



## Zener Diode Series

# ZD52XXBSF

### Description

The ZD52XXBSF series covers zener voltage range from 2.4V to 39V, and is encapsulated in SOD-123-MH package, very suitable for low cost, low power voltage regulation application.

### Features

- Extremely thin/leadless package
- 500mW power dissipation
- Designed for mounting on small surface

### Mechanical Data

- Case : Molded plastic, JEDEC SOD-123-MH
- Terminals: Solder plated, solderable per MIL-STD-750 method 2026
- Polarity: Indicated by cathode band
- Mounting position: Any

### Absolute Maximum Ratings( $T_A=25^{\circ}\text{C}$ , unless otherwise specified)

PARAMETER	CONDITIONS	Symbols	MIN	TYP	MAX	Unit
Forward Voltage	$I_F=200\text{mA}$	$V_F$			1.2	V
Power Dissipation		$P_D$			500	mW
Forward Surge Current	8.3ms single sine-wave superimposed on rated load (JEDEC method)	$I_{FSM}$			1000	mA
Storage Temperature		$T_{STG}$	-55		+125	$^{\circ}\text{C}$
Operating Temperature		$T_J$	-55		+125	$^{\circ}\text{C}$



**Electrical Characteristic** (TA=25°C, unless otherwise noted)

Device	Nom. Zener Voltage		Max. Zener Impedance				Max. Reverse Leakage Current		Marking Code
	Vz@IzT (V)		ZzT	IzT	ZzK	IzK	IR	VR	
	Nom.	Test Current (mA)	(Ω)	(mA)	(Ω)	(mA)	(μA)	(V)	
ZD5221BSF	2.4	5	100	5	1800	0.25	100	1.0	N3
ZD5223BSF	2.7	5	100	5	1900	0.25	75	1.0	N4
ZD5225BSF	3.0	5	95	5	2000	0.25	50	1.0	N6
ZD5226BSF	3.3	5	95	5	2200	0.25	25	1.0	X1
ZD5227BSF	3.6	5	90	5	2300	0.25	15	1.0	X2
ZD5228BSF	3.9	5	90	5	2400	0.25	10	1.0	X3
ZD5229BSF	4.3	5	88	5	2500	0.25	5.0	1.0	X4
ZD5230BSF	4.7	5	70	5	2200	0.25	3.0	1.0	X5
ZD5231BSF	5.1	5	50	5	2050	0.25	2.0	1.0	X6
ZD5232BSF	5.6	5	25	5	1800	0.25	2.0	1.0	X7
ZD5234BSF	6.2	5	10	5	1300	0.25	1.0	2.0	X8
ZD5235BSF	6.8	5	8	5	750	0.25	1.0	3.0	X9
ZD5236BSF	7.5	5	7	5	600	0.25	0.5	5.0	Y1
ZD5237BSF	8.2	5	7	5	600	0.25	0.5	6.2	Y2
ZD5239BSF	9.1	5	10	5	600	0.25	0.1	6.8	Y3
ZD5240BSF	10	5	15	5	600	0.25	0.1	7.5	Y4
ZD5241BSF	11	5	18	5	600	0.25	0.1	8.2	Y5
ZD5242BSF	12	5	22	5	600	0.25	0.1	9.1	Y6
ZD5243BSF	13	5	25	5	600	0.25	1.0	10	Y7
ZD5245BSF	15	5	32	5	600	0.25	0.1	11	Y8
ZD5246BSF	16	5	36	5	600	0.25	0.1	12	Y9
ZD5248BSF	18	5	42	5	600	0.25	0.1	13	Z1
ZD5250BSF	20	5	48	5	600	0.25	0.1	15	Z2
ZD5251BSF	22	5	55	5	600	0.25	0.1	16	Z3
ZD5252BSF	24	5	62	5	600	0.25	0.1	18	Z4
ZD5254BSF	27	5	70	5	600	0.25	0.1	20	Z5
ZD5256BSF	30	5	78	5	600	0.25	0.1	22	Z6
ZD5257BSF	33	5	88	5	700	0.25	0.1	24	Z7
ZD5258BSF	36	5	95	5	700	0.25	0.1	27	Z8
ZD5259BSF	39	5	130	5	800	0.25	0.1	30	Z9

