


MKP1V120 Series

Sidac High Voltage

Bidirectional Triggers

Bidirectional devices designed for direct interface with the ac power line. Upon reaching the breakover voltage in each direction, the device switches from a blocking state to a low voltage on-state. Conduction will continue like a Triac until the main terminal current drops below the holding current. The plastic axial lead package provides high pulse current capability at low cost. Glass passivation insures reliable operation.

Features

- High Pressure Sodium Vapor Lighting
- Strobes and Flashers
- Ignitors
- High Voltage Regulators
- Pulse Generators
- Used to Trigger Gates of SCR's and Triacs
-  Indicates UL Registered – File #E210057
- These are Pb-Free Devices*

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

| Rating | Symbol | Value | Unit |
|--|--|---------------|------|
| Peak Repetitive Off-State Voltage (Sine Wave, 50 to 60 Hz, T _J = -40 to 125°C) MKP1V120, MKP1V130, MKP1V160 MKP1V240 | V _{DRM} , V _{RRM} | ± 90 ± 180 | V |
| On-State Current RMS (T _L = 80°C, Lead Length = 3/8", All Conduction Angles) | I _{T(RMS)} | ± 0.9 | A |
| Peak Non-repetitive Surge Current (60 Hz One Cycle Sine Wave, T _J = 125°C) | I _{TSM} | ± 4.0 | A |
| Operating Junction Temperature Range | T _J | -40 to +125 | °C |
| Storage Temperature Range | T _{stg} | -40 to +150 | °C |

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|--|------------------|-----|------|
| Thermal Resistance, Junction-to-Lead Lead Length = 3/8" | R _{θJL} | 40 | °C/W |
| Lead Solder Temperature (Lead Length ≥ 1/16" from Case, 10 s Max) | T _L | 260 | °C |


Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

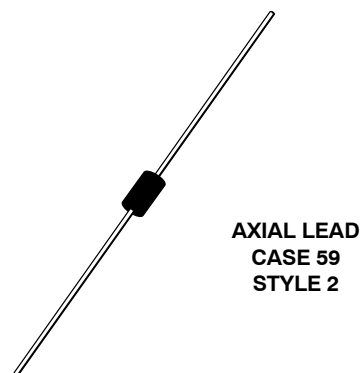
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



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SIDACS 
0.9 AMPERES RMS
120 – 240 VOLTS



**AXIAL LEAD
CASE 59
STYLE 2**

MARKING DIAGRAM



A = Assembly Location
 MKP1Vxx0 = Device Number
 x = 12, 13, 16 or 24
 YY = Year
 WW = Work Week
 ■ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

MKP1V120 Series

ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted; Electricals apply in both directions)

| Characteristic | Symbol | Min | Typ | Max | Unit |
|----------------|--------|-----|-----|-----|------|
|----------------|--------|-----|-----|-----|------|

OFF CHARACTERISTICS

| | | | | | |
|---|------------------|---|---|-----|---------------|
| Repetitive Peak Off-State Current $T_J = 25^\circ\text{C}$ (50 to 60 Hz Sine Wave) $V_{\text{DRM}} = 90\text{ V}$, MKP1V120, MKP1V130 and MKP1V160 $V_{\text{DRM}} = 180\text{ V}$, MKP1V240 | I_{DRM} | - | - | 5.0 | μA |
|---|------------------|---|---|-----|---------------|

ON CHARACTERISTICS

| | | | | | |
|--|-----------------|--------------------------|------------------|--------------------------|------------------|
| Breakover Voltage $I_{\text{BO}} = 35\ \mu\text{A}$ MKP1V120 $35\ \mu\text{A}$ MKP1V130 $200\ \mu\text{A}$ MKP1V160 $35\ \mu\text{A}$ MKP1V240 | V_{BO} | 110 120 150 220 | - - - - | 130 140 170 250 | V |
| Peak On-State Voltage ($I_{\text{TM}} = 1\text{ A Peak}$, Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$) | V_{TM} | - | 1.3 | 1.5 | V |
| Dynamic Holding Current (Sine Wave, 50 to 60 Hz, $R_L = 100\ \text{Ohm}$) | I_{H} | - | - | 100 | mA |
| Switching Resistance (Sine Wave, 50 to 60 Hz) | R_S | 0.1 | - | - | $\text{k}\Omega$ |

