# MKP1V120 Series

**Preferred Device**

# Sidac High Voltage

## Bidirectional Triggers

Bi–directional 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. Applications are:

- 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 #E116110
- Device Marking: Logo, Device Type, e.g., MKP1V120, Date Code

**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 | Volts |
| On-State Current RMS ($T_L$ = 80°C, Lead Length = 3/8″, All Conduction Angles) | $I_{T(RMS)}$ | ±0.9 | Amp |
| Peak Non–repetitive Surge Current (60 Hz One Cycle Sine Wave, $T_J$ = 125°C) | $I_{TSM}$ | ±4.0 | Amps |
| Operating Junction Temperature Range | $T_J$ | –40 to +125 | °C |
| Storage Temperature Range | $T_{stg}$ | –40 to +150 | °C |

**ON Semiconductor**

**http://onsemi.com**

**SIDACS (Ⓤ)**
**0.9 AMPERES RMS**
**120 thru 240 VOLTS**


**DO–41**
**PLASTIC AXIAL**
**(No Polarity)**
**CASE 059A**

**ORDERING INFORMATION**

| Device | Package | Shipping |
|---|---|---|
| MKP1V120RL | DO41 | Tape and Reel 5K/Reel |
| MKP1V130RL | DO41 | Tape and Reel 5K/Reel |
| MKP1V160 | DO41 | Bulk 1K/Bag |
| MKP1V160RL | DO41 | Tape and Reel 5K/Reel |
| MKP1V240 | DO41 | Bulk 1K/Bag |
| MKP1V240RL | DO41 | Tape and Reel 5K/Reel |

**Preferred** devices are recommended choices for future use and best overall value.

## THERMAL CHARACTERISTICS

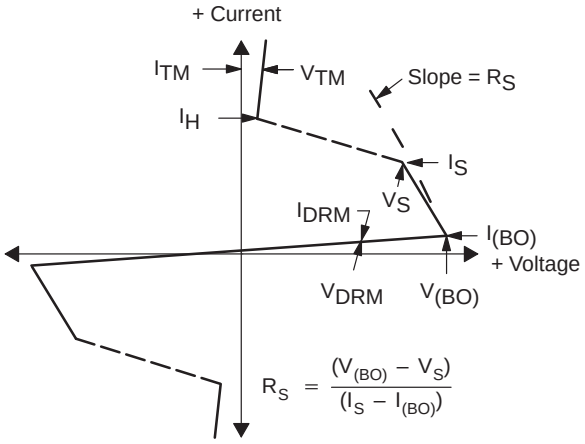
| Characteristic | Symbol | Max | Unit |
|---|---|---|---|
| Thermal Resistance, Junction to Lead<br>Lead Length = 3/8″ | $R_{\theta JL}$ | 40 | °C/W |
| Lead Solder Temperature<br>(Lead Length ≥ 1/16″ from Case, 10 s Max) | $T_L$ | 260 | °C |

## ELECTRICAL CHARACTERISTICS ($T_C$ = 25°C unless otherwise noted; Electricals apply in both directions)

| Characteristic | | Symbol | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| **OFF CHARACTERISTICS** | | | | | | |
| Repetitive Peak Off–State Current<br>(50 to 60 Hz Sine Wave)<br>$V_D$ = 90 V, MKP1V120, MKP1V130 and MKP1V160<br>$V_D$ = 180 V, MKP1V240 | $T_J$ = 25°C | $I_{DRM}$ | — | — | 5.0 | μA |
| **ON CHARACTERISTICS** | | | | | | |
| Breakover Voltage | | $V_{BO}$ | | | | Volts |
| | MKP1V120 | | 110 | — | 130 | |
| | MKP1V130 | | 120 | — | 140 | |
| | MKP1V160 | | 150 | | 170 | |
| | MKP1V240 | | 220 | | 250 | |
| Peak On–State Voltage<br>($I_{TM}$ = 1 A Peak, Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%) | | $V_{TM}$ | — | 1.3 | 1.5 | Volts |
| Dynamic Holding Current<br>(Sine Wave, 50 to 60 Hz, $R_L$ = 100 Ohm) | | $I_H$ | — | — | 100 | mA |
| Switching Resistance<br>(Sine Wave, 50 to 60 Hz) | | $R_S$ | 0.1 | — | — | kΩ |
| Breakover Current @ $V_{BO}$ | | $I_{BO}$ | — | — | 200 | μA |
| **DYNAMIC CHARACTERISTICS** | | | | | | |
| Critical Rate–of–Rise of On–State Current,<br>Critical Damped Waveform Circuit<br>($I_{PK}$ = 130 Amps, Pulse Width = 10 μsec) | | di/dt | 50 | 120 | 130 | A/μs |

