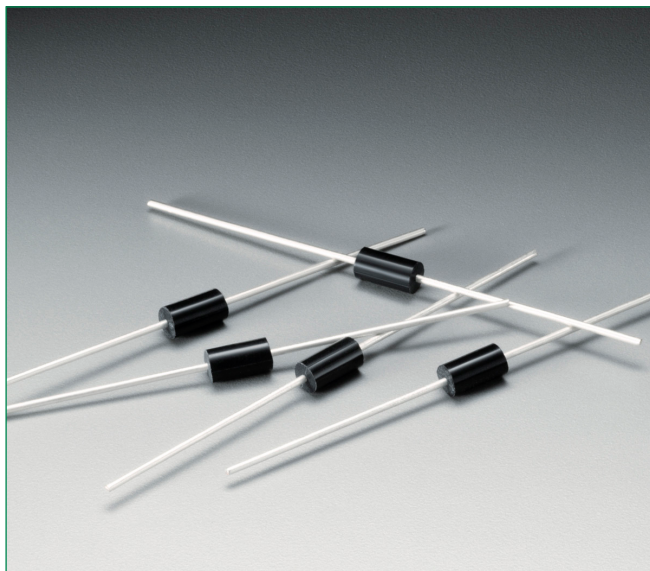
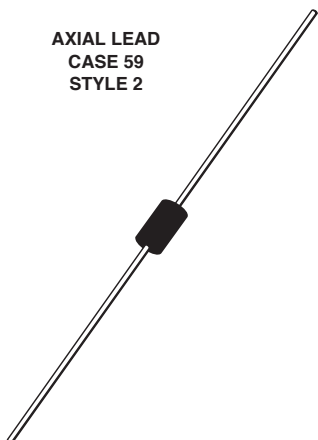


### MKP3V120, MKP3V240



#### Axial Lead

AXIAL LEAD  
CASE 59  
STYLE 2



#### Description

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 Triac
-  Indicates UL Registered – File #E128662
- These are Pb-Free Devices

#### Functional Diagram



#### Additional Information



**Datasheet**



**Resources**



**Samples**

### Maximum Ratings ( $T_J = 25^\circ\text{C}$ unless otherwise noted)

| Rating                                                                                                                                      | Symbol                               | Value                 | Unit             |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------------|------------------|
| Peak Repetitive Off-State Voltage (Note 1)<br>(– 40 to $125^\circ\text{C}$ , Sine Wave, 50 to 60 Hz, Gate Open)<br><br>MKP3V120<br>MKP3V240 | $V_{\text{DRM}}$<br>$V_{\text{RRM}}$ | $\pm 90$<br>$\pm 180$ | V                |
| On-State RMS Current (All Conduction Angles; $T_L = 80^\circ\text{C}$ ,<br>Lead Length = 3/8")                                              | $I_{\text{T (RMS)}}$                 | $\pm 1.0$             | A                |
| Peak Non-Repetitive Surge Current<br>(60 Hz One Cycle, Sine Wave, $T_J = 125^\circ\text{C}$ )                                               | $I_{\text{TSM}}$                     | $\pm 20$              | A                |
| Operating Junction Temperature Range                                                                                                        | $T_J$                                | –40 to +125           | $^\circ\text{C}$ |
| Storage Temperature Range                                                                                                                   | $T_{\text{stg}}$                     | –40 to +150           | $^\circ\text{C}$ |

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.

### Thermal Characteristics

| Rating                                                                 | Symbol           | Value | Unit               |
|------------------------------------------------------------------------|------------------|-------|--------------------|
| Thermal Resistance, Junction-to-Lead (Lead Length = 3/8")              | $R_{\text{8JL}}$ | 15    | $^\circ\text{C/W}$ |
| Lead Solder Temperature (Lead Length $\geq 1/16"$ from Case, 10 s Max) | $T_L$            | 260   | $^\circ\text{C}$   |

