


MKP3V120, MKP3V240

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.

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 #E116110
- 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) MKP3V120 MKP3V240 | V _{DRM} , V _{RRM} | ± 90 ± 180 | V |
| On-State RMS Current (T _L = 80°C, Lead Length = 3/8", All Conduction Angles) | I _{T(RMS)} | ± 1.0 | A |
| Peak Non-Repetitive Surge Current (60 Hz One Cycle Sine Wave, Peak Value, T _J = 125°C) | I _{TSM} | ± 20 | 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} | 15 | °C/W |
| Lead Solder Temperature (Lead Length ≥ 1/16" from Case, 10 s Max) | T _L | 260 | °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.

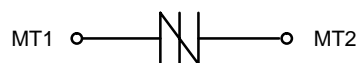
*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.



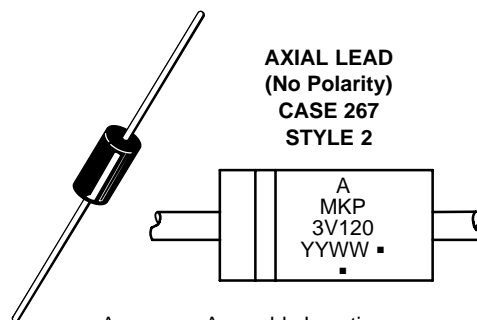
ON Semiconductor®

<http://onsemi.com>

SIDACS (⚡)
1 AMPERE RMS
120 and 240 VOLTS



MARKING DIAGRAM



**AXIAL LEAD
(No Polarity)
CASE 267
STYLE 2**

A = Assembly Location
YY, Y = Year
WW = Work Week
▪ = Pb-Free Package

(Note: Microdot may be in either location)

ORDERING INFORMATION

| Device | Package | Shipping [†] |
|-------------|-------------|-----------------------|
| MKP3V120 | Axial Lead* | 500 Units/Box |
| MKP3V120G | Axial Lead* | 500 Units/Box |
| MKP3V120RL | Axial Lead* | 1500/Tape & Reel |
| MKP3V120RLG | Axial Lead* | 1500/Tape & Reel |
| MKP3V240 | Axial Lead* | 500 Units/Box |
| MKP3V240G | Axial Lead* | 500 Units/Box |
| MKP3V240RL | Axial Lead* | 1500/Tape & Reel |
| MKP3V240RLG | Axial Lead* | 1500/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.

MKP3V120, MKP3V240

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 (50 to 60 Hz Sine Wave) $V_{\text{DRM}} = 90\text{ V}$ $V_{\text{DRM}} = 180\text{ V}$ | I_{DRM} MKP3V120 MKP3V240 | - | - | 10 | μA |
|-----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|---|---|----|---------------|

ON CHARACTERISTICS

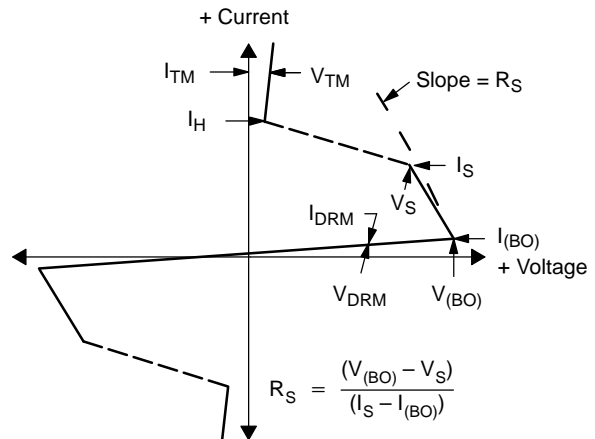
| | | | | | |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|------------|--------|------------|---------------|
| Breakover Voltage, $I_{\text{BO}} = 200\ \mu\text{A}$ | V_{BO} MKP3V120 MKP3V240 | 110 220 | - - | 130 250 | V |
| Breakover Current | I_{BO} | - | - | 200 | μA |
| Peak On-State Voltage ($I_{\text{TM}} = 1\text{ A Peak}$, Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2\%$) | V_{TM} | - | 1.1 | 1.5 | V |
| Dynamic Holding Current (Sine Wave, 60 Hz, $R_L = 100\ \Omega$) | I_{H} | - | - | 100 | mA |
| Switching Resistance (Sine Wave, 50 to 60 Hz) | R_S | 0.1 | - | - | k Ω |