DYNAMIC CHARACTERISTICS

| | | | | | |
|---|---------|---|-----|---|------------------------|
| Critical Rate-of-Rise of On-State Current, Critical Damped Waveform Circuit ($I_{\text{PK}} = 130\text{ Amps}$, Pulse Width = $10\ \mu\text{sec}$) | di/dt | - | 120 | - | $\text{A}/\mu\text{s}$ |
|---|---------|---|-----|---|------------------------|

ORDERING INFORMATION

| Device | Package* | Shipping† |
|-------------|-------------------|--------------------|
| MKP1V120RLG | DO-41, Axial Lead | 5000 / Tape & Reel |
| MKP1V130RLG | | 5000 / Tape & Reel |
| MKP1V160G | | 1000 Units / Bulk |
| MKP1V160RLG | | 5000 / Tape & Reel |
| MKP1V240G | | 1000 Units / Bulk |
| MKP1V240RLG | | 5000 / Tape & Reel |

*This package is inherently Pb-Free.

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

MKP1V120 Series

Voltage Current Characteristic of SIDAC (Bidirectional Device)

| Symbol | Parameter |
|-----------|---------------------------------------|
| I_{DRM} | Off State Leakage Current |
| V_{DRM} | Off State Repetitive Blocking Voltage |
| V_{BO} | Breakover Voltage |
| I_{BO} | Breakover Current |
| I_H | Holding Current |
| V_{TM} | On State Voltage |
| I_{TM} | Peak on State Current |

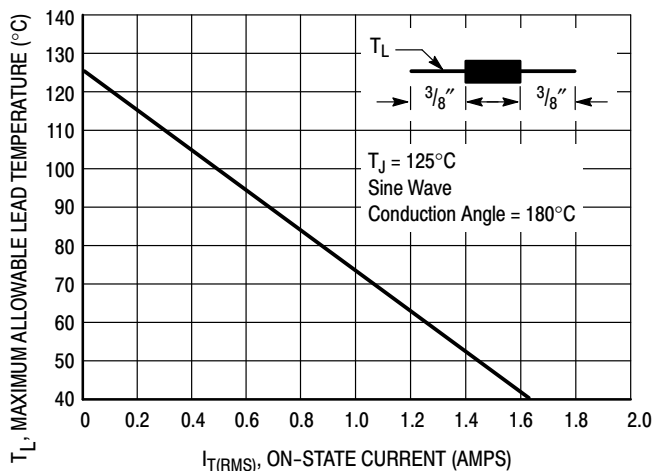
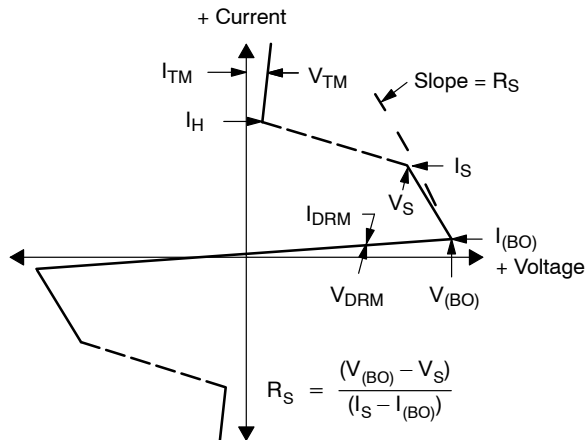


