

MKP1V120 Series

Preferred Device

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. Applications are:

- High Pressure Sodium Vapor Lighting
- Strobes and Flashers
- Igniters
- 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 _{RPM} | ± 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 |

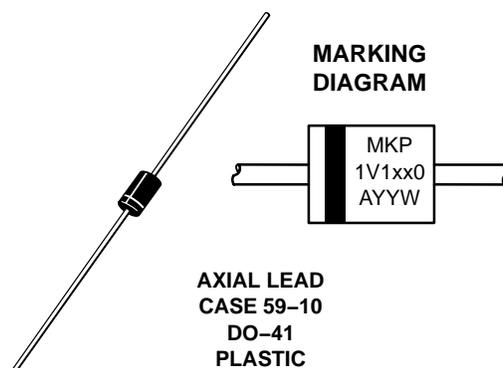
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.



ON Semiconductor®

<http://onsemi.com>

SIDACS (⚡)
0.9 AMPS RMS
120 – 240 V



**AXIAL LEAD
CASE 59-10
DO-41
PLASTIC**

xx = 12, 13, 16 or 24
A = Assembly Location
YY = Year
W = Work Week

ORDERING INFORMATION

| Device | Package | Shipping† |
|------------|---------|-------------------|
| MKP1V120RL | DO-41 | 5000 Tape & Reel |
| MKP1V130RL | DO-41 | 5000 Tape & Reel |
| MKP1V160 | DO-41 | 1000 Units / Bulk |
| MKP1V160RL | DO-41 | 5000 Tape & Reel |
| MKP1V240 | DO-41 | 1000 Units / Bulk |
| MKP1V240RL | DO-41 | 5000 Tape & Reel |

†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.

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

MKP1V120 Series

THERMAL CHARACTERISTICS

| Characteristic | Symbol | Max | Unit |
|---|-----------------|-----|---------------|
| Thermal Resistance, Junction-to-Lead Lead Length = 3/8" | $R_{\theta JL}$ | 40 | $^{\circ}C/W$ |
| Lead Solder Temperature (Lead Length \geq 1/16" from Case, 10 s Max) | T_L | 260 | $^{\circ}C$ |

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

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

OFF CHARACTERISTICS

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

ON CHARACTERISTICS

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

DYNAMIC CHARACTERISTICS

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

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 |

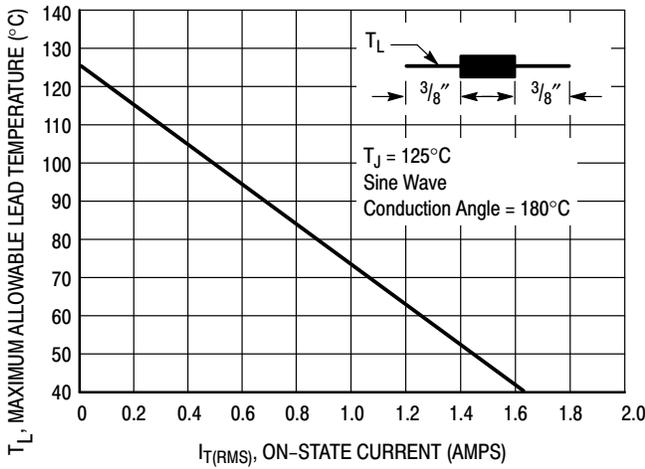
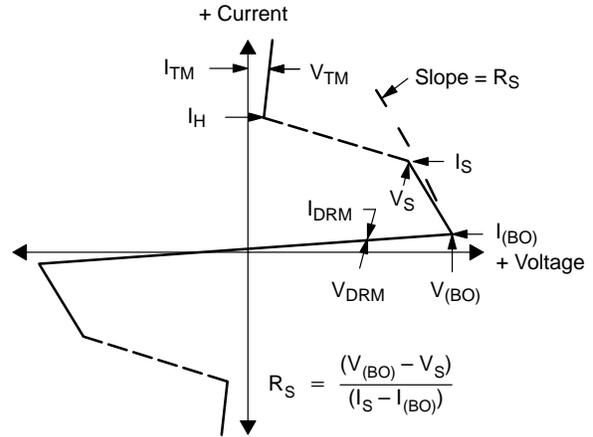