Note: 2% tolerance of Zener voltage

**Characteristic Curves**

FIG. 1-TOTAL POWER DISSIPATION VS. AMBIENT TEMPERATURE

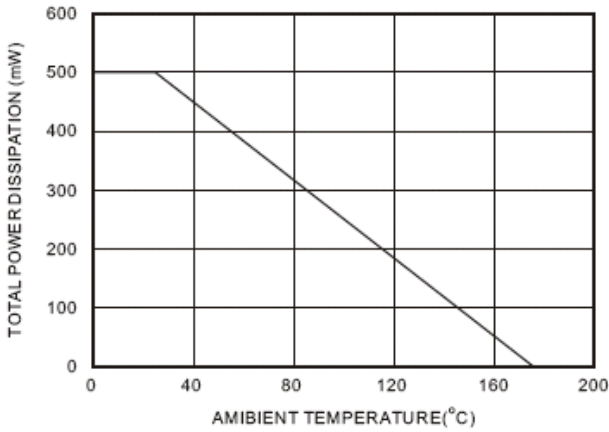


FIG. 2-TYPICAL CHANGE OF WORKING VOLTAGE UNDER OPERATING CONDITIONS AT TA=25°C

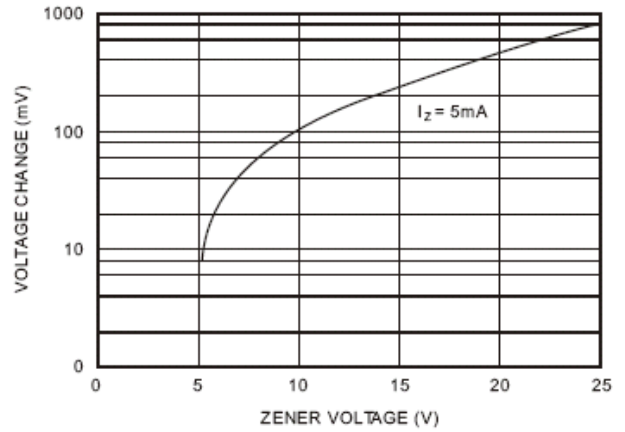


FIG. 3-TYPICAL CHANGE OF WORKING VOLTAGE VS. JUNCTION TEMPERATURE

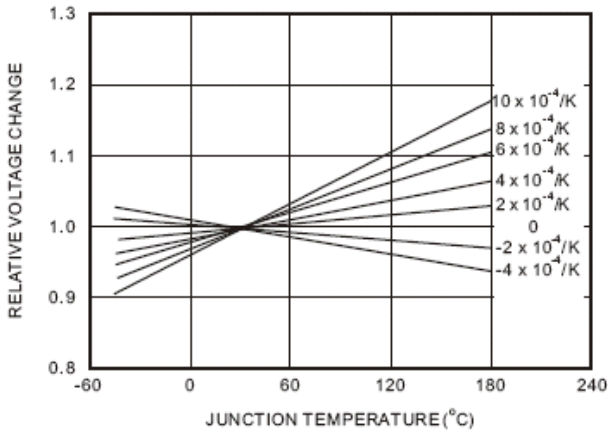


FIG. 4-TEMPERATURE COEFFICIENT OF VZ VS. Z-VOLTAGE

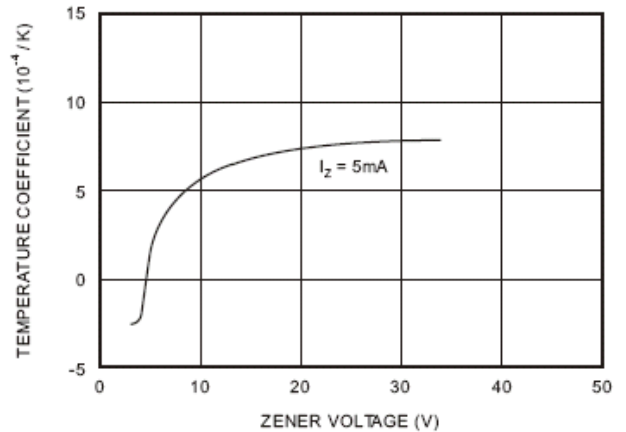
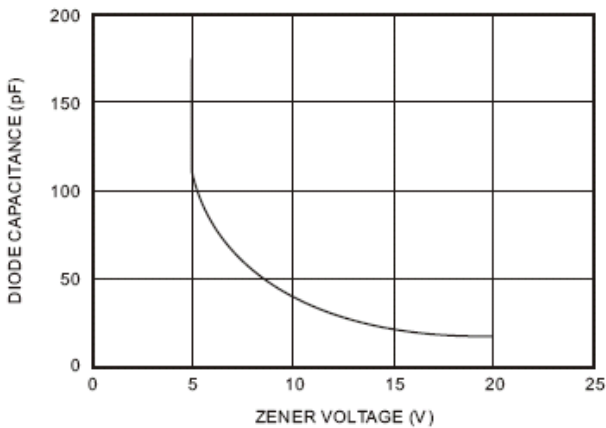


