ I_{ZK} = 0.25\text{mA}$	$I_R @ V_R$	
		Min. (V)	Nom. (V)	Max. (V)	mA	$\Omega$		$\mu\text{A}$	V
MMSZ5254BSCR-C	K4	25.65	27	28.35	5.0	41	600	0.1	21
MMSZ5255BSCR-C	K5	26.6	28	29.4	4.5	44	600	0.1	21
MMSZ5256BSCR-C	M1	28.5	30	31.5	4.2	49	600	0.1	23
MMSZ5257BSCR-C	M2	31.35	33	34.65	3.8	58	700	0.1	25
MMSZ5258BSCR-C	M3	34.2	36	37.8	3.4	70	700	0.1	27
MMSZ5259BSCR-C	M4	37.05	39	40.95	3.2	80	800	0.1	30
MMSZ5260BSCR-C	M5	40.85	43	45.15	3.0	93	900	0.1	33
MMSZ5261BSCR-C	M6	44.65	47	49.35	2.7	105	1000	0.1	36
MMSZ5262BSCR-C	M7	48.45	51	53.55	2.5	125	1100	0.1	39
MMSZ5263BSCR-C	M8	53.2	56	58.8	2.2	150	1300	0.1	43
MMSZ5265BSCR-C	M9	58.9	62	65.1	2.0	185	1400	0.1	47
MMSZ5267BSCR-C	P2	71.25	75	78.75	1.7	270	1700	0.1	56

**CHARACTERISTIC CURVES**

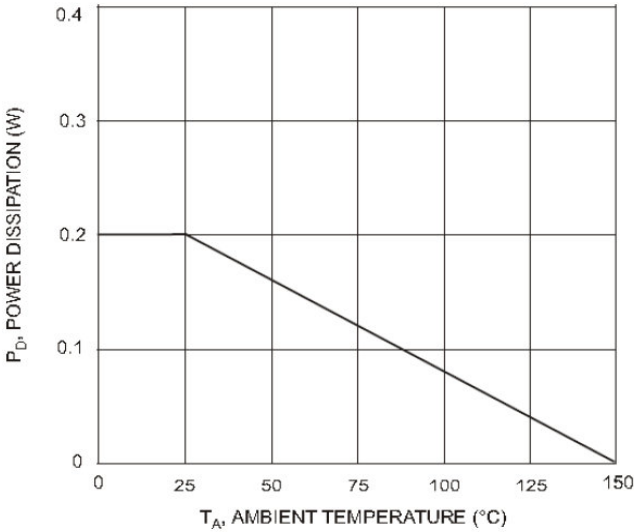


Fig. 1 Power Dissipation vs Ambient Temperature

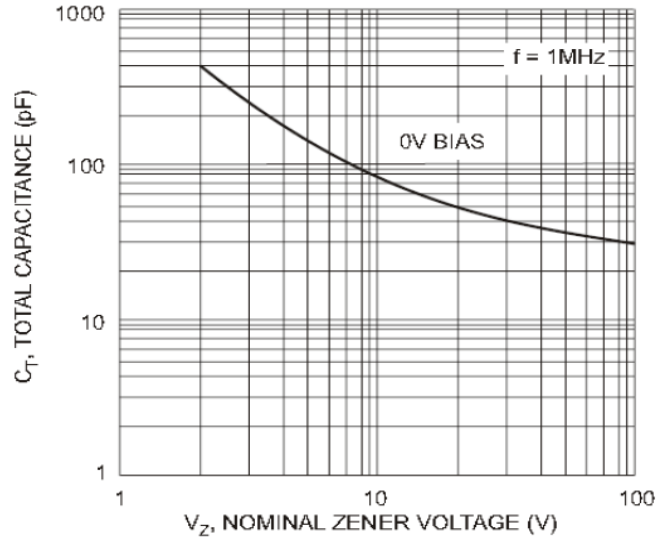


Fig. 2 Typical Capacitance

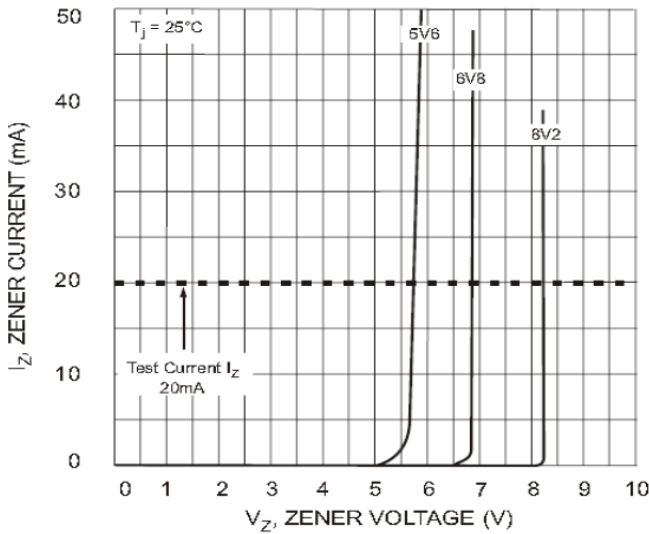


Fig. 3 Zener Breakdown Characteristics

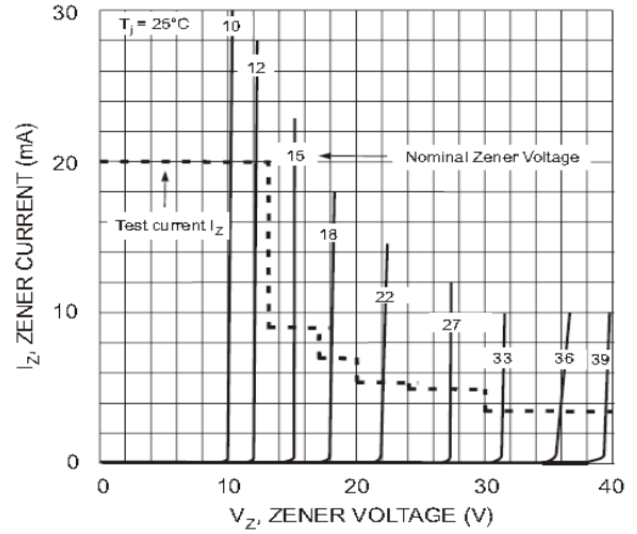


Fig. 4 Zener Breakdown Characteristics