

**SURFACE MOUNT ZENER DIODE**

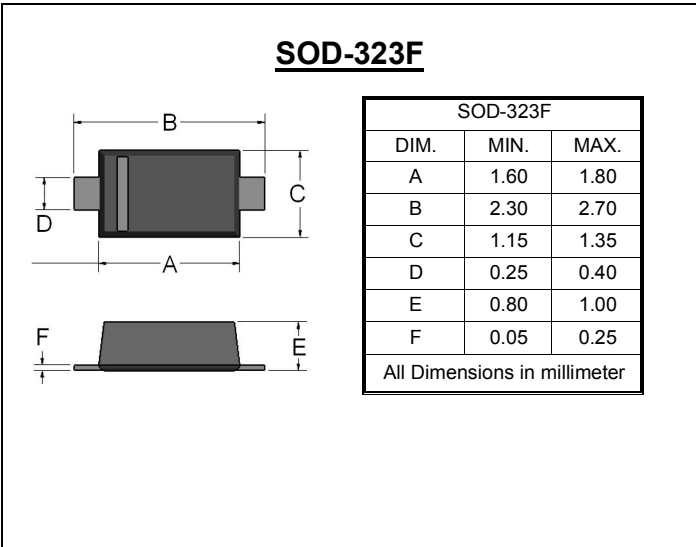
**REVERSE VOLTAGE – 4.3 to 75 Volts  
POWER DISSIPATION – 0.2 Watts**

**FEATURES**

- Wide Zener Voltage Range Selection, 4.3V to 75V
- VZ Tolerance Selection of  $\pm 2\%$  (C Series)
- Flat Lead SOD-323F Plastic Package
- Surface Device Type Mounting
- Green EMC
- Matte Tin(Sn) Lead Finish
- RoHS compliant
- Band Indicates Cathode

**MECHANICAL DATA**

- Case: SOD-323F Plastic



**Maximum Ratings & Thermal Characteristics @  $T_A = 25^\circ\text{C}$  unless otherwise specified**

Characteristic	Symbol	Value	Unit
Power Dissipation	PD	200	mW
Storage Temperature Range	TSTG	-65 to +150	$^\circ\text{C}$
Operating Temperature Range	TOPR	-65 to +150	$^\circ\text{C}$

**Device Marking :**

Device P/N	Marking	Pin Diagram	Equivalent Circuit Diagram
MMSZ52xxCSF	See below table		

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

Symbol	Parameter
V <sub>Z</sub>	Reverse Zener Voltage @ I <sub>ZT</sub>
I <sub>ZT</sub>	Reverse Current
Z <sub>ZT</sub>	Maximum Zener Impedance @ I <sub>ZT</sub>
I <sub>ZK</sub>	Reverse Current
Z <sub>ZK</sub>	Maximum Zener Impedance @ I <sub>ZK</sub>
I <sub>R</sub>	Reverse Leakage Current @ V <sub>R</sub>
V <sub>R</sub>	Reverse Voltage
I <sub>F</sub>	Forward Current
V <sub>F</sub>	Forward Voltage @ I <sub>F</sub>