### Electrical Characteristics - OFF ( $T_J = 25^\circ\text{C}$ unless otherwise noted; Electricals apply in both directions)

| Characteristic                                            |  | Symbol           | Min | Typ | Max | Unit          |
|-----------------------------------------------------------|--|------------------|-----|-----|-----|---------------|
| Repetitive Peak Off–State Current (50 to 60 Hz Sine Wave) |  |                  |     |     |     |               |
| $V_{\text{DRM}} = 90\text{V}$ , MKP3V120                  |  | $I_{\text{DRM}}$ | -   | -   | 10  | $\mu\text{A}$ |
| $V_{\text{DRM}} = 180\text{V}$ , MKP3V240                 |  |                  |     |     |     |               |

### Electrical Characteristics - ON ( $T_J = 25^\circ\text{C}$ unless otherwise noted; Electricals apply in both directions)

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

### Dynamic Characteristics

| Characteristic                                                                                                                                     | Symbol  | Min | Typ | Max | Unit             |
|----------------------------------------------------------------------------------------------------------------------------------------------------|---------|-----|-----|-----|------------------|
| Critical Rate–of–Rise of On–State Current, Critical Damped Waveform Circuit<br>( $I_{\text{PK}} = 130 \Omega$ , Pulse Width = 10 $\mu\text{sec}$ ) | $dv/dt$ | –   | 120 | –   | V/ $\mu\text{s}$ |

## Voltage Current Characteristic of SCR

| Symbol    | Parameter                                 |
|-----------|-------------------------------------------|
| $V_{DRM}$ | Peak Repetitive Forward Off State Voltage |
| $I_{DRM}$ | Peak Forward Blocking Current             |
| $V_{RRM}$ | Peak Repetitive Reverse Off State Voltage |
| $I_{RRM}$ | Peak Reverse Blocking Current             |
| $V_{TM}$  | Maximum On State Voltage                  |
| $I_H$     | Holding Current                           |