Figure 1. Maximum Lead Temperature

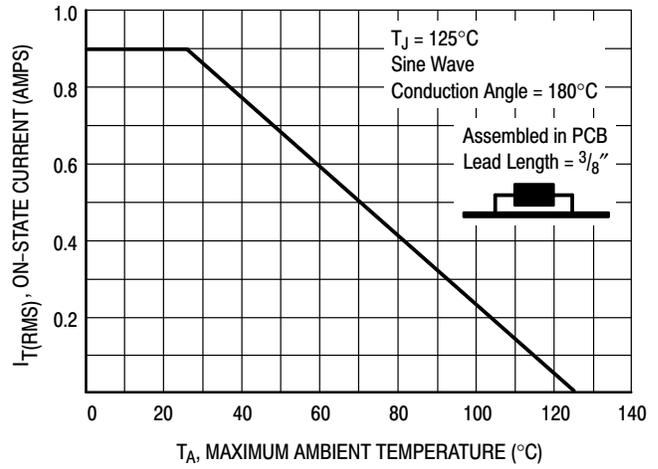


Figure 2. Maximum Ambient Temperature

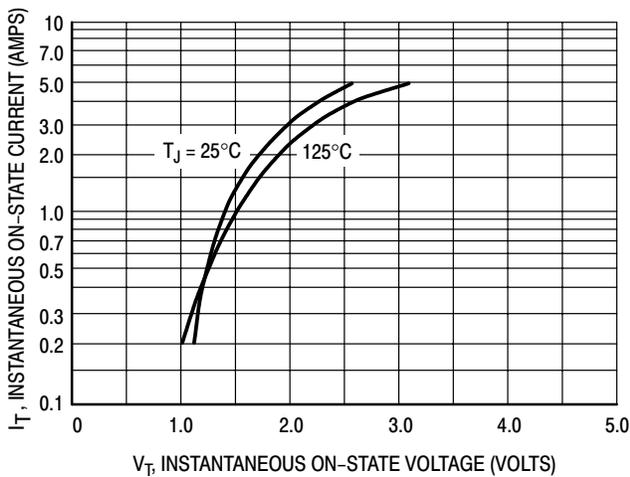


Figure 3. Typical On-State Voltage

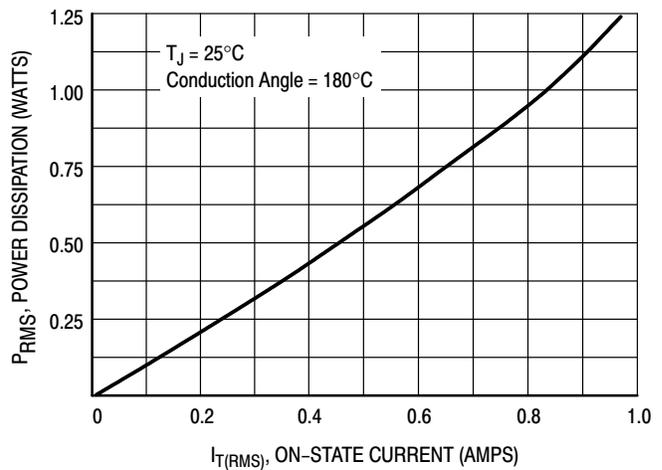


Figure 4. Typical Power Dissipation

THERMAL CHARACTERISTICS

MKP1V120 Series

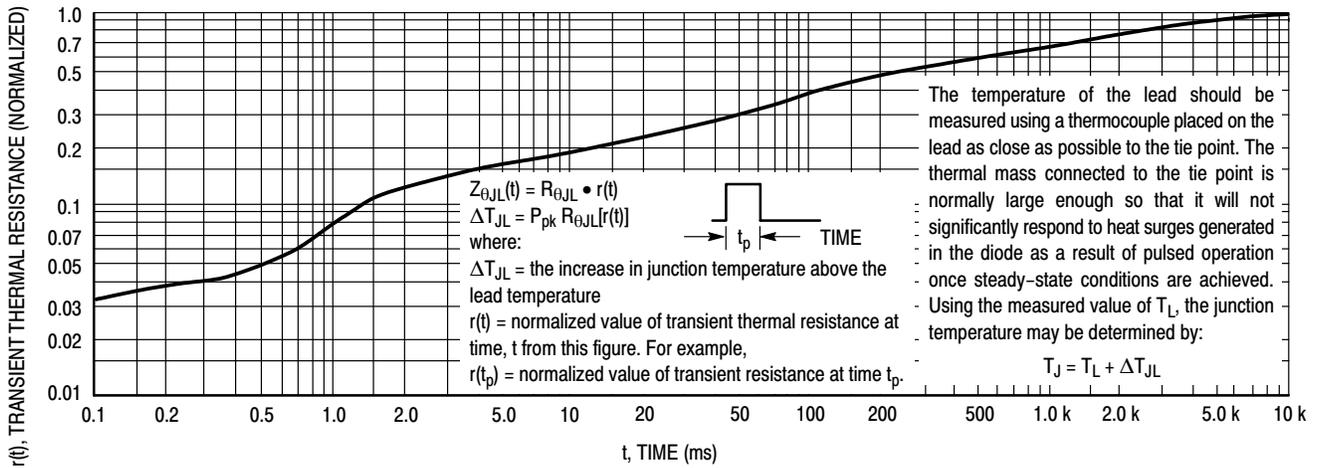


Figure 5. Thermal Response

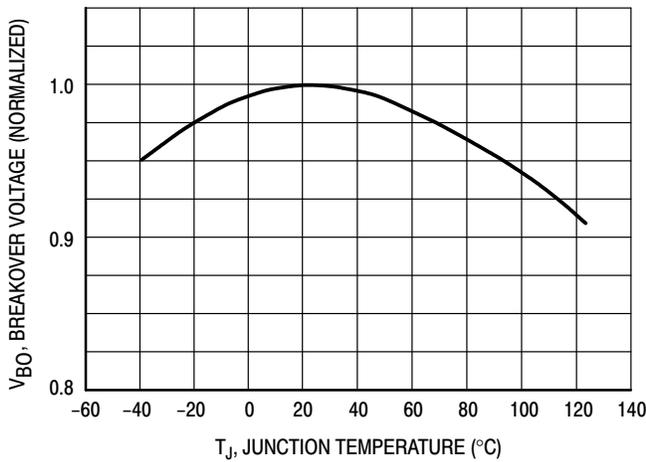


Figure 6. Typical Breakover Voltage

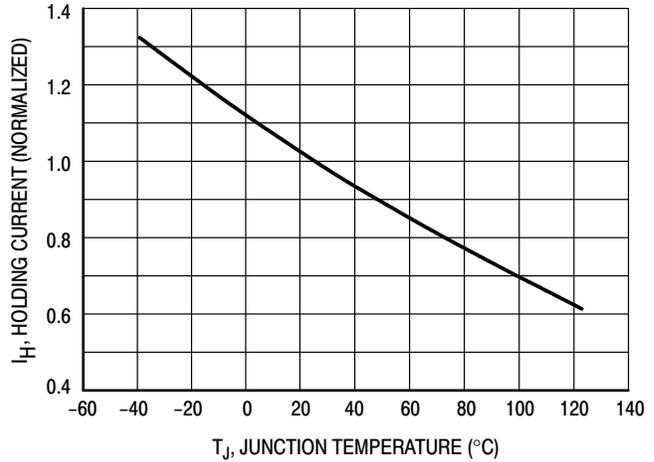