Figure 1. Maximum Lead Temperature

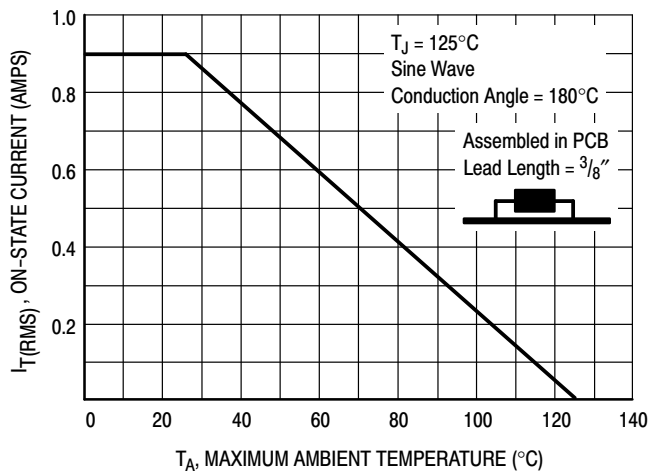


Figure 2. Maximum Ambient Temperature

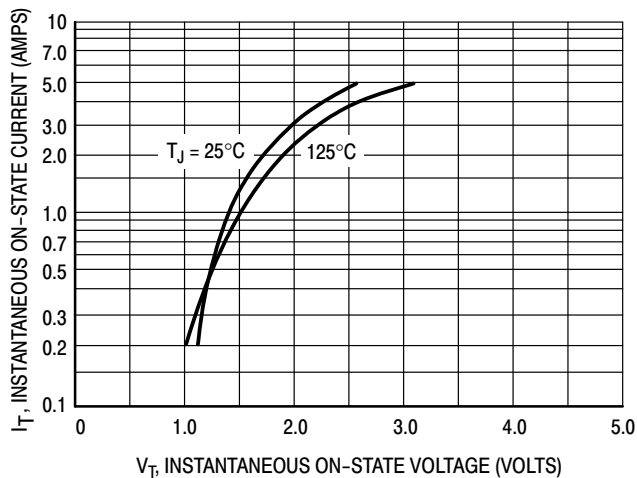


Figure 3. Typical On-State Voltage

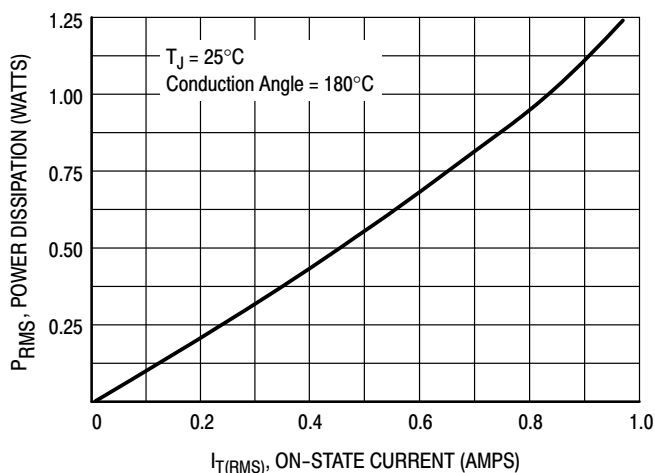


Figure 4. Typical Power Dissipation

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THERMAL CHARACTERISTICS

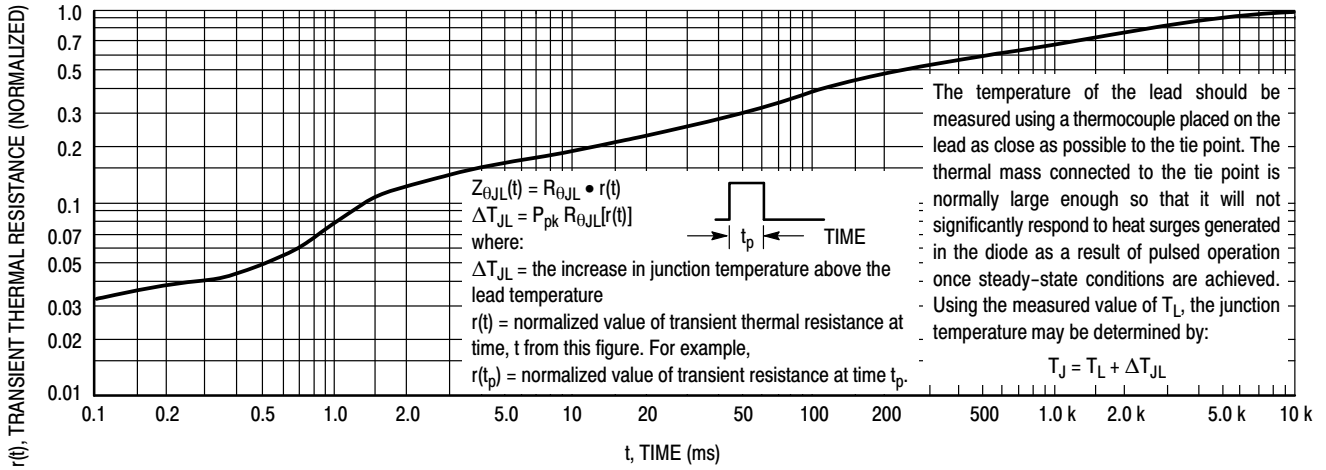


Figure 5. Thermal Response

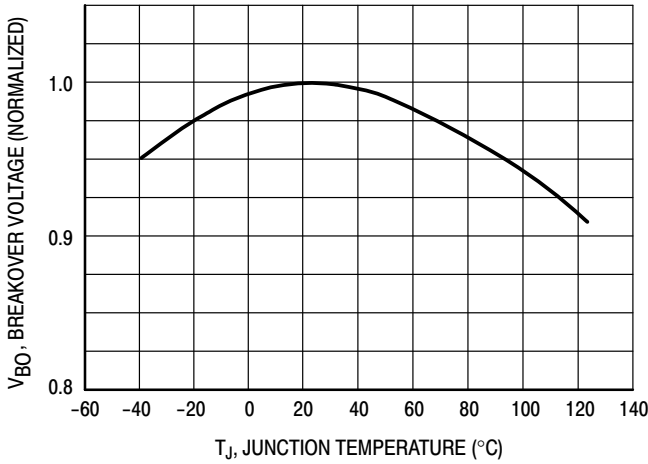


Figure 6. Typical Breakover Voltage

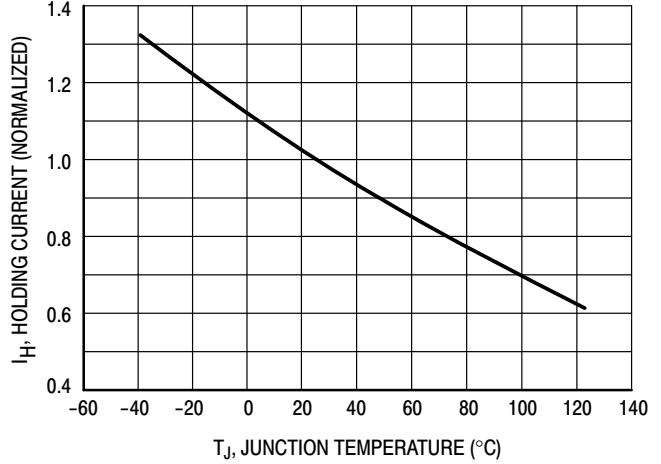


Figure 7. Typical Holding Current