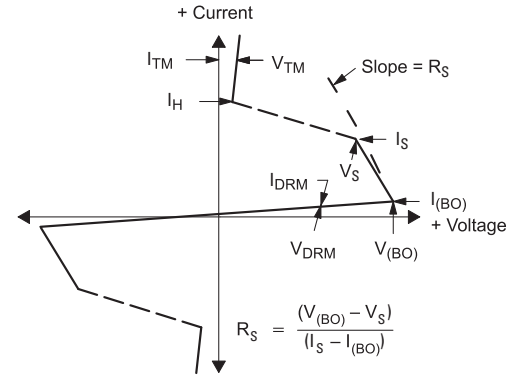


Figure 1. Maximum Case Temperature

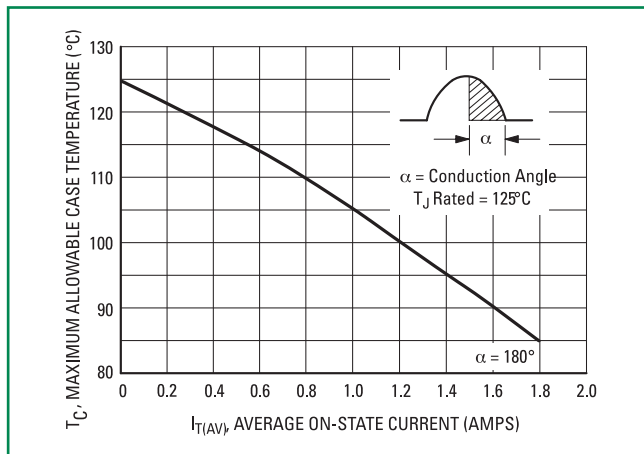


Figure 2. Maximum Ambient Temperature

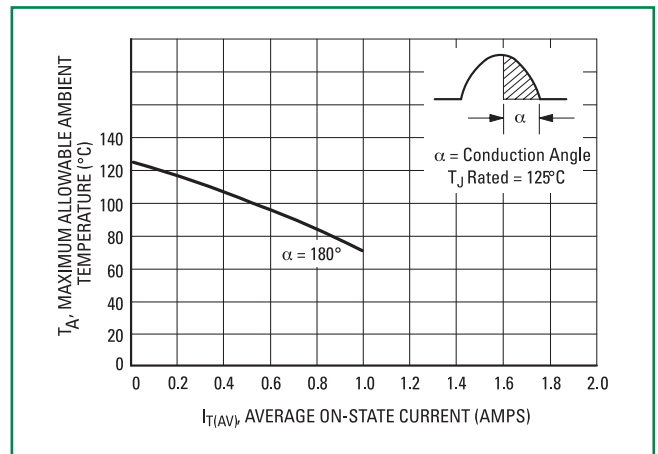


Figure 3. Typical Forward Voltage

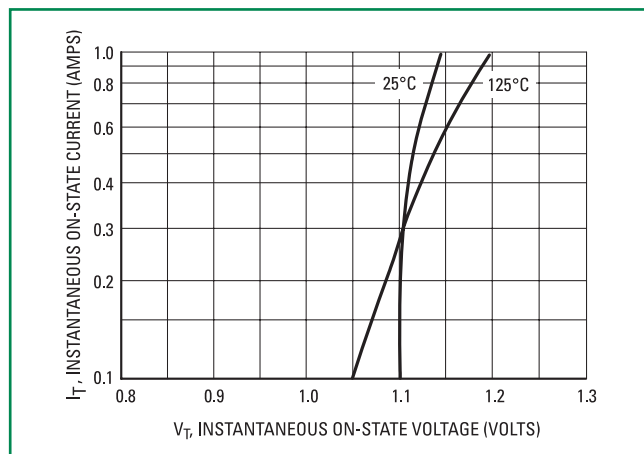
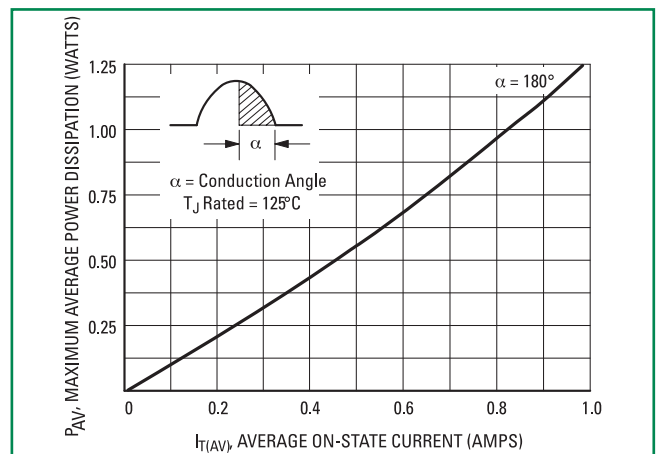
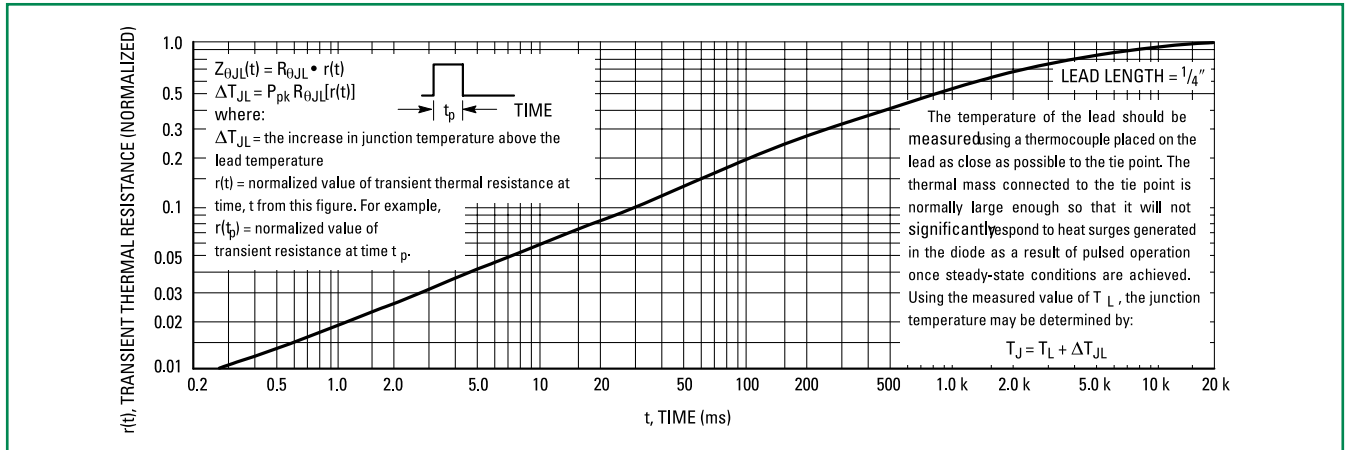


