Zibo Seno Electronic Engineering Co., Ltd.

淄博圣诺

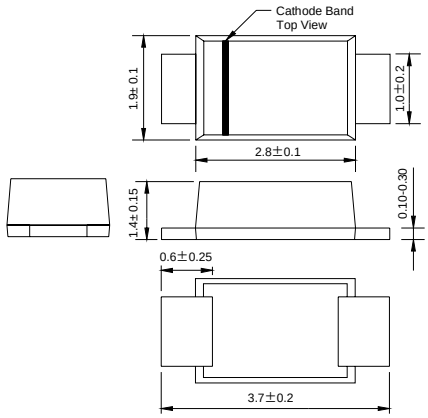
MMF5.0A/CA-MMF190A/CA

5.0 to 190Volts 200Watts SMD TRANSIENT VOLTAGE SUPPRESSORS

Features

- Glass Passivated Die Construction
- 200W Peak Pulse Power Dissipation
- 5.0V-190V Standoff Voltage
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Case Material has UL Flammability

SOD - 123FL



Dimensions in millimeters

Mechanical Data

- Case: SOD-123FL Molded Plastic
- Terminals:Solderable per MIL-STD-202, Method 208
- Polarity: Cathode Band or Cathode Notch
- Marking:
  Unidirectional – Device Code and Cathode Band
  Bidirectional – Device Code Only
- Weight: 0.064 grams (approx.)
- **Lead Free: For RoHS / Lead Free Version**

"C" Suffix Designates Bi-directional Devices
"A" Suffix Designates 5% Tolerance Devices
No Suffix Designates 10% Tolerance Devices

Maximum Ratings and Electrical Characteristics @T_A=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Peak Pulse Power Dissipation at T_A = 25°C (Note 1, 2, 5) Figure 3	P_{PPM}	200	W
Peak Forward Surge Current (Note 3)	I_{FSM}	30	A
Peak Pulse Current on 10/1000μS Waveform (Note 1) Figure 1	I_{PPM}	See Table 1	A
Steady State Power Dissipation (Note 2, 4)	$P_{M(AV)}$	1.0	W
Operating and Storage Temperature Range	T_j, T_{STG}	-55 to +150	°C

Note: 1. Non-repetitive current pulse, per Figure 1 and derated above T_A = 25°C per Figure 4.
2. Mounted on 40mm^2 copper pad.
3. 8.3ms single half sine-wave duty cycle = 4 pulses per minutes maximum.
4. Lead temperature at 75°C = T_L.
5. Peak pulse power waveform is 10/1000μS.