FIG. 5-DIODE CAPACITANCE VS. Z-VOLTAGE



**Characteristic Curves(Cont.)**

FIG. 6-FORWARD CURRENT VS. FORWARD VOLTAGE

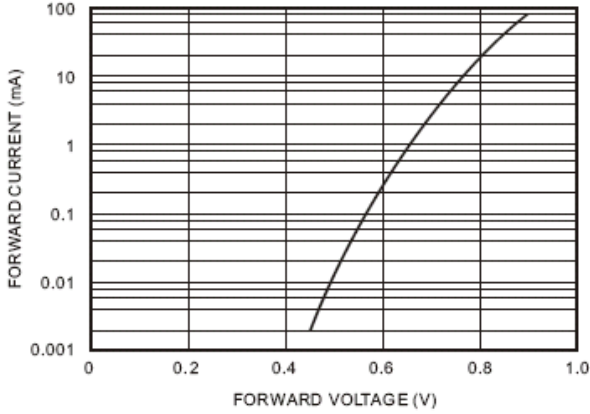


FIG. 7-Z-CURRENT VS. Z-VOLTAGE

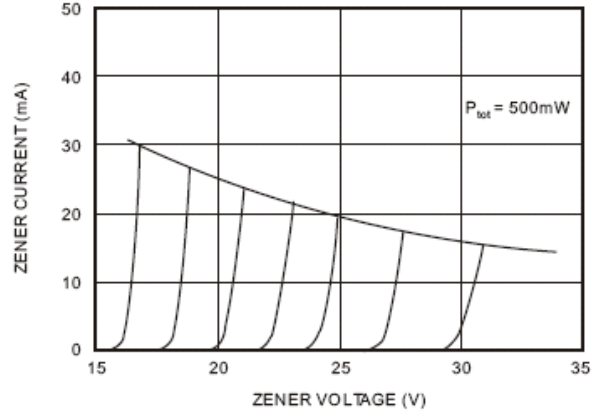


FIG. 8-Z-CURRENT VS. Z-VOLTAGE

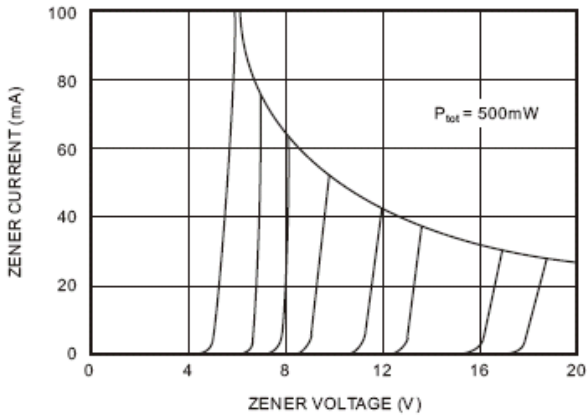


FIG. 9-DIFFERENTIAL Z-RESISTANCE VS. Z-VOLTAGE

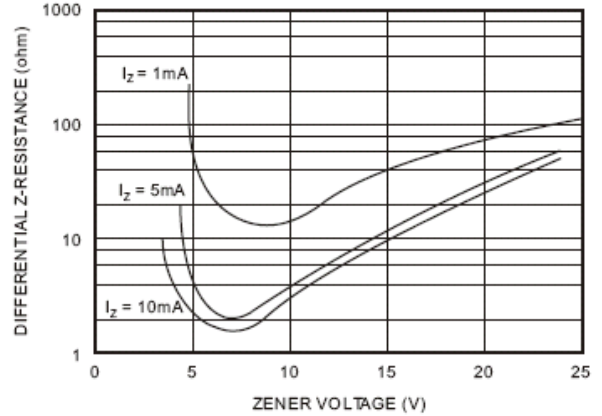
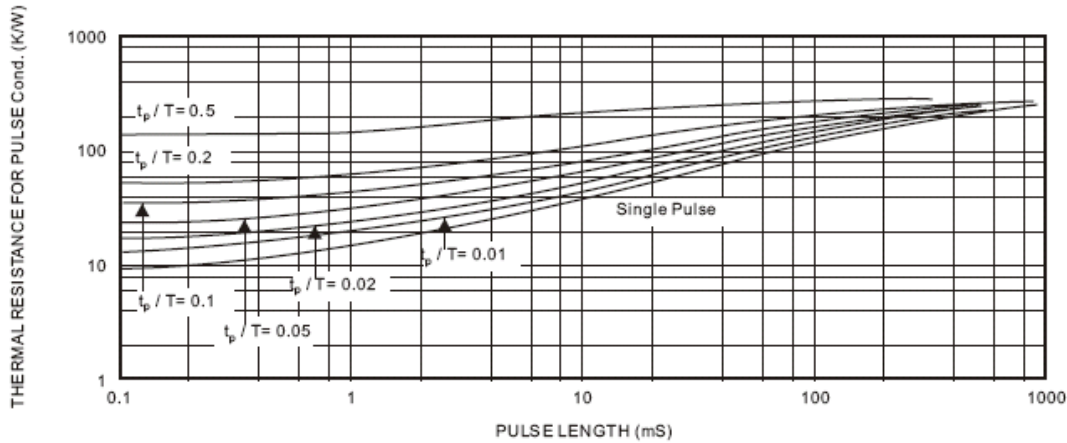
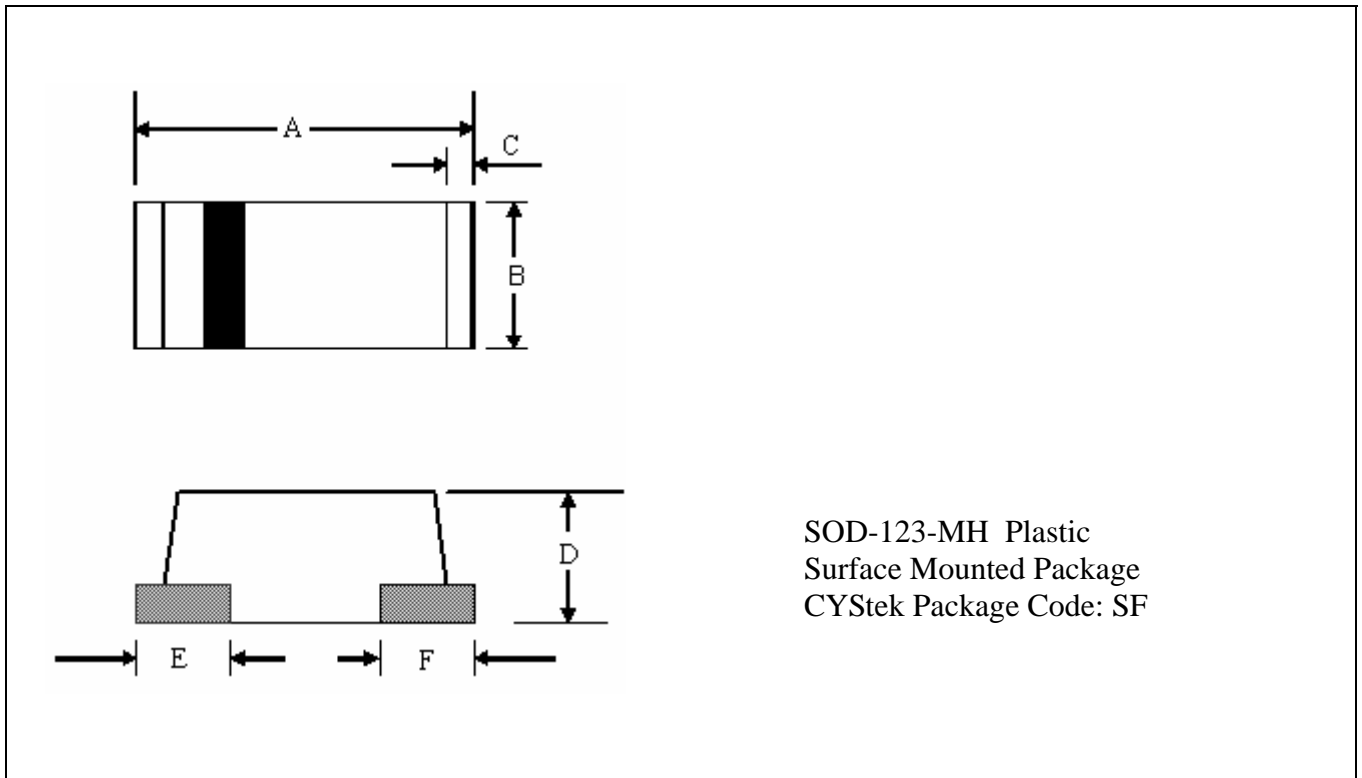


FIG. 10-THERMAL RESPONSE



**SOD-123-MH Dimension**



\*:Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.130	0.146	3.3	3.7	D	0.024	0.039	0.6	1.0
B	0.055	0.071	1.4	1.8	E	0.031(typ)		0.8(typ)	
C	0.012(typ)		0.3(typ)		F	0.031(typ)		0.8(typ)	
					-	-	-	-	-

Notes : 1.Controlling dimension : millimeters.  
 2.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 3.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material :**

- Lead : 42 Alloy ; solder plating
- Mold Compound : Epoxy resin family, flammability solid burning class:UL94V-0

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