

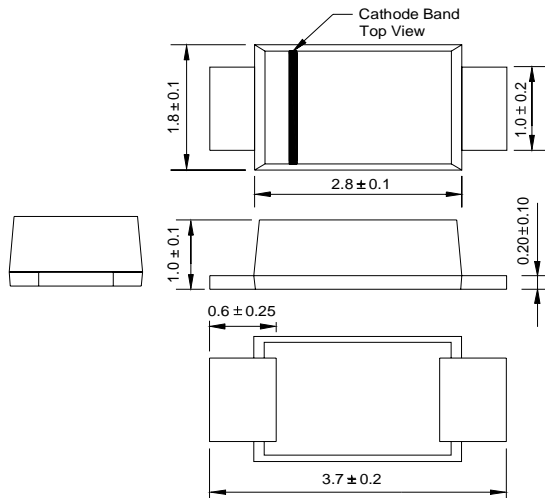


SMF5.0(C)A THRU SMF170(C)A

TRANSIENT VOLTAGE SUPPRESSOR

Standoff Voltage: 5.0-170 Volts Peak Pulse Power: 200 Watts

SOD-123FL



Dimensions in millimeters

FEATURE

- ◆ 200W Peak Pulse Power Dissipation
- ◆ 5.0V - 170V Standoff Voltages
- ◆ Glass Passivated Die Construction
- ◆ Uni- and Bi-Directional Versions Available
- ◆ Excellent Clamping Capability
- ◆ Fast Response Time
- ◆ Plastic Material: UL Flammability
- ◆ Classification Rating 94V-0

MECHANICAL DATA

- Case: JEDEC SOD-123FL molded plastic body
- Terminals: Solderable per MIL-STD-750, Method 2026
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Marking: Date Code and Marking Code See Page 3
- Weight: 0.064 grams (approx.)
- Ordering Info: See Page 3

DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bidirectional use suffix A or CA for types SMF5.0A thru SMF170A (e.g. SMF5.0CA, SMF170CA)

Electrical characteristics apply in both directions.

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

| Characteristic | Symbol | Value | Unit |
|--|-------------|-------------|------------------|
| Peak Pulse Power Dissipation (Non repetitive current pulse derated above $T_A = 25^\circ\text{C}$) (Note 1) | P_{PK} | 200 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3) | I_{FSM} | 30 | A |
| Steady State Power Dissipation @ $T_L = 75^\circ\text{C}$ | $PM_{(AV)}$ | 1.0 | W |
| Instantaneous Forward Voltage @ $I_{PP} = 30\text{A}$ (Notes 1, 2, & 3) | V_F | 3.5 | V |
| Operating Temperature Range | T_j | -55 to +150 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{STG} | -55 to +175 | $^\circ\text{C}$ |

- Notes:
1. Valid provided that terminals are kept at ambient temperature.
 2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
 3. Unidirectional units only.