## 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 |



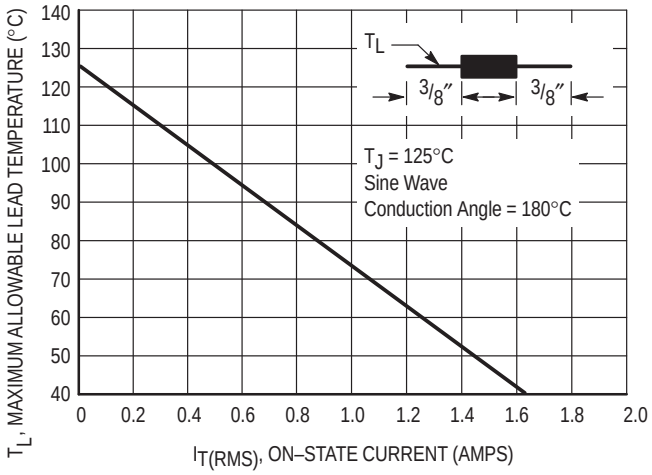




**Figure 1. Maximum Lead Temperature**

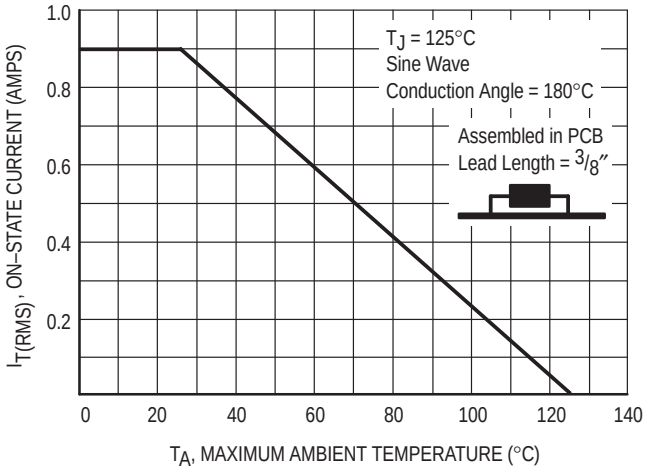



**Figure 2. Maximum Ambient Temperature**

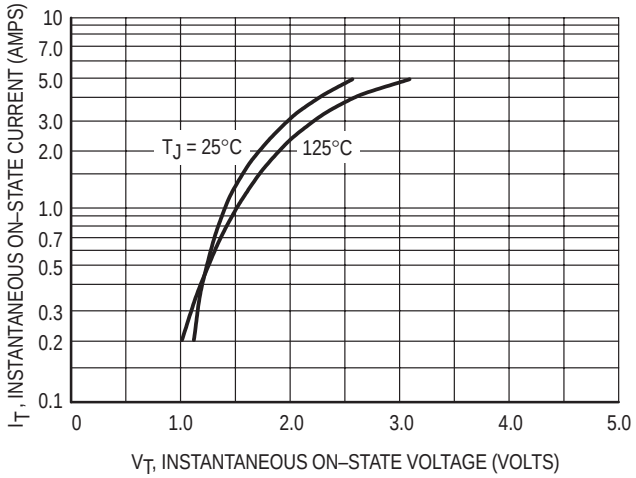



**Figure 3. Typical On–State Voltage**

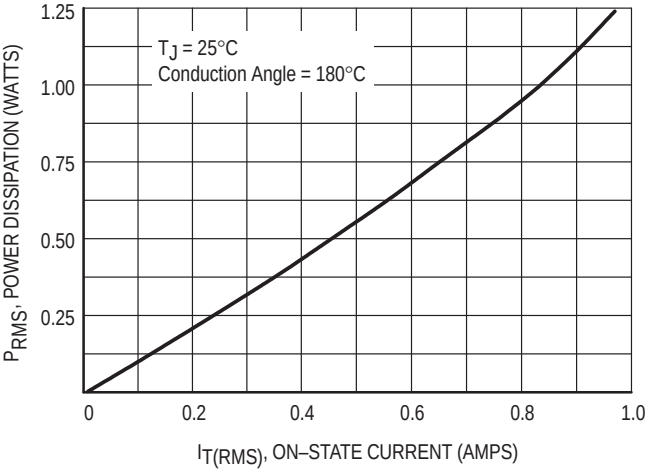



**Figure 4. Typical Power Dissipation**

## THERMAL CHARACTERISTICS

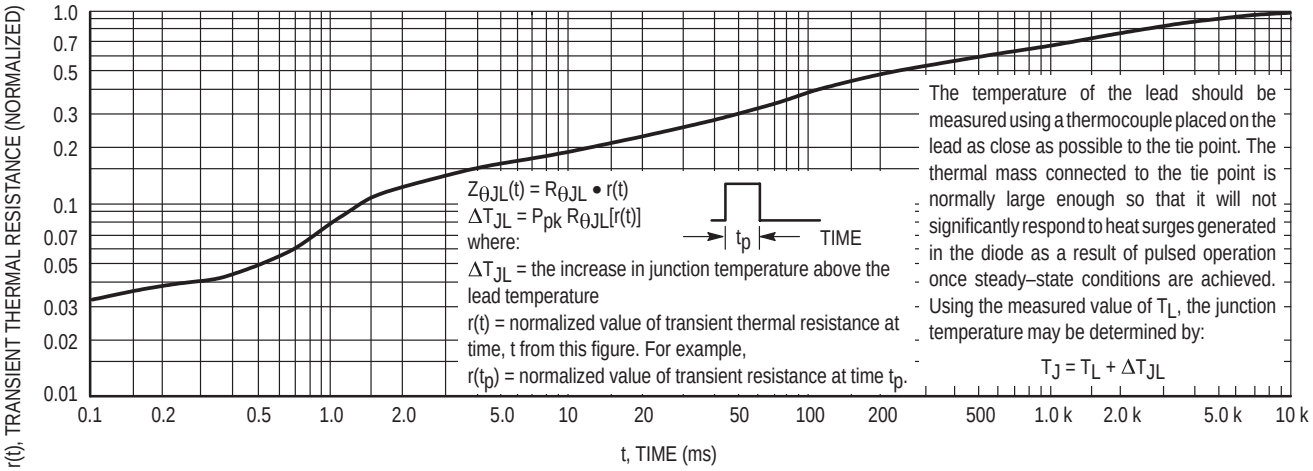



**Figure 5. Thermal Response**

## TYPICAL CHARACTERISTICS

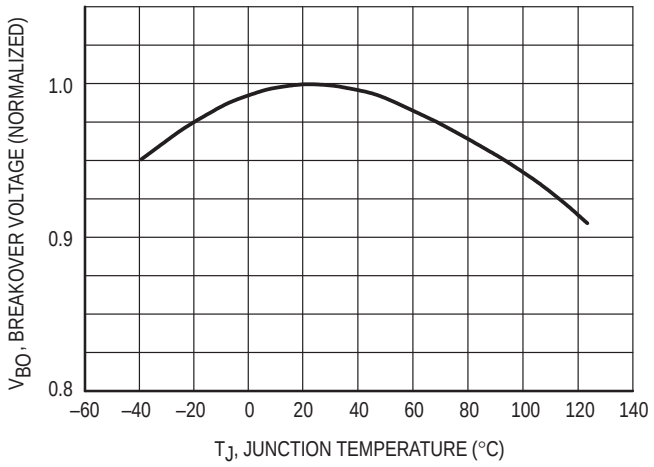



**Figure 6. Typical Breakover Voltage**

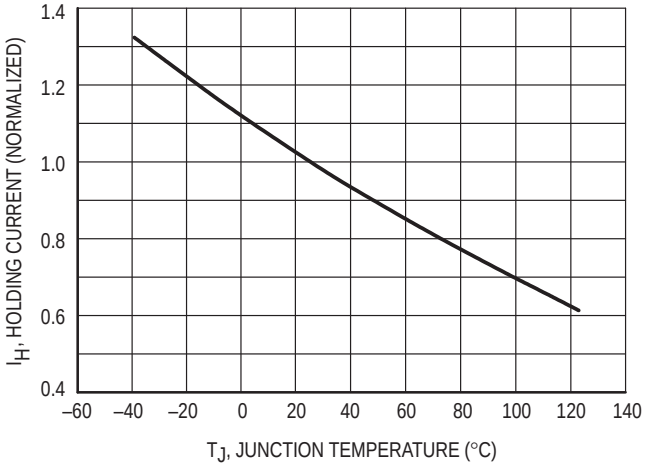



