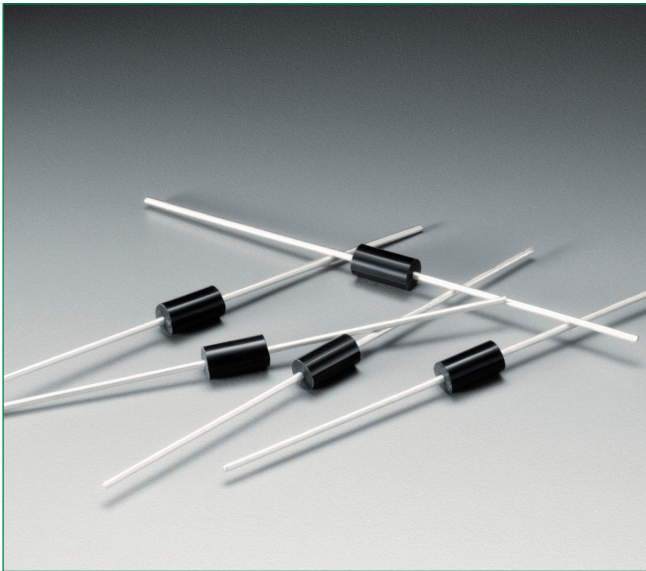
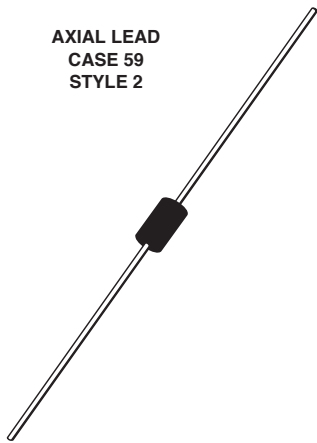


MKP1V120 Series



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) (– 40 to 125°C, Sine Wave, 50 to 60 Hz, Gate Open) MKP1V120 / MKP1V130 / MKP1V160 / MCR25MG MCR25NG | V_{DRM} V_{RRM} | ± 90 ± 180 | V |
| On-State RMS Current (All Conduction Angles; $T_L = 80^\circ\text{C}$, Lead Length = 3/8") | $I_{\text{T (RMS)}}$ | ± 0.9 | A |
| Peak Non-Repetitive Surge Current (60 Hz One Cycle, Sine Wave, $T_J = 125^\circ\text{C}$) | I_{TSM} | ± 4.0 | A |
| Operating Junction Temperature Range | T_J | -40 to +125 | $^\circ\text{C}$ |
| Storage Temperature Range | T_{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" | $R_{\theta\text{JL}}$ | 40 | $^\circ\text{C/W}$ |
| 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 $T_J = 25^\circ\text{C}$ (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 |

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 | 35 μA MKP1V120 | 110 | - | 130 | V |
| | 35 μA MKP1V130 | 120 | - | 140 | |
| | 200 μA MKP1V160 | 150 | - | 170 | |
| | 35 μA MKP1V240 | 220 | - | 250 | |
| 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, $R_L = 100\ \Omega$) | I_{H} | - | - | 100 | mA |
| Switching Resistance (Sine Wave, 50 to 60 Hz) | R_s | 0.1 | - | - | $\text{k}\Omega$ |

Dynamic Characteristics

| Characteristic | Symbol | Min | Typ | Max | Unit |
|---|--------|-----|-----|-----|------------------|
| Critical Rate–of–Rise of On–State Current, Critical Damped Waveform Circuit ($I_{\text{PK}} = 130\text{ Amps}$, Pulse Width = 10 μsec) | dv/dt | - | 120 | - | V/ μs |

