

**Silicon Epitaxial Planar Zener Diodes**

**ZMCRD...S Series**

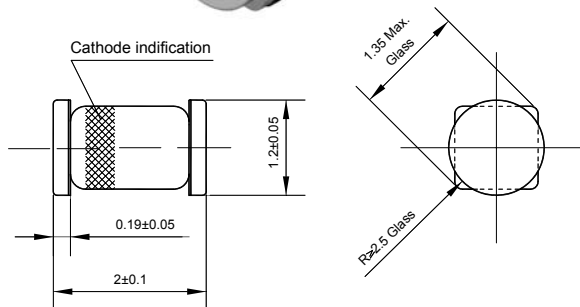
**Features**

- Sharp breakdown characteristic

**Applications**

- Circuits for constant voltage, constant current wave form clipper, surge absorber, etc

LS-31



Glass case MicroMELF  
Dimensions in mm

**Absolute Maximum Ratings (T<sub>a</sub> = 25°C)**

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>tot</sub>	500	mW
Forward Current	I <sub>F</sub>	100	mA
Reverse Surge Power (at t = 10 μs / 1 pulse)	P <sub>RSM</sub>	85	W
Junction Temperature	T <sub>j</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	- 55 to + 150	°C

**Characteristics at T<sub>a</sub> = 25°C (V<sub>F</sub> = 1 V Max. at I<sub>F</sub> = 100 mA)**

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	V <sub>Z</sub>		at I <sub>ZT</sub>	Z <sub>ZT</sub>	at I <sub>ZT</sub>	I <sub>R</sub>	at V <sub>R</sub>
	Min. (V)	Max. (V)	(mA)	Max. (Ω)	(mA)	Max. (μA)	(V)
ZMCRD2V0SB	1.8	2.15	5	100	5	120	0.5
ZMCRD2V2SB	2.1	2.4	5	100	5	120	0.7
ZMCRD2V4SB	2.3	2.6	5	100	5	120	1
ZMCRD2V7SB	2.5	2.9	5	110	5	120	1
ZMCRD2V7SB1	2.5	2.75	5	110	5	120	1
ZMCRD2V7SB2	2.65	2.9	5	110	5	120	1
ZMCRD3V0SB	2.8	3.2	5	120	5	50	1
ZMCRD3V0SB1	2.8	3.05	5	120	5	50	1
ZMCRD3V0SB2	2.95	3.2	5	120	5	50	1
ZMCRD3V3SB	3.1	3.5	5	130	5	20	1

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 Characteristics at  $T_a = 25^\circ\text{C}$  ( $V_F = 1\text{ V Max. at } I_F = 100\text{ mA}$ )

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		at $I_{ZT}$	$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMCRD3V3SB1	3.1	3.35	5	130	5	20	1
ZMCRD3V3SB2	3.25	3.5	5	130	5	20	1
ZMCRD3V6SB	3.4	3.8	5	130	5	10	1
ZMCRD3V6SB1	3.4	3.65	5	130	5	10	1
ZMCRD3V6SB2	3.55	3.8	5	130	5	10	1
ZMCRD3V9SB	3.7	4.1	5	130	5	10	1
ZMCRD3V9SB1	3.7	3.97	5	130	5	10	1
ZMCRD3V9SB2	3.87	4.1	5	130	5	10	1
ZMCRD4V3SB	4	4.49	5	130	5	10	1
ZMCRD4V3SB1	4	4.22	5	130	5	10	1
ZMCRD4V3SB2	4.14	4.35	5	130	5	10	1
ZMCRD4V3SB3	4.27	4.49	5	130	5	10	1
ZMCRD4V7SB	4.4	4.92	5	130	5	10	1
ZMCRD4V7SB1	4.4	4.63	5	130	5	10	1
ZMCRD4V7SB2	4.53	4.77	5	130	5	10	1
ZMCRD4V7SB3	4.67	4.92	5	130	5	10	1
ZMCRD5V1SB	4.82	5.39	5	130	5	5	1.5
ZMCRD5V1SB1	4.82	5.06	5	130	5	5	1.5
ZMCRD5V1SB2	4.96	5.22	5	130	5	5	1.5
ZMCRD5V1SB3	5.12	5.39	5	130	5	5	1.5
ZMCRD5V6SB	5.29	5.94	5	80	5	5	2.5
ZMCRD5V6SB1	5.29	5.57	5	80	5	5	2.5
ZMCRD5V6SB2	5.47	5.75	5	80	5	5	2.5
ZMCRD5V6SB3	5.65	5.94	5	80	5	5	2.5
ZMCRD6V2SB	5.84	6.55	5	50	5	2	3
ZMCRD6V2SB1	5.84	6.14	5	50	5	2	3
ZMCRD6V2SB2	6.04	6.35	5	50	5	2	3
ZMCRD6V2SB3	6.24	6.55	5	50	5	2	3
ZMCRD6V8SB	6.44	7.17	5	30	5	2	3.5
ZMCRD6V8SB1	6.44	6.76	5	30	5	2	3.5
ZMCRD6V8SB2	6.62	6.96	5	30	5	2	3.5
ZMCRD6V8SB3	6.83	7.17	5	30	5	2	3.5
ZMCRD7V5SB	7.03	7.87	5	30	5	2	4
ZMCRD7V5SB1	7.03	7.39	5	30	5	2	4
ZMCRD7V5SB2	7.25	7.63	5	30	5	2	4
ZMCRD7V5SB3	7.49	7.87	5	30	5	2	4
ZMCRD8V2SB	7.73	8.67	5	30	5	2	5
ZMCRD8V2SB1	7.73	8.13	5	30	5	2	5
ZMCRD8V2SB2	7.98	8.39	5	30	5	2	5
ZMCRD8V2SB3	8.25	8.67	5	30	5	2	5
ZMCRD9V1SB	8.53	9.58	5	30	5	2	6
ZMCRD9V1SB1	8.53	8.96	5	30	5	2	6
ZMCRD9V1SB2	8.81	9.26	5	30	5	2	6
ZMCRD9V1SB3	9.12	9.58	5	30	5	2	6