Figure 4. Typical Power Dissipation



## Thermal Characteristics

Figure 5. Thermal Response



## Typical Characteristics

Figure 6. Typical Breakover Current

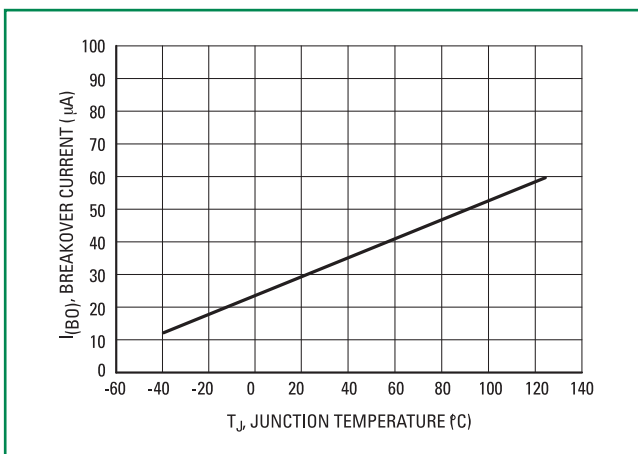
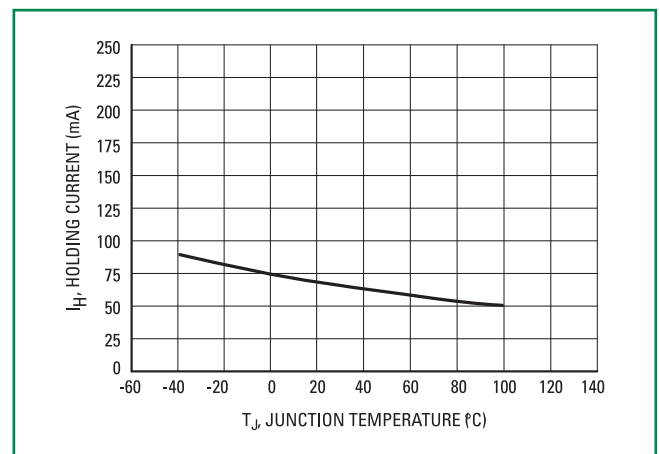
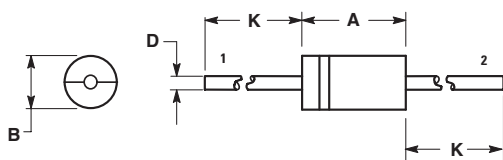


Figure 7. Typical Holding Current



### Dimensions

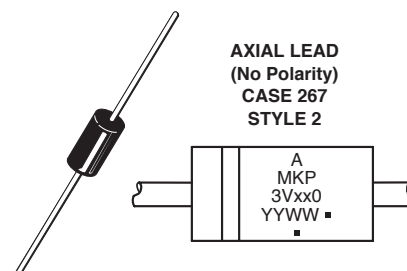


| Dim | Inches |       | Millimeters |      |
|-----|--------|-------|-------------|------|
|     | Min    | Max   | Min         | Max  |
| A   | 0.287  | 0.374 | 7.30        | 9.50 |
| B   | 0.189  | 0.209 | 4.80        | 5.30 |
| D   | 0.047  | 0.051 | 1.20        | 1.30 |
| K   | 1.000  | —     | 25.40       | —    |

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 267-04 OBSOLETE, NEW STANDARD 267-05.

STYLE 2: NO POLARITY

### Part Marking System



A= Assembly Location  
xx = 12 or 24  
YY, Y= Year  
WW = Work Week  
▪ = Pb-Free Package  
(Note: Microdot may be in either location)

### Ordering Information

| Device      | Package    | Shipping              |
|-------------|------------|-----------------------|
| MKP3V120G   | Axial Lead | 500<br>Units / Box    |
| MKP3V120RLG |            | 1500 /<br>Tape & Reel |
| MKP3V240G   |            | 500<br>Units / Box    |
| MKP3V240RLG |            | 1500 /<br>Tape & Reel |

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