Ratings and Characteristic Curves T_A=25°C unless otherwise noted

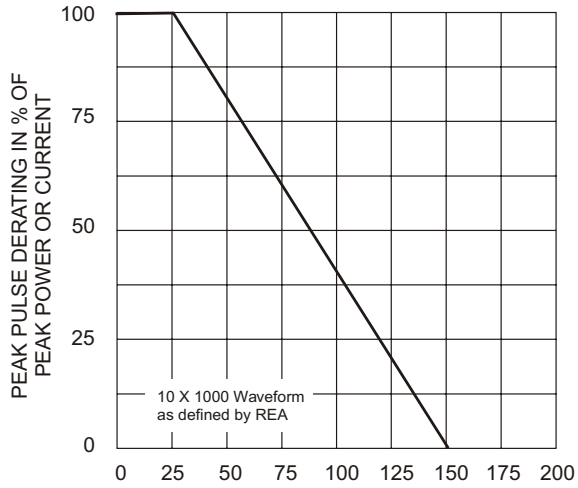


Fig. 1 Pulse Derating Curve

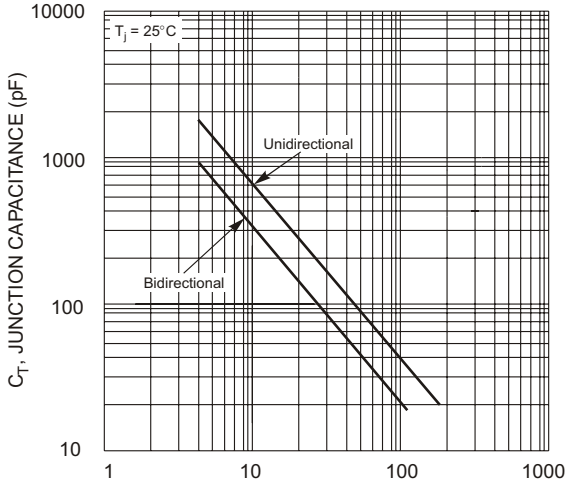


Fig. 2 Typical Total Capacitance

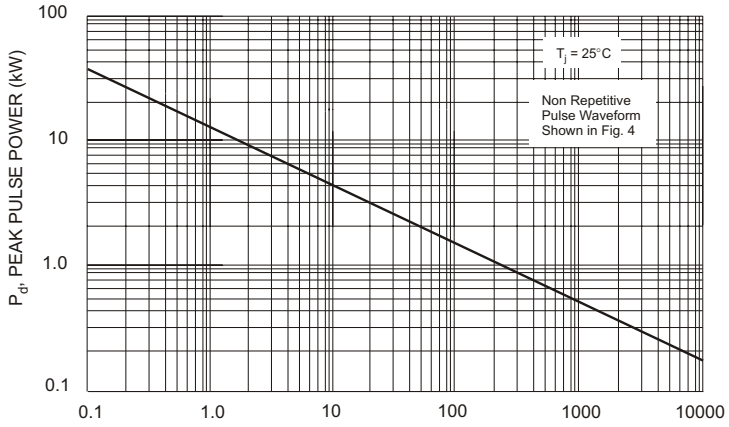


Fig. 3 Pulse Rating Curve

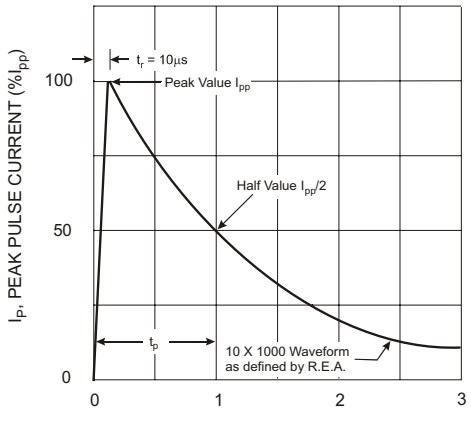


Fig. 4 Pulse Waveform

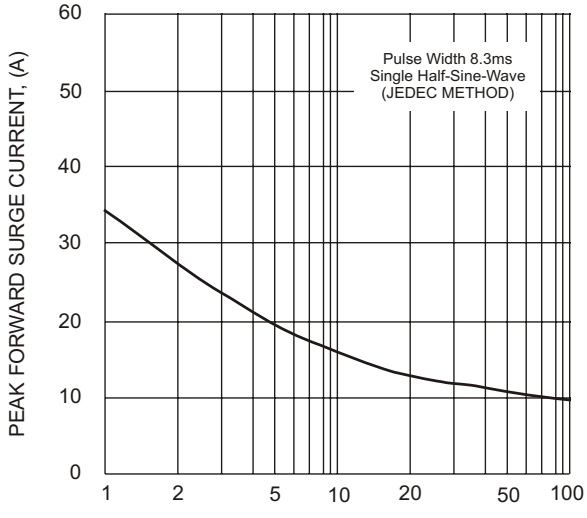


Fig. 5 Maximum Non-Repetitive Surge Current

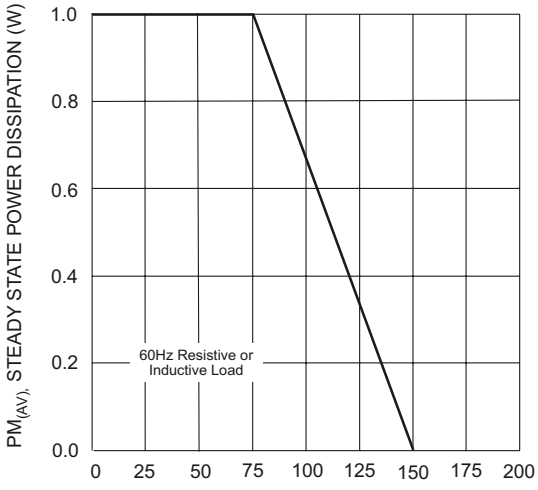


Fig. 6 Steady State Power Derating Curve

Electrical Specification @ Ta=25°C

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Clamping Voltage	Peak Pulse Current	Reverse Leakage @V_{RMW}
Uni	Bi	Uni	Bi	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
MMF5.0A	MMF5.0CA	5.0A	5.0CA	5.0	6.40	7.25	10	9.2	21.7	400.0
MMF6.0A	MMF6.0CA	6.0A	6.0CA	6.0	6.67	7.67	10	10.3	19.4	400.0
MMF6.5A	MMF6.5CA	6.5A	6.5CA	6.5	7.22	8.30	10	11.2	17.9	250.0
MMF7.0A	MMF7.0CA	7.0A	7.0CA	7.0	7.78	8.95	10	12	16.7	100.0
MMF7.5A	MMF7.5CA	7.5A	7.5CA	7.5	8.33	9.58	1.0	12.9	15.5	50.0
MMF8.0A	MMF8.0CA	8.0A	8.0CA	8.0	8.89	10.23	1.0	13.6	14.7	25.0
MMF8.5A	MMF8.5CA	8.5A	8.5CA	8.5	9.44	10.82	1.0	14.4	13.9	10.0
MMF9.0A	MMF9.0CA	9.0A	9.0CA	9.0	10.0	11.5	1.0	15.4	13	5.0
MMF10A	MMF10CA	10A	10CA	10	11.1	12.8	1.0	17	11.8	2.5
MMF11A	MMF11CA	11A	11CA	11	12.2	14.0	1.0	18.2	11	2.5
MMF12A	MMF12CA	12A	12CA	12	13.3	15.3	1.0	19.9	10.1	2.5
MMF13A	MMF13CA	13A	13CA	13	14.4	16.5	1.0	21.5	9.3	1.0
MMF14A	MMF14CA	14A	14CA	14	15.6	17.9	1.0	23.2	8.6	1.0
MMF15A	MMF15CA	15A	15CA	15	16.7	19.2	1.0	24.4	8.2	1.0
MMF16A	MMF16CA	16A	16CA	16	17.8	20.5	1.0	26	7.7	1.0
MMF17A	MMF17CA	17A	17CA	17	18.9	21.7	1.0	27.6	7.2	1.0
MMF18A	MMF18CA	18A	18CA	18	20.0	23.3	1.0	29.2	6.8	1.0
MMF20A	MMF20CA	20A	20CA	20	22.2	25.5	1.0	32.4	6.2	1.0
MMF22A	MMF22CA	22A	22CA	22	24.4	28.0	1.0	35.5	5.6	1.0
MMF24A	MMF24CA	24A	24CA	24	26.7	30.7	1.0	38.9	5.1	1.0
MMF26A	MMF26CA	26A	26CA	26	28.9	33.2	1.0	42.1	4.8	1.0
MMF28A	MMF28CA	28A	28CA	28	31.1	35.8	1.0	45.4	4.4	1.0
MMF30A	MMF30CA	30A	30CA	30	33.3	38.3	1.0	48.4	4.1	1.0
MMF33A	MMF33CA	33A	33CA	33	36.7	42.2	1.0	53.3	3.8	1.0