TRANSIENT VOLTAGE SUPPRESSOR SMF5.0(C)A THRU SMF170(C)A

| Part Number Add C For Bi-Directional (Note 4) | Reverse Standoff Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} @ I_T (Note 5) | | Test Current I_T (mA) | Max. Reverse Leakage @ V_{RWM} (Note 6) I_R (μ A) | Max. Clamping Voltage @ I_{pp} V_C (V) | Max. Peak Pulse Current I_{pp} (A) | Marking Code | |
|--|---|---|---------|-------------------------------|---|--|---|--------------|-------|
| | | Min (V) | Max (V) | | | | | BI- | UNI- |
| SMF5.0(C)A | 5.0 | 6.40 | 7.25 | 10 | 800 | 9.2 | 21.7 | 5.0A | 5.0CA |
| SMF6.0(C)A | 6.0 | 6.67 | 7.37 | 10 | 800 | 10.3 | 19.4 | 6.0A | 6.0CA |
| SMF6.5(C)A | 6.5 | 7.22 | 7.98 | 10 | 500 | 11.2 | 17.9 | 6.5A | 6.5CA |
| SMF7.0(C)A | 7.0 | 7.78 | 8.60 | 10 | 200 | 12.0 | 16.7 | 7.0A | 7.0CA |
| SMF7.5(C)A | 7.5 | 8.33 | 9.21 | 1.0 | 100 | 12.9 | 15.5 | 7.5A | 7.5CA |
| SMF8.0(C)A | 8.0 | 8.89 | 9.83 | 1.0 | 50 | 13.6 | 14.7 | 8.0A | 8.0CA |
| SMF8.5(C)A | 8.5 | 9.44 | 10.4 | 1.0 | 10 | 14.4 | 13.9 | 8.5A | 8.5CA |
| SMF9.0(C)A | 9.0 | 10.0 | 11.1 | 1.0 | 5.0 | 15.4 | 13.0 | 9.0A | 9.0CA |
| SMF10(C)A | 10 | 11.1 | 12.3 | 1.0 | 5.0 | 17.0 | 11.8 | 10A | 10CA |
| SMF11(C)A | 11 | 12.2 | 13.5 | 1.0 | 5.0 | 18.2 | 11.0 | 11A | 11CA |
| SMF12(C)A | 12 | 13.3 | 14.7 | 1.0 | 5.0 | 19.9 | 10.1 | 12A | 12CA |
| SMF13(C)A | 13 | 14.4 | 15.9 | 1.0 | 5.0 | 21.5 | 9.3 | 13A | 13CA |
| SMF14(C)A | 14 | 15.6 | 17.2 | 1.0 | 5.0 | 23.2 | 8.6 | 14A | 14CA |
| SMF15(C)A | 15 | 16.7 | 18.5 | 1.0 | 5.0 | 24.4 | 8.2 | 15A | 15CA |
| SMF16(C)A | 16 | 17.8 | 19.7 | 1.0 | 5.0 | 26.0 | 7.7 | 16A | 16CA |
| SMF17(C)A | 17 | 18.9 | 20.9 | 1.0 | 5.0 | 27.6 | 7.2 | 17A | 17CA |
| SMF18(C)A | 18 | 20.0 | 22.1 | 1.0 | 5.0 | 29.2 | 6.8 | 18A | 18CA |
| SMF20(C)A | 20 | 22.2 | 24.5 | 1.0 | 5.0 | 32.4 | 6.2 | 20A | 20CA |
| SMF22(C)A | 22 | 24.4 | 26.9 | 1.0 | 5.0 | 35.5 | 5.6 | 22A | 22CA |
