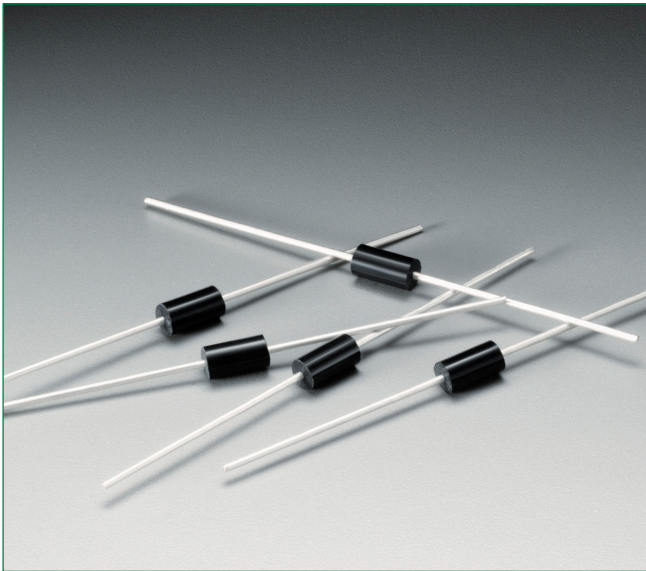
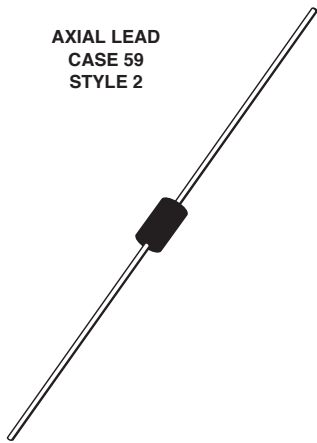


## MKP1V120 Series



### 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	$V_{\text{DRM}}$ $V_{\text{RRM}}$	$\pm 90$ $\pm 180$	V
On-State RMS Current (All Conduction Angles; $T_L = 80^\circ\text{C}$ , Lead Length = 3/8")	$I_{\text{T (RMS)}}$	$\pm 0.9$	A
Peak Non-Repetitive Surge Current (60 Hz One Cycle, Sine Wave, $T_J = 125^\circ\text{C}$ )	$I_{\text{TSM}}$	$\pm 4.0$	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"	$R_{\theta\text{JL}}$	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	$I_{\text{DRM}}$	-	-	5.0	$\mu\text{A}$

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

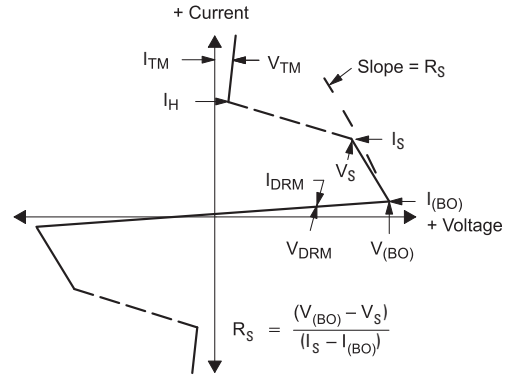
Characteristic	Symbol	Min	Typ	Max	Unit
Breakover Voltage	35 $\mu\text{A}$ MKP1V120	110	-	130	V
	35 $\mu\text{A}$ MKP1V130	120	-	140	
	200 $\mu\text{A}$ MKP1V160	150	-	170	
	35 $\mu\text{A}$ MKP1V240	220	-	250	
Peak On–State Voltage ( $I_{\text{TM}} = 1\text{ A Peak}$ , Pulse Width $\leq 300\ \mu\text{s}$ , Duty Cycle $\leq 2\%$ )	$V_{\text{TM}}$	-	1.3	1.5	V
Dynamic Holding Current (Sine Wave, 50 to 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

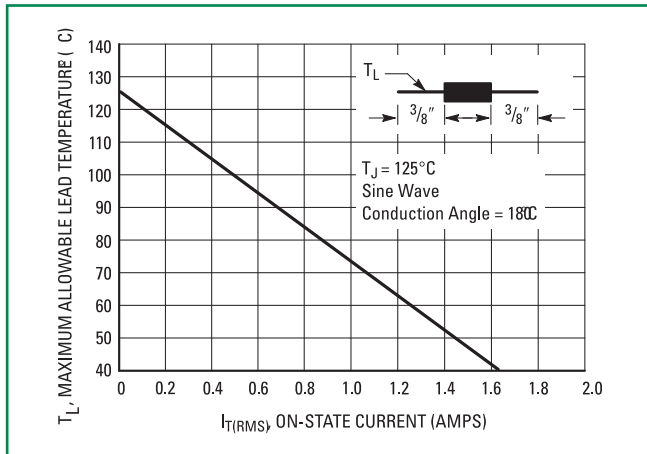
Characteristic	Symbol	Min	Typ	Max	Unit
Critical Rate–of–Rise of On–State Current, Critical Damped Waveform Circuit ( $I_{\text{PK}} = 130\text{ Amps}$ , Pulse Width = 10 $\mu\text{sec}$ )	dv/dt	-	120	-	V/ $\mu\text{s}$