**Electrical Characteristics @ T<sub>A</sub> = 25°C unless otherwise specified**

Device	Device marking	Zener Voltage				Maximum Zener Impedance		Maximum Reverse Current	
		V <sub>Z</sub> @ I <sub>ZT</sub>			I <sub>ZT</sub>	Z <sub>TT</sub> @ I <sub>ZT</sub>	Z <sub>ZK</sub> @ I <sub>ZK</sub>	I <sub>R</sub> @ V <sub>R</sub>	
		Min	Nom	Max	mA	Ω	Ω	uA	V
MMSZ5229CSF	229C	4.214	4.3	4.386	20	22	2000	5	1
MMSZ5230CSF	230C	4.606	4.7	4.794	20	19	1900	5	2
MMSZ5231CSF	231C	4.998	5.1	5.202	20	17	1600	5	2
MMSZ5232CSF	232C	5.488	5.6	5.712	20	11	1600	5	3
MMSZ5233CSF	233C	5.88	6.0	6.12	20	7	1600	5	3.5
MMSZ5234CSF	234C	6.076	6.2	6.324	20	7	1000	5	4
MMSZ5235CSF	235C	6.664	6.8	6.936	20	5	750	3	5
MMSZ5236CSF	236C	7.35	7.5	7.65	20	6	500	3	6
MMSZ5237CSF	237C	8.036	8.2	8.364	20	8	500	3	6.5
MMSZ5238CSF	238C	8.526	8.7	8.874	20	8	600	3	6.5
MMSZ5239CSF	239C	8.918	9.1	9.282	20	10	600	3	7
MMSZ5240CSF	240C	9.8	10	10.2	20	17	600	3	8
MMSZ5241CSF	241C	10.78	11	11.22	20	22	600	2	8.4
MMSZ5242CSF	242C	11.76	12	12.24	20	30	600	1	9.1
MMSZ5243CSF	243C	12.74	13	13.26	9.5	13	600	0.5	9.9
MMSZ5244CSF	244C	13.72	14	14.28	9	15	600	0.1	10
MMSZ5245CSF	245C	14.7	15	15.3	8.5	16	600	0.1	11
MMSZ5246CSF	246C	15.68	16	16.32	7.8	17	600	0.1	12
MMSZ5247CSF	247C	16.66	17	17.34	7.4	19	600	0.1	13
MMSZ5248CSF	248C	17.64	18	18.36	7	21	600	0.1	14
MMSZ5249CSF	249C	18.62	19	19.38	6.6	23	600	0.1	14
MMSZ5250CSF	250C	19.6	20	20.4	6.2	25	600	0.1	15
MMSZ5251CSF	251C	21.56	22	22.44	5.6	29	600	0.1	17
MMSZ5252CSF	252C	23.52	24	24.48	5.2	33	600	0.1	18
MMSZ5253CSF	253C	24.5	25	25.5	5	35	600	0.1	19
MMSZ5254CSF	254C	26.46	27	27.54	4.6	41	600	0.1	21
MMSZ5255CSF	255C	27.44	28	28.56	4.5	44	600	0.1	21
MMSZ5256CSF	256C	29.4	30	30.6	4.2	49	600	0.1	23
MMSZ5257CSF	257C	32.34	33	33.66	3.8	58	700	0.1	25
MMSZ5258CSF	258C	35.28	36	36.72	3.4	70	700	0.1	27
MMSZ5259CSF	259C	38.22	39	39.78	3.2	80	800	0.1	30
MMSZ5260CSF	260C	42.14	43	43.86	3	93	900	0.1	33
MMSZ5261CSF	261C	46.06	47	47.94	2.7	105	1000	0.1	36
MMSZ5262CSF	262C	49.98	51	52.02	2.5	125	1100	0.1	39
MMSZ5263CSF	263C	54.88	56	57.12	2.2	150	1300	0.1	43
MMSZ5264CSF	264C	58.8	60	61.2	2.1	170	1400	0.1	46
MMSZ5265CSF	265C	60.76	62	63.24	2.0	185	1400	0.1	47
MMSZ5266CSF	266C	66.64	68	69.36	1.8	230	1600	0.1	52
MMSZ5267CSF	267C	73.5	75	76.5	1.7	270	1700	0.1	56

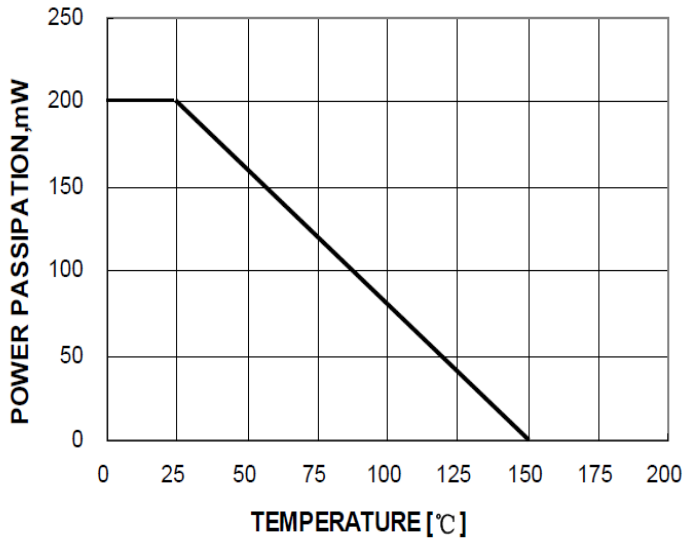
**V<sub>F</sub> Forward Voltage = 900m V Maximum @ I<sub>F</sub> = 10 mA for all types**