| SMF24(C)A | 24 | 26.7 | 29.5 | 1.0 | 5.0 | 38.9 | 5.1 | 24A | 24CA |
| SMF26(C)A | 26 | 28.9 | 31.9 | 1.0 | 5.0 | 42.1 | 9.5 | 26A | 26CA |
| SMF28(C)A | 28 | 31.1 | 34.4 | 1.0 | 5.0 | 45.4 | 8.8 | 28A | 28CA |
| SMF30(C)A | 30 | 33.3 | 36.8 | 1.0 | 5.0 | 48.4 | 8.3 | 30A | 30CA |
| SMF33(C)A | 33 | 36.7 | 40.6 | 1.0 | 5.0 | 53.3 | 7.5 | 33A | 33CA |
| SMF36(C)A | 36 | 40.0 | 44.2 | 1.0 | 5.0 | 58.1 | 6.9 | 36A | 36CA |
| SMF40(C)A | 40 | 44.4 | 49.1 | 1.0 | 5.0 | 64.5 | 6.2 | 40A | 40CA |
| SMF43(C)A | 43 | 47.8 | 52.8 | 1.0 | 5.0 | 69.4 | 5.7 | 43A | 43CA |
| SMF45(C)A | 45 | 50.0 | 55.3 | 1.0 | 5.0 | 72.7 | 5.5 | 45A | 45CA |
| SMF48(C)A | 48 | 53.3 | 58.9 | 1.0 | 5.0 | 77.4 | 5.2 | 48A | 48CA |
| SMF51(C)A | 51 | 56.7 | 62.7 | 1.0 | 5.0 | 82.4 | 4.9 | 51A | 51CA |
| SMF54(C)A | 54 | 60.0 | 66.3 | 1.0 | 5.0 | 87.1 | 4.6 | 54A | 54CA |
| SMF58(C)A | 58 | 64.4 | 71.2 | 1.0 | 5.0 | 93.6 | 4.3 | 58A | 58CA |
| SMF60(C)A | 60 | 66.7 | 73.7 | 1.0 | 5.0 | 96.8 | 4.1 | 60A | 60CA |
| SMF64(C)A | 64 | 71.1 | 78.6 | 1.0 | 5.0 | 103 | 3.9 | 64A | 64CA |
| SMF70(C)A | 70 | 77.8 | 86.0 | 1.0 | 5.0 | 113 | 3.5 | 70A | 70CA |
| SMF75(C)A | 75 | 83.3 | 92.1 | 1.0 | 5.0 | 121 | 3.3 | 75A | 75CA |
| SMF78(C)A | 78 | 86.7 | 95.8 | 1.0 | 5.0 | 126 | 2.2 | 78A | 78CA |
| SMF85(C)A | 85 | 94.4 | 104 | 1.0 | 5.0 | 137 | 2.9 | 85A | 85CA |
| SMF90(C)A | 90 | 100 | 111 | 1.0 | 5.0 | 146 | 2.7 | 90A | 90CA |
| SMF100(C)A | 100 | 111 | 123 | 1.0 | 5.0 | 162 | 2.5 | 100A | 100CA |
| SMF110(C)A | 110 | 122 | 135 | 1.0 | 5.0 | 177 | 2.3 | 110A | 110CA |
| SMF120(C)A | 120 | 133 | 147 | 1.0 | 5.0 | 193 | 2.0 | 120A | 120CA |
| SMF130(C)A | 130 | 144 | 159 | 1.0 | 5.0 | 209 | 1.9 | 130A | 130CA |
| SMF150(C)A | 150 | 167 | 185 | 1.0 | 5.0 | 243 | 1.6 | 150A | 150CA |
| SMF160(C)A | 160 | 178 | 197 | 1.0 | 5.0 | 259 | 1.5 | 160A | 160CA |
| SMF170(C)A | 170 | 189 | 209 | 1.0 | 5.0 | 275 | 1.4 | 170A | 170CA |