**Voltage Current Characteristic of SCR**

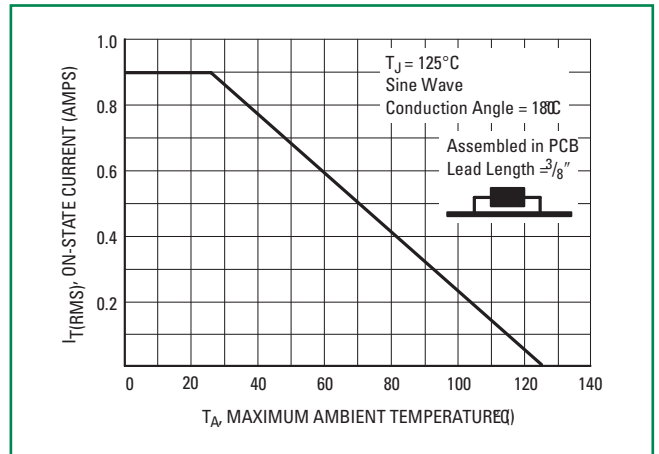
Symbol	Parameter
$V_{DRM}$	Peak Repetitive Forward Off State Voltage
$I_{DRM}$	Peak Forward Blocking Current
$V_{RRM}$	Peak Repetitive Reverse Off State Voltage
$I_{RRM}$	Peak Reverse Blocking Current
$V_{TM}$	Maximum On State Voltage
$I_H$	Holding Current



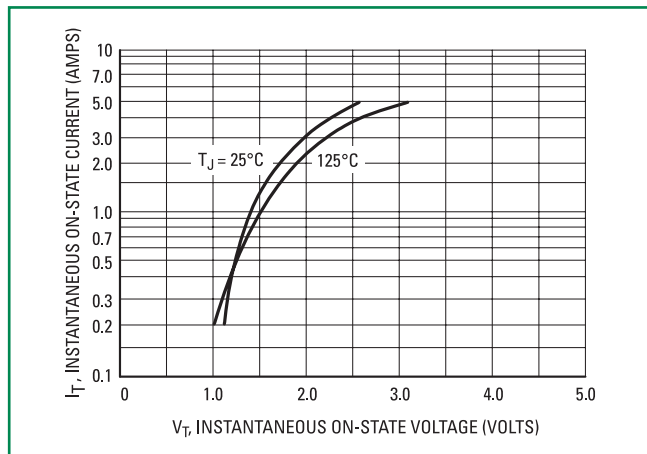
**Figure 1. Maximum Lead Temperature**



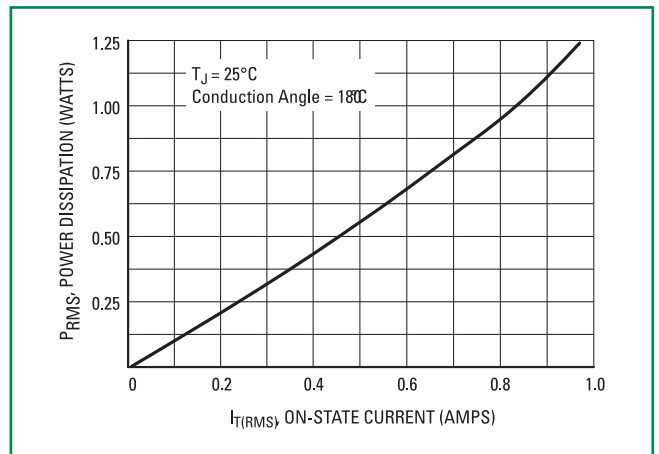
**Figure 2. Maximum Ambient Temperature**



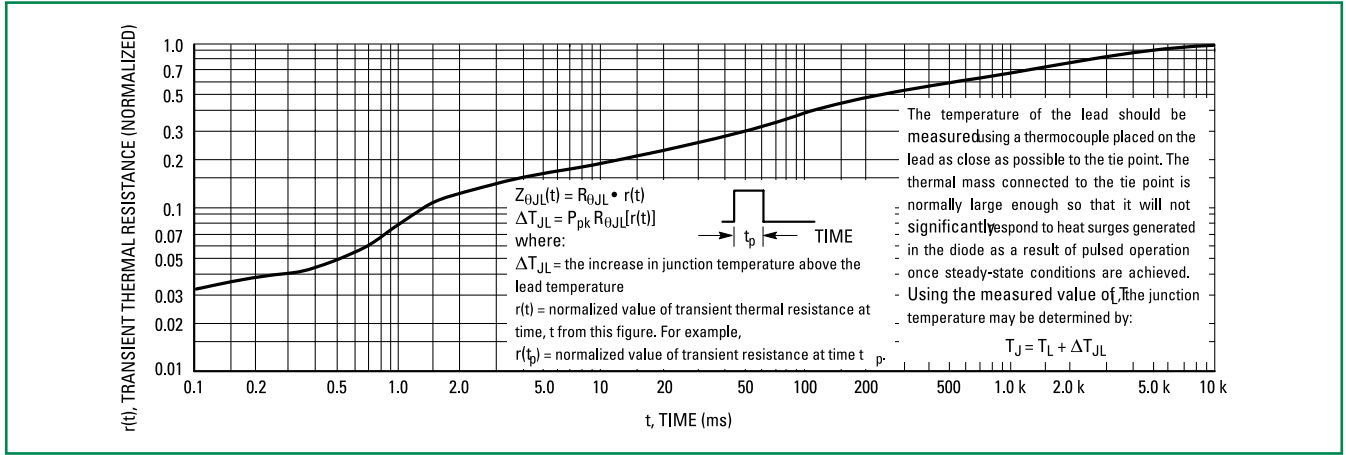
**Figure 3. Typical On-State Voltage**