**Figure 7. Typical Holding Current**

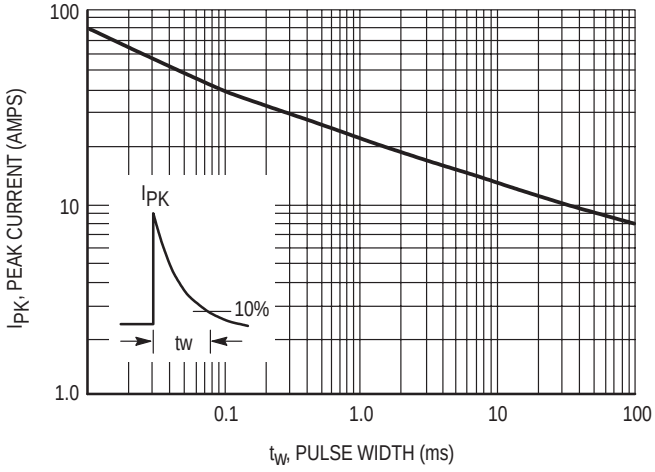
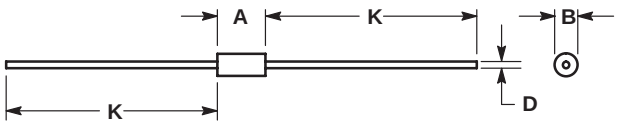



**Figure 8. Pulse Rating Curve**

## PACKAGE DIMENSIONS

**DO–41**
PLASTIC AXIAL
(No Polarity)
CASE 059A–01
ISSUE A




NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

| | INCHES | | MILLIMETERS | |
|---|---|---|---|---|
| DIM | MIN | MAX | MIN | MAX |
| A | 0.235 | 0.260 | 5.97 | 6.60 |
| B | 0.110 | 0.120 | 2.79 | 3.05 |
| D | 0.030 | 0.034 | 0.76 | 0.86 |
| K | 1.100 | — | 27.94 | — |

# Notes

# Notes

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