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

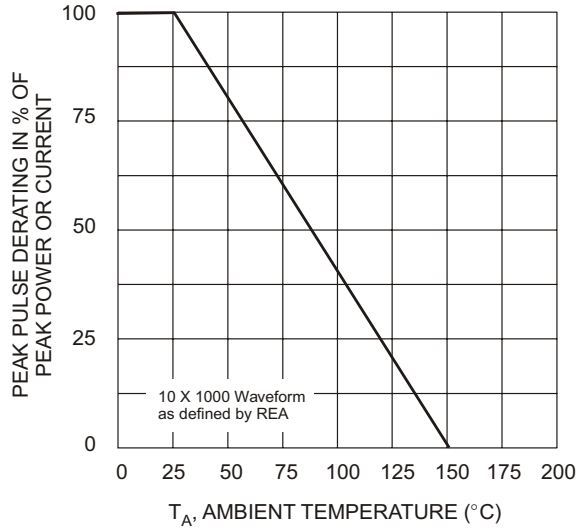


TRANSIENT VOLTAGE SUPPRESSOR SMAFJ5.0A(CA) THRU SMAFJ440A(CA)

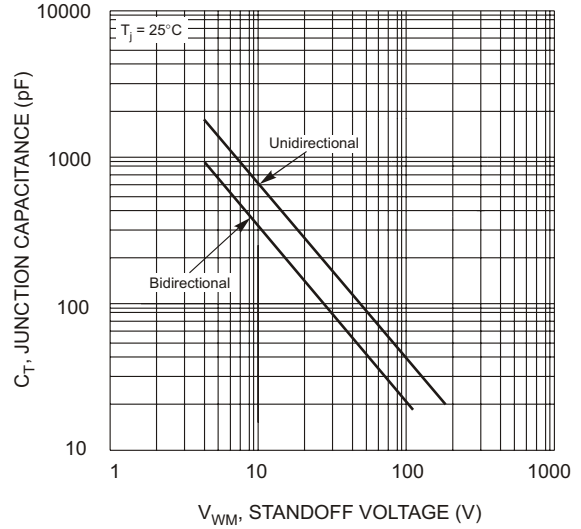
Characteristics at Ta = 25°C

| Type | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | Max. Clamp Voltage | Peak Pulse Current | Package | |
|------------|------------|---------------------------|----------------------------------|------|----------------|-----------------------------------|----------------------------------|--------------------|----------------------|-------|
| | | | V _{BR} @ I _T | | | | | | SMAF | |
| | | V _{RRM} | Min | Max | I _T | I _R @ V _{RRM} | V _C @ I _{PP} | I _{PP} | Device Marking Ccode | |
| UNI | BI | V | V | V | mA | µA | V | A | UNI | BI |
| SMF5.0(C)A | SMF5.0(C)A | 5.0 | 6.40 | 7.25 | 10 | 800 | 9.2 | 21.7 | 5.0A | 5.0CA |
| SMF6.0(C)A | SMF6.0(C)A | 6.0 | 6.67 | 7.37 | 10 | 800 | 10.3 | 19.4 | 6.0A | 6.0CA |
| SMF6.5(C)A | SMF6.5(C)A | 6.5 | 7.22 | 7.98 | 10 | 500 | 11.2 | 17.9 | 6.5A | 6.5CA |
| SMF7.0(C)A | SMF7.0(C)A | 7.0 | 7.78 | 8.60 | 10 | 200 | 12.0 | 16.7 | 7.0A | 7.0CA |
| SMF7.5(C)A | SMF7.5(C)A | 7.5 | 8.33 | 9.21 | 1.0 | 100 | 12.9 | 15.5 | 7.5A | 7.5CA |
| SMF8.0(C)A | SMF8.0(C)A | 8.0 | 8.89 | 9.83 | 1.0 | 50 | 13.6 | 14.7 | 8.0A | 8.0CA |
| SMF8.5(C)A | SMF8.5(C)A | 8.5 | 9.44 | 10.4 | 1.0 | 10 | 14.4 | 13.9 | 8.5A | 8.5CA |
| SMF9.0(C)A | SMF9.0(C)A | 9.0 | 10.0 | 11.1 | 1.0 | 5.0 | 15.4 | 13.0 | 9.0A | 9.0CA |
| SMF10(C)A | SMF10(C)A | 10 | 11.1 | 12.3 | 1.0 | 5.0 | 17.0 | 11.8 | 10A | 10CA |
| SMF11(C)A | SMF11(C)A | 11 | 12.2 | 13.5 | 1.0 | 5.0 | 18.2 | 11.0 | 11A | 11CA |
| SMF12(C)A | SMF12(C)A | 12 | 13.3 | 14.7 | 1.0 | 5.0 | 19.9 | 10.1 | 12A | 12CA |
| SMF13(C)A | SMF13(C)A | 13 | 14.4 | 15.9 | 1.0 | 5.0 | 21.5 | 9.3 | 13A | 13CA |
| SMF14(C)A | SMF14(C)A | 14 | 15.6 | 17.2 | 1.0 | 5.0 | 23.2 | 8.6 | 14A | 14CA |
| SMF15(C)A | SMF15(C)A | 15 | 16.7 | 18.5 | 1.0 | 5.0 | 24.4 | 8.2 | 15A | 15CA |
| SMF16(C)A | SMF16(C)A | 16 | 17.8 | 19.7 | 1.0 | 5.0 | 26.0 | 7.7 | 16A | 16CA |
| SMF17(C)A | SMF17(C)A | 17 | 18.9 | 20.9 | 1.0 | 5.0 | 27.6 | 7.2 | 17A | 17CA |
| SMF18(C)A | SMF18(C)A | 18 | 20.0 | 22.1 | 1.0 | 5.0 | 29.2 | 6.8 | 18A | 18CA |
| SMF20(C)A | SMF20(C)A | 20 | 22.2 | 24.5 | 1.0 | 5.0 | 32.4 | 6.2 | 20A | 20CA |