**Notes:**

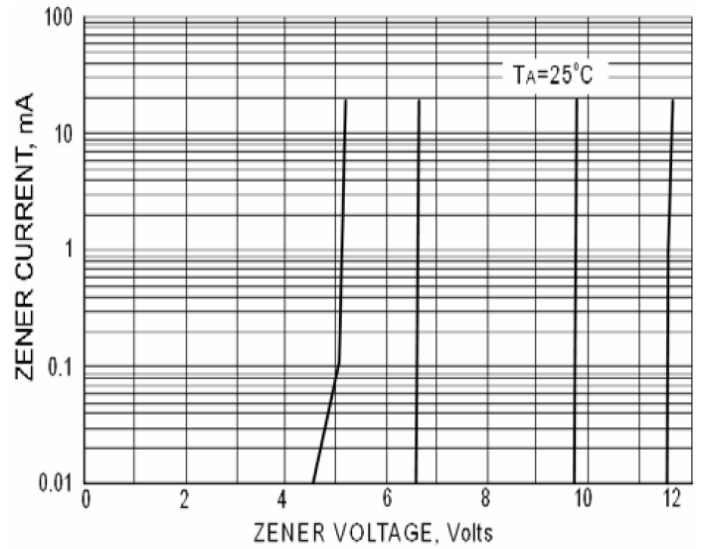
1. The zener voltage (V<sub>Z</sub>) is tested under pulse condition of 1mS.
2. The device numbers listed have a standard tolerance on the nominal zener voltage of ±2%.
3. The zener impedance is derived from the 60-cycle ac voltage, which results when an ac current having an rms value equal to 10% of the dc zener current (I<sub>ZT</sub> or I<sub>ZK</sub>) is superimposed to I<sub>ZT</sub> or I<sub>ZK</sub>.
4. For detailed information on price, availability and delivery of nominal zener voltages between the voltages shown and tighter voltage tolerances, contact your nearest Liteon Semiconductor Corp. representative.