DYNAMIC CHARACTERISTICS

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



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CURRENT DERATING

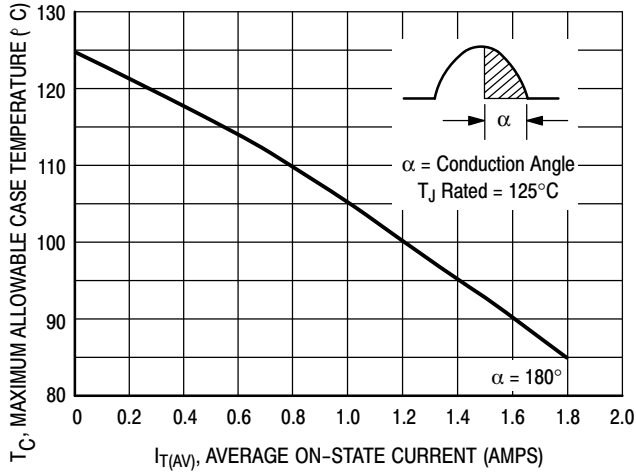


Figure 1. Maximum Case Temperature

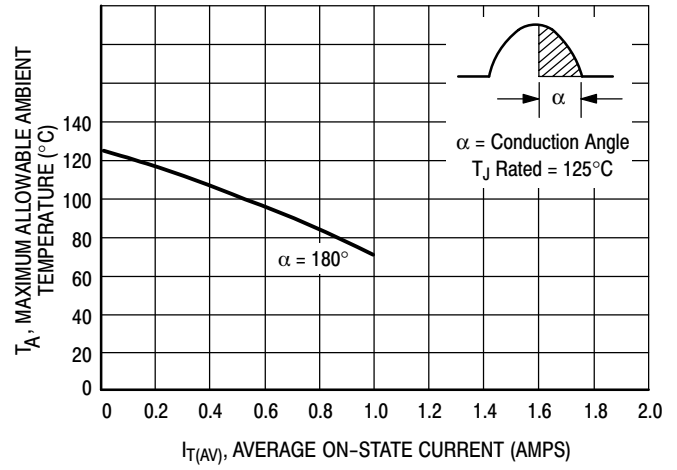


Figure 2. Maximum Ambient Temperature

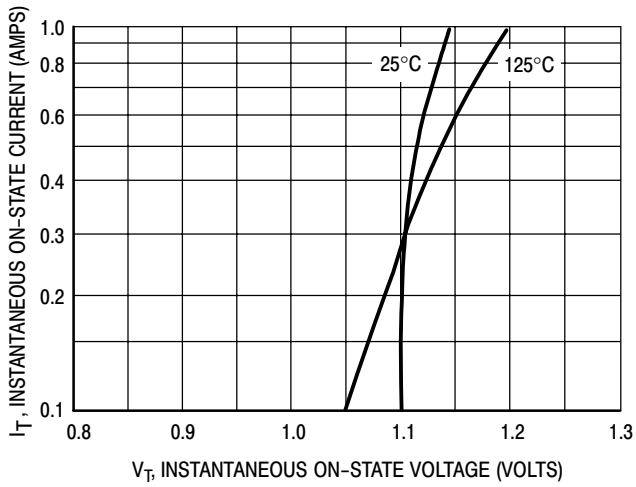


Figure 3. Typical Forward Voltage

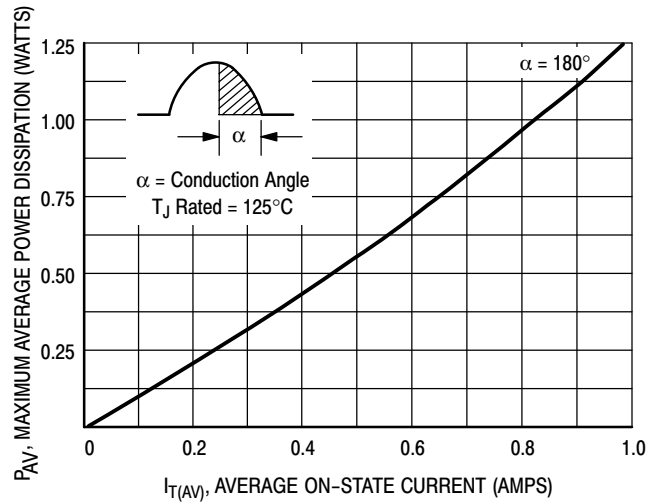


Figure 4. Typical Power Dissipation

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THERMAL CHARACTERISTICS

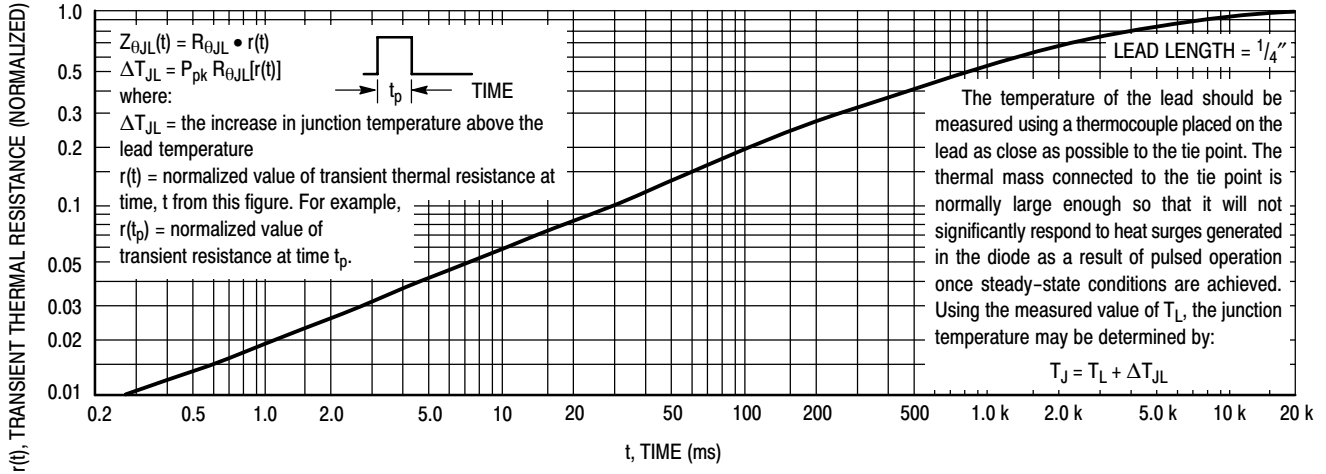


Figure 5. Thermal Response

TYPICAL CHARACTERISTICS