| SMF22(C)A | SMF22(C)A | 22 | 24.4 | 26.9 | 1.0 | 5.0 | 35.5 | 5.6 | 22A | 22CA |
| SMF24(C)A | SMF24(C)A | 24 | 26.7 | 29.5 | 1.0 | 5.0 | 38.9 | 5.1 | 24A | 24CA |
| SMF26(C)A | SMF26(C)A | 26 | 28.9 | 31.9 | 1.0 | 5.0 | 42.1 | 9.5 | 26A | 26CA |
| SMF28(C)A | SMF28(C)A | 28 | 31.1 | 34.4 | 1.0 | 5.0 | 45.4 | 8.8 | 28A | 28CA |
| SMF30(C)A | SMF30(C)A | 30 | 33.3 | 36.8 | 1.0 | 5.0 | 48.4 | 8.3 | 30A | 30CA |
| SMF33(C)A | SMF33(C)A | 33 | 36.7 | 40.6 | 1.0 | 5.0 | 53.3 | 7.5 | 33A | 33CA |
| SMF36(C)A | SMF36(C)A | 36 | 40.0 | 44.2 | 1.0 | 5.0 | 58.1 | 6.9 | 36A | 36CA |
| SMF40(C)A | SMF40(C)A | 40 | 44.4 | 49.1 | 1.0 | 5.0 | 64.5 | 6.2 | 40A | 40CA |
| SMF43(C)A | SMF43(C)A | 43 | 47.8 | 52.8 | 1.0 | 5.0 | 69.4 | 5.7 | 43A | 43CA |
| SMF45(C)A | SMF45(C)A | 45 | 50.0 | 55.3 | 1.0 | 5.0 | 72.7 | 5.5 | 45A | 45CA |
| SMF48(C)A | SMF48(C)A | 48 | 53.3 | 58.9 | 1.0 | 5.0 | 77.4 | 5.2 | 48A | 48CA |
| SMF51(C)A | SMF51(C)A | 51 | 56.7 | 62.7 | 1.0 | 5.0 | 82.4 | 4.9 | 51A | 51CA |
| SMF54(C)A | SMF54(C)A | 54 | 60.0 | 66.3 | 1.0 | 5.0 | 87.1 | 4.6 | 54A | 54CA |
| SMF58(C)A | SMF58(C)A | 58 | 64.4 | 71.2 | 1.0 | 5.0 | 93.6 | 4.3 | 58A | 58CA |
| SMF60(C)A | SMF60(C)A | 60 | 66.7 | 73.7 | 1.0 | 5.0 | 96.8 | 4.1 | 60A | 60CA |
| SMF64(C)A | SMF64(C)A | 64 | 71.1 | 78.6 | 1.0 | 5.0 | 103 | 3.9 | 64A | 64CA |
| SMF70(C)A | SMF70(C)A | 70 | 77.8 | 86.0 | 1.0 | 5.0 | 113 | 3.5 | 70A | 70CA |
| SMF75(C)A | SMF75(C)A | 75 | 83.3 | 92.1 | 1.0 | 5.0 | 121 | 3.3 | 75A | 75CA |
| SMF78(C)A | SMF78(C)A | 78 | 86.7 | 95.8 | 1.0 | 5.0 | 126 | 2.2 | 78A | 78CA |
| SMF85(C)A | SMF85(C)A | 85 | 94.4 | 104 | 1.0 | 5.0 | 137 | 2.9 | 85A | 85CA |
| SMF90(C)A | SMF90(C)A | 90 | 100 | 111 | 1.0 | 5.0 | 146 | 2.7 | 90A | 90CA |
| SMF100(C)A | SMF100(C)A | 100 | 111 | 123 | 1.0 | 5.0 | 162 | 2.5 | 100A | 100CA |
| SMF110(C)A | SMF110(C)A | 110 | 122 | 135 | 1.0 | 5.0 | 177 | 2.3 | 110A | 110CA |
| SMF120(C)A | SMF120(C)A | 120 | 133 | 147 | 1.0 | 5.0 | 193 | 2.0 | 120A | 120CA |
| SMF130(C)A | SMF130(C)A | 130 | 144 | 159 | 1.0 | 5.0 | 209 | 1.9 | 130A | 130CA |
| SMF150(C)A | SMF150(C)A | 150 | 167 | 185 | 1.0 | 5.0 | 243 | 1.6 | 150A | 150CA |
| SMF160(C)A | SMF160(C)A | 160 | 178 | 197 | 1.0 | 5.0 | 259 | 1.5 | 160A | 160CA |
| SMF170(C)A | SMF170(C)A | 170 | 189 | 209 | 1.0 | 5.0 | 275 | 1.4 | 170A | 170CA |