**MMSZ5229CSF THRU MMSZ5267CSF**  
**Typical Characteristics**

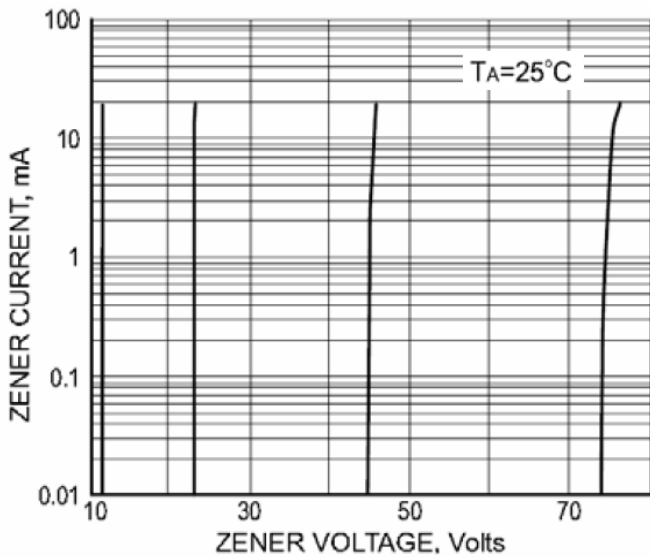
**Fig.1 Power Derating Curve**



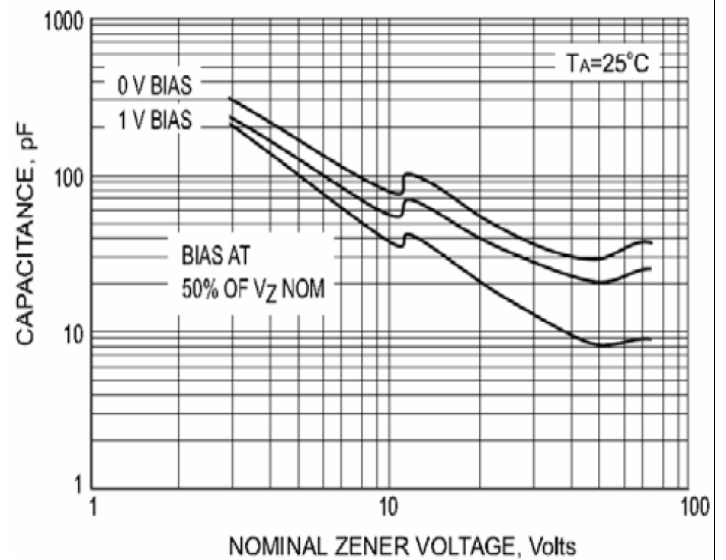
**Fig.2 Typical Zener Breakdown Characteristics**



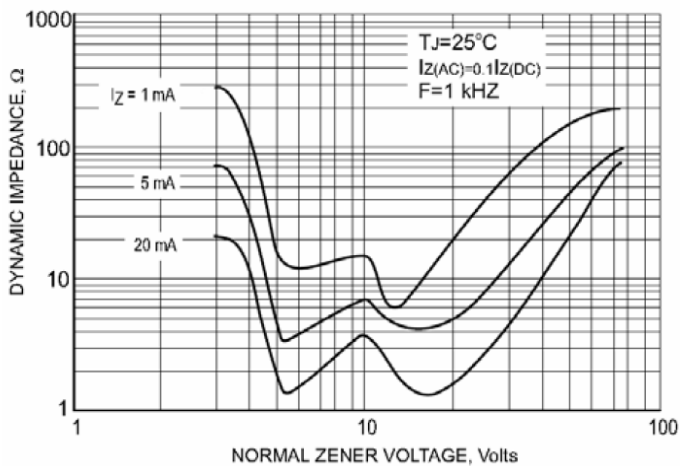
**Fig.3 Typical Zener Breakdown Characteristics**



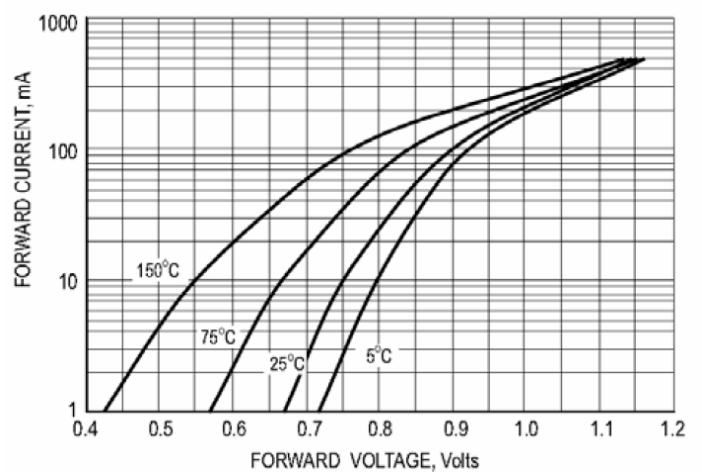
**Fig.4 Typical Total Capacitance vs. Nominal Zener Voltage**