Figure 7. Typical Holding Current

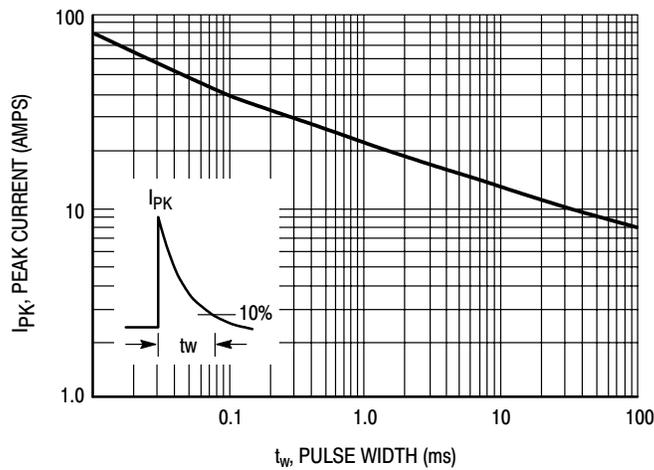
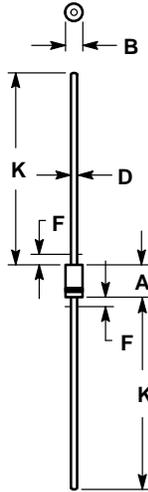


Figure 8. Pulse Rating Curve

MKP1V120 Series

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.
3. 59-04 OBSOLETE, NEW STANDARD 59-09.
4. 59-03 OBSOLETE, NEW STANDARD 59-10.
5. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY.
6. POLARITY DENOTED BY CATHODE BAND.
7. 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 | --- |

MKP1V120 Series

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