MMF36A	MMF36CA	36A	36CA	36	40.0	46.0	1.0	58.1	3.4	1.0
MMF40A	MMF40CA	40A	40CA	40	44.4	51.1	1.0	64.5	3.1	1.0
MMF43A	MMF43CA	43A	43CA	43	47.8	54.9	1.0	69.4	2.9	1.0
MMF45A	MMF45CA	45A	45CA	45	50.0	57.5	1.0	72.7	2.8	1.0
MMF48A	MMF48CA	48A	48CA	48	53.3	61.3	1.0	77.4	2.6	1.0
MMF51A	MMF51CA	51A	51CA	51	56.7	65.2	1.0	82.4	2.4	1.0
MMF54A	MMF54CA	54A	54CA	54	60.0	69.0	1.0	87.1	2.3	1.0
MMF58A	MMF58CA	58A	58CA	58	64.4	74.1	1.0	93.6	2.1	1.0
MMF60A	MMF60CA	60A	60CA	60	66.7	76.7	1.0	96.8	1.8	1.0
MMF64A	MMF64CA	64A	64CA	64	71.1	81.8	1.0	103	1.7	1.0
MMF70A	MMF70CA	70A	70CA	70	77.8	89.5	1.0	113	1.5	1.0
MMF75A	MMF75CA	75A	75CA	75	83.3	95.8	1.0	121	1.4	1.0
MMF78A	MMF78CA	78A	78CA	78	86.7	99.7	1.0	126	1.4	1.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

Notes: 1. Suffix C denotes Bi-directional device.

2. V_{BR} measured with I_T current pulse = 300μs

3. For Bi-Directional devices having V_{RWM} of 10V and under, the I_R is doubled.

Electrical Specification @ Ta=25°C

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I_T	Breakdown Voltage Max. @ I_T	Test Current	Maximum Clamping Voltage @I_{PP}	Peak Pulse Current	Reverse Leakage @V_{RMW}
Uni	Bi	Uni	Bi	V_{RMW}(V)	$V_{BR\ MIN}$(V)	$V_{BR\ MAX}$(V)	I_T (mA)	V_C(V)	I_{PP}(A)	I_R(uA)
MMF85A	MMF85CA	85A	85CA	85	94.4	108.2	1.0	137	1.3	1.0
MMF90A	MMF90CA	90A	90CA	90	100.0	115.5	1.0	146	1.2	1.0
MMF100A	MMF100CA	100	100C	100	111.0	128.0	1.0	162	1.1	1.0
MMF110A	MMF110CA	110	110C	110	122.0	140.5	1.0	177	1.0	1.0
MMF120A	MMF120CA	120	120C	120	133.0	153.0	1.0	193	0.9	1.0
MMF130A	MMF130CA	130	130C	130	144.0	165.5	1.0	209	0.8	1.0
MMF150A	MMF150CA	150	150C	150	167.0	192.5	1.0	243	0.7	1.0
MMF160A	MMF160CA	160	160C	160	178.0	205.0	1.0	259	0.7	1.0
MMF170A	MMF170CA	170	170C	170	189.0	217.5	1.0	275	0.6	1.0
MMF180A	MMF180CA	180	180C	180	198.0	230.4	1.0	292	0.6	1.0
MMF190A	MMF190CA	190	190C	190	209.0	243.2	1.0	308	0.5	1.0

※ For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

Notes: 1. Suffix C denotes Bi-directional device.
2. V_{BR} measured with I_T current pulse = 300μs
3. For Bi-Directional devices having V_{RWM} of 10V and under, the I_R is doubled.