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 |

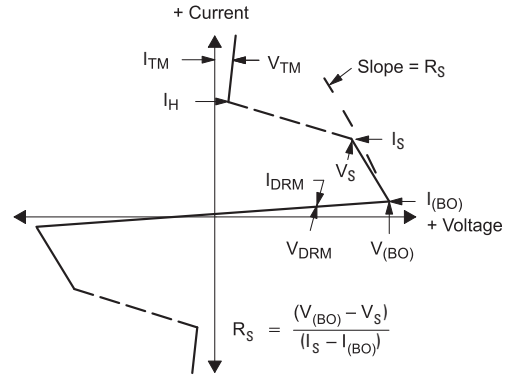


Figure 1. Maximum Lead Temperature

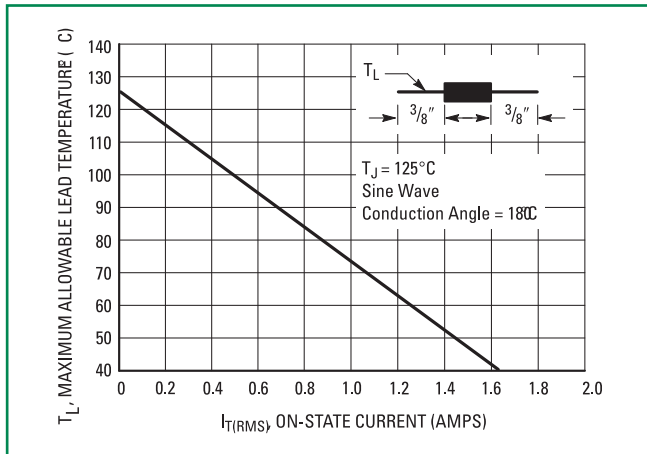


Figure 2. Maximum Ambient Temperature

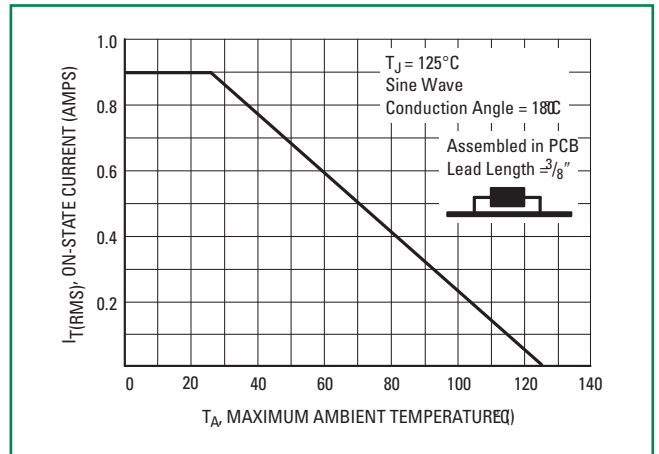


Figure 3. Typical On-State Voltage

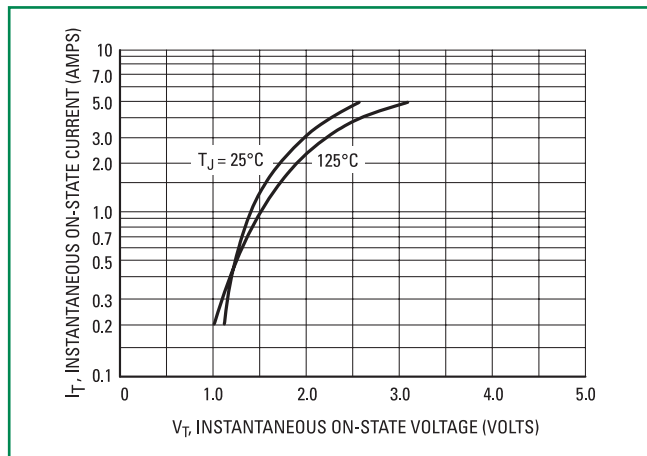


Figure 4. Typical Power Dissipation

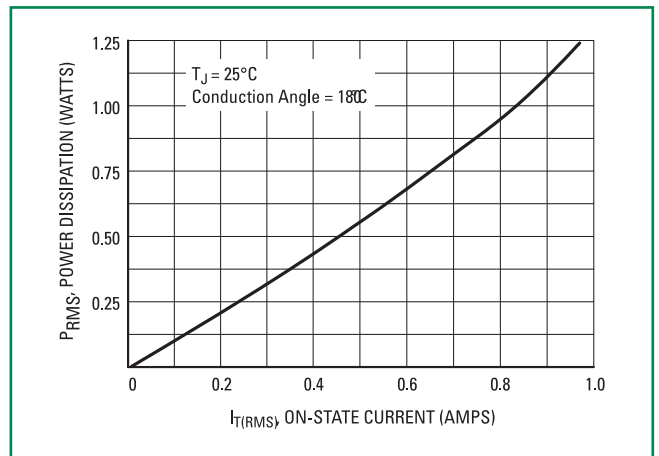


Figure 7. Typical RMS Current Derating

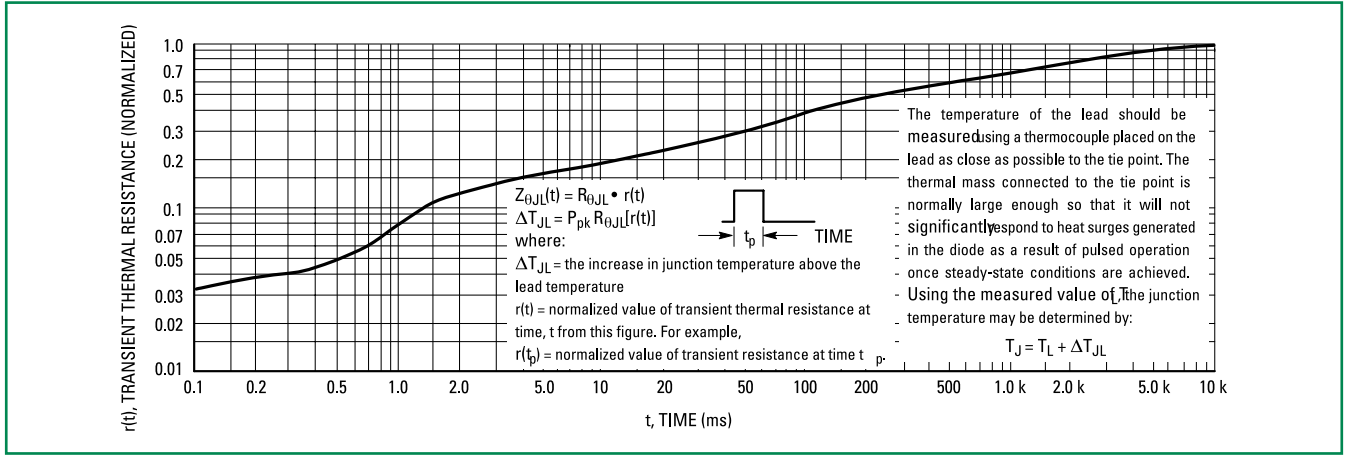


Figure 9. Typical Exponential Static dv/dt Versus Peak Voltage

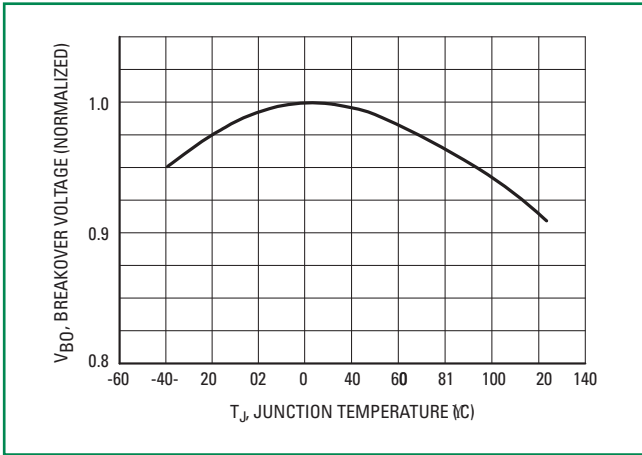