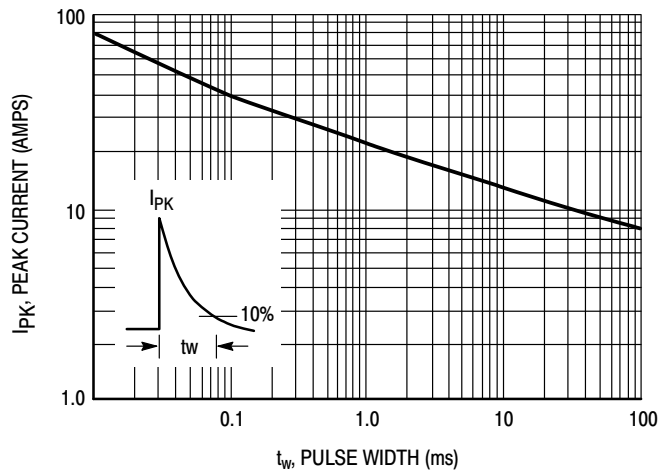
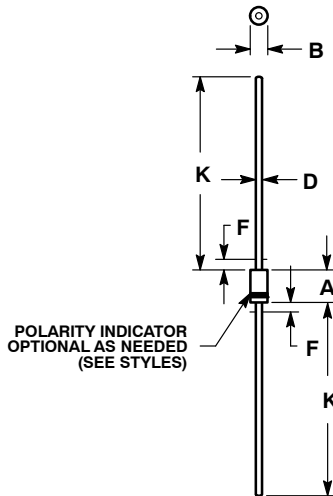


Figure 8. Pulse Rating Curve

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PACKAGE DIMENSIONS

AXIAL LEAD CASE 59-10 ISSUE U



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY
4. POLARITY DENOTED BY CATHODE BAND.
5. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.161 | 0.205 | 4.10 | 5.20 |
| B | 0.079 | 0.106 | 2.00 | 2.70 |
| D | 0.028 | 0.034 | 0.71 | 0.86 |
| F | --- | 0.050 | --- | 1.27 |
| K | 1.000 | --- | 25.40 | --- |

STYLE 2:
NO POLARITY

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