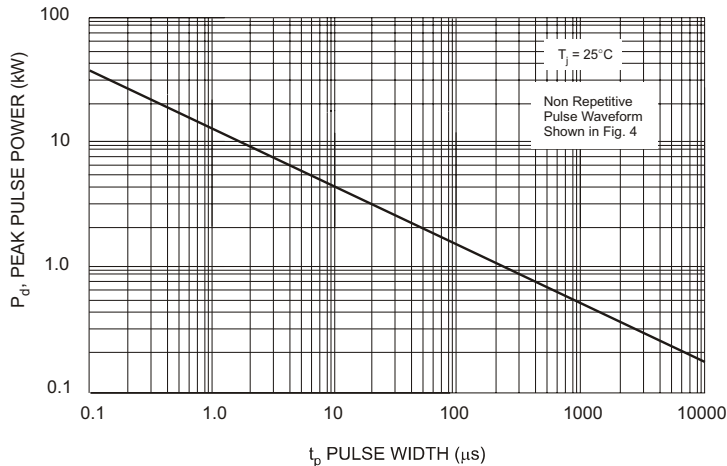
TRANSIENT VOLTAGE SUPPRESSOR SMF5.0(C)A THRU SMF170(C)A



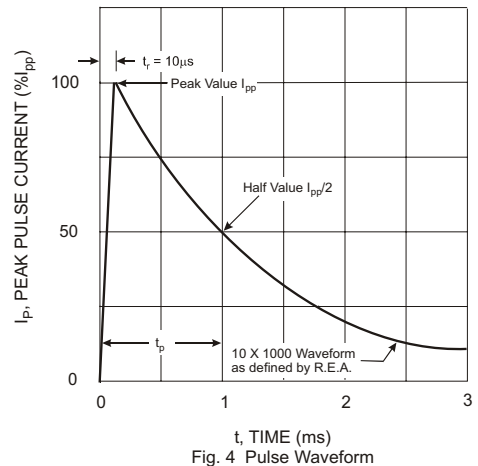
T_A , AMBIENT TEMPERATURE ($^{\circ}\text{C}$)
Fig. 1 Pulse Derating Curve



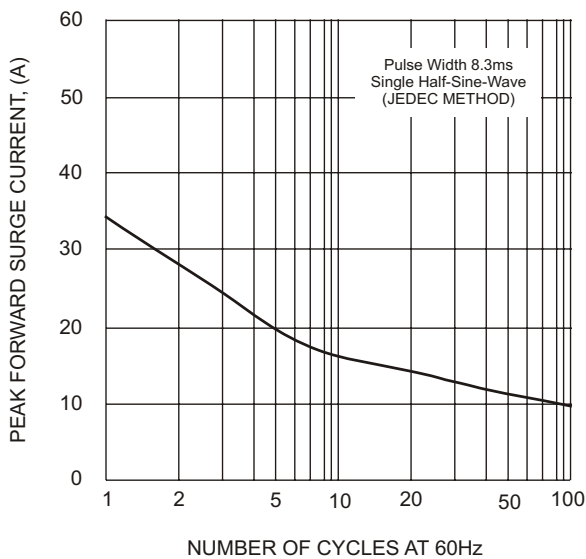
V_{WM} , STANDOFF VOLTAGE (V)
Fig. 2 Typical Total Capacitance



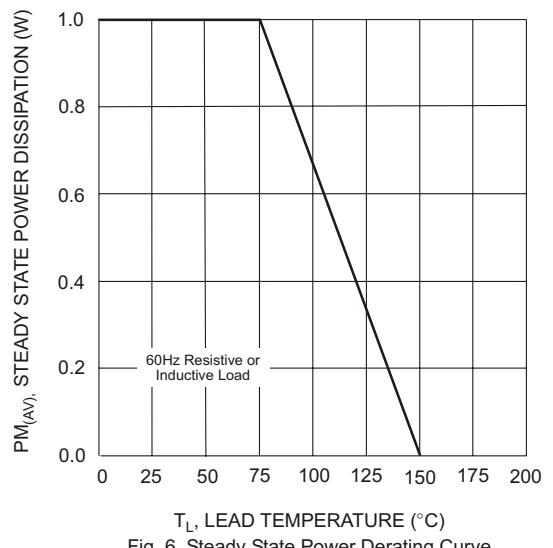
t_p , PULSE WIDTH (μs)
Fig. 3 Pulse Rating Curve



t , TIME (ms)
Fig. 4 Pulse Waveform



NUMBER OF CYCLES AT 60Hz
Fig. 5 Maximum Non-Repetitive Surge Current



T_L , LEAD TEMPERATURE ($^{\circ}\text{C}$)
Fig. 6 Steady State Power Derating Curve



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单击下面可查看定价，库存，交付和生命周期等信息

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