**Fig.5 EFFECT OF ZENER VOLTAGE ON ZENER IMPEDANCE**

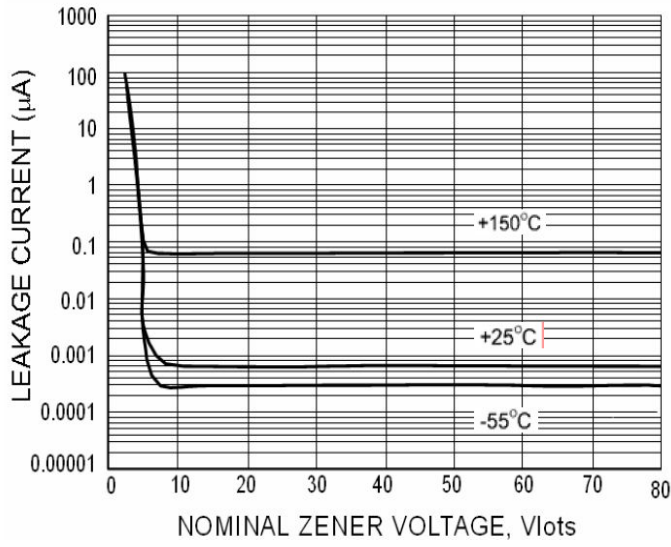


**Fig.6 TYPICAL FORWARD VOLTAGE**



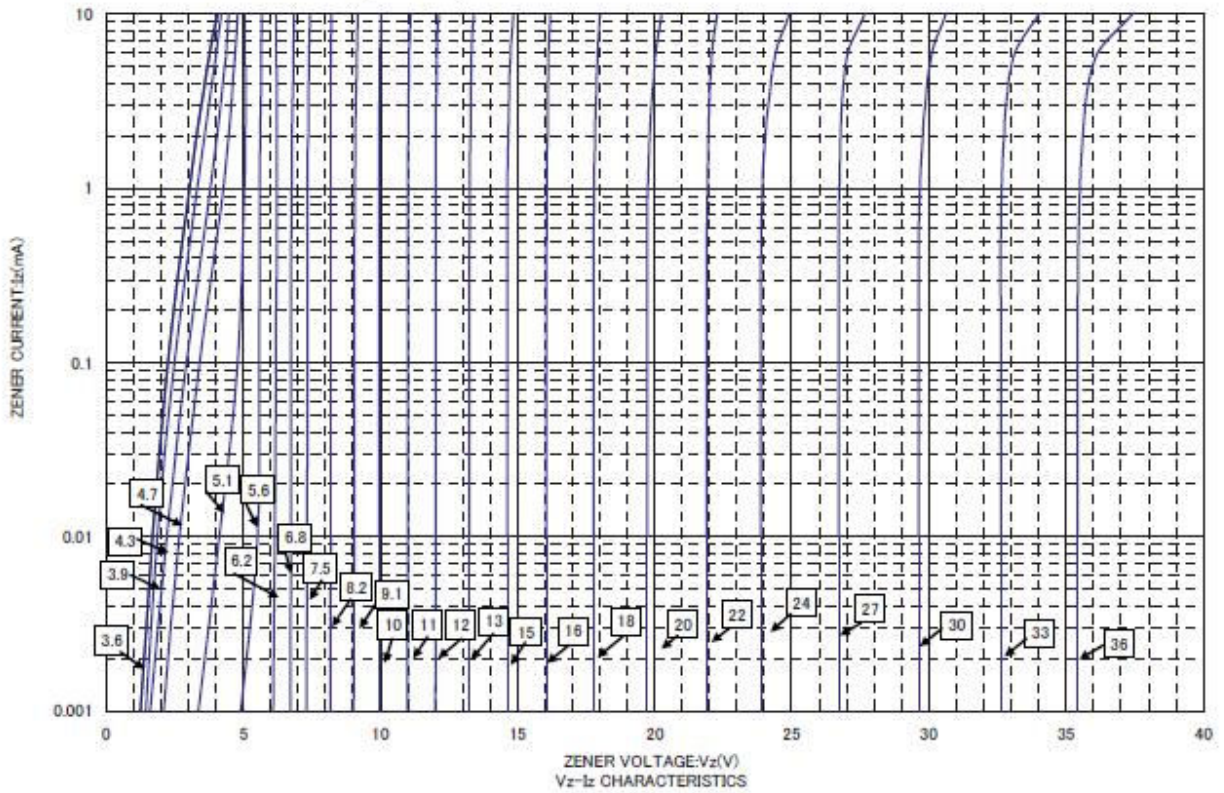
**MMSZ5229CSF THRU MMSZ5267CSF**  
**Typical Characteristics**

**Fig.7 TYPICAL LEAKGE CURRENT**



**Fig.8 Vz vs Iz Characteristics**

● **Electrical characteristic curves (Ta=25°C)**



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