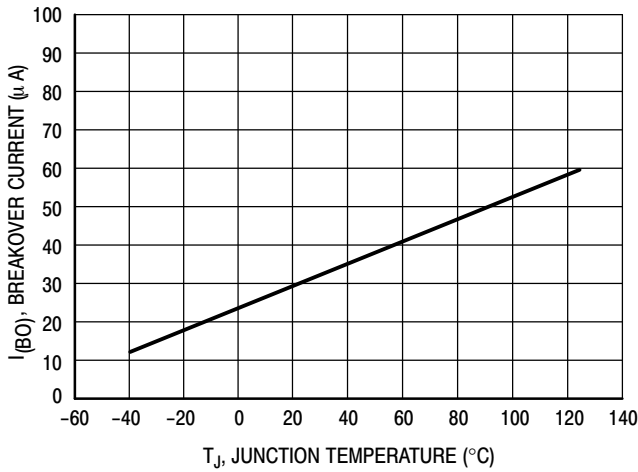


Figure 6. Typical Breakover Current

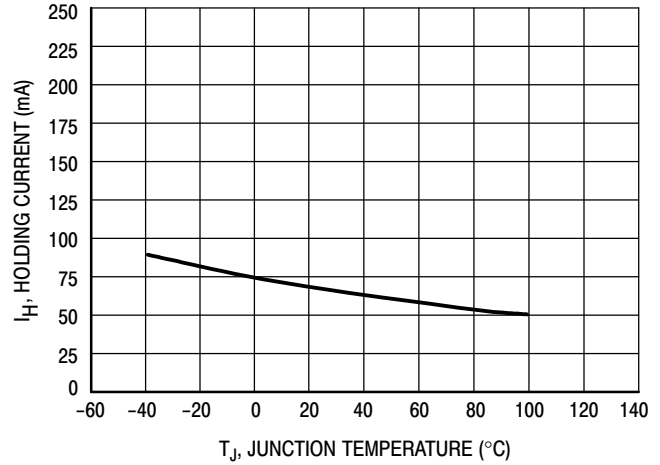
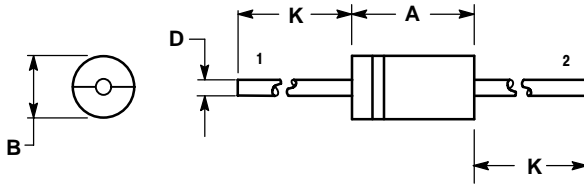


Figure 7. Typical Holding Current

MKP3V120, MKP3V240

PACKAGE DIMENSIONS

AXIAL LEAD CASE 267-05 ISSUE G



NOTES:

1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 267-04 OBSOLETE, NEW STANDARD 267-05.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.287 | 0.374 | 7.30 | 9.50 |
| B | 0.189 | 0.209 | 4.80 | 5.30 |
| D | 0.047 | 0.051 | 1.20 | 1.30 |
| K | 1.000 | --- | 25.40 | --- |

STYLE 2:

NO POLARITY

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