Figure 10. Typical Exponential Static dv/dt Vs Junction Temperature

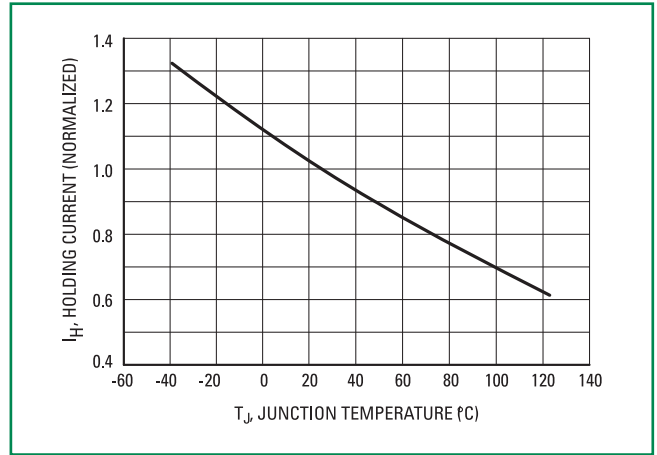
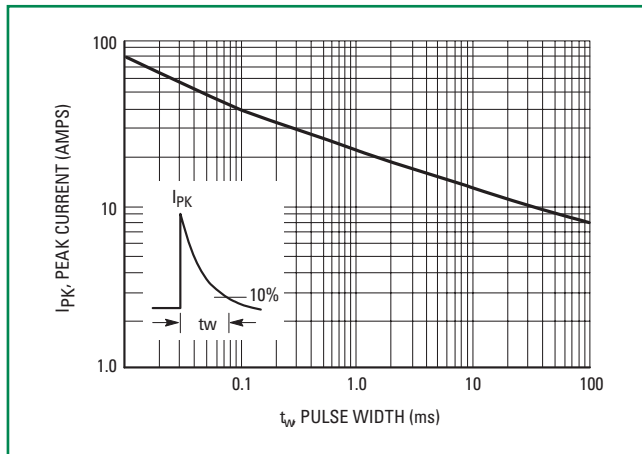
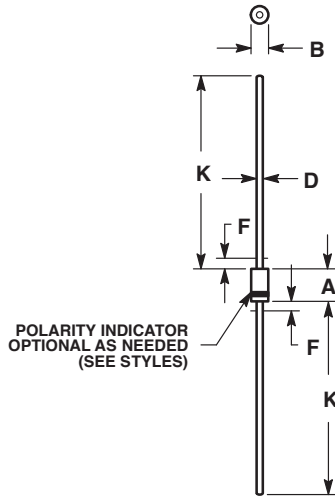


Figure 11. Maximum Non-Repetitive Surge Current



Dimensions



| 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 |

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.

STYLE 2: NO POLARITY

Part Marking System



- 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

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

*This package is inherently Pb-Free.

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