**Silicon Epitaxial Planar Zener Diodes**

**ZMCRD...S Series**

Characteristics at  $T_a = 25^\circ\text{C}$  ( $V_F = 1\text{ V Max. at } I_F = 100\text{ mA}$ )

Type	Zener Voltage <sup>1)</sup>			Dynamic Resistance		Reverse Leakage Current	
	$V_Z$		at $I_{ZT}$	$Z_{ZT}$	at $I_{ZT}$	$I_R$	at $V_R$
	Min. (V)	Max. (V)	(mA)	Max. ( $\Omega$ )	(mA)	Max. ( $\mu\text{A}$ )	(V)
ZMCRD10SB	9.42	10.58	5	30	5	2	7
ZMCRD10SB1	9.42	9.9	5	30	5	2	7
ZMCRD10SB2	9.74	10.24	5	30	5	2	7
ZMCRD10SB3	10.08	10.58	5	30	5	2	7
ZMCRD11SB	10.4	11.6	5	30	5	2	8
ZMCRD11SB1	10.4	10.92	5	30	5	2	8
ZMCRD11SB2	10.72	11.26	5	30	5	2	8
ZMCRD11SB3	11.06	11.6	5	30	5	2	8
ZMCRD12SB	11.38	12.64	5	35	5	2	9
ZMCRD12SB1	11.38	11.94	5	35	5	2	9
ZMCRD12SB2	11.69	12.28	5	35	5	2	9
ZMCRD12SB3	12.04	12.64	5	35	5	2	9
ZMCRD13SB	12.43	14	5	35	5	2	10
ZMCRD15SB	13.8	15.56	5	40	5	2	11
ZMCRD16SB	15.31	17.14	5	40	5	2	12
ZMCRD18SB	16.89	19.08	5	45	5	2	13
ZMCRD20SB	18.8	21.14	5	50	5	2	15
ZMCRD22SB	20.81	23.25	5	55	5	2	17
ZMCRD24SB	22.86	25.66	5	60	5	2	19
ZMCRD27SB	25.1	28.9	2	70	2	2	21
ZMCRD30SB	28	32	2	80	2	2	23
ZMCRD33SB	31	35	2	80	2	2	25
ZMCRD36SB	34	38	2	90	2	2	27
ZMCRD39SB	37	41	2	100	2	2	30
ZMCRD43SB	40	45	2	130	2	2	33
ZMCRD47SB	44	49	2	150	2	2	36
ZMCRD51SB	48	54	2	180	2	1	39
ZMCRD56SB	53	60	2	180	2	1	43
ZMCRD62SB	58	66	2	200	2	0.2	47
ZMCRD68SB	64	72	2	250	2	0.2	52
ZMCRD75SB	70	79	2	300	2	0.2	57

<sup>1)</sup>  $V_Z$  is tested with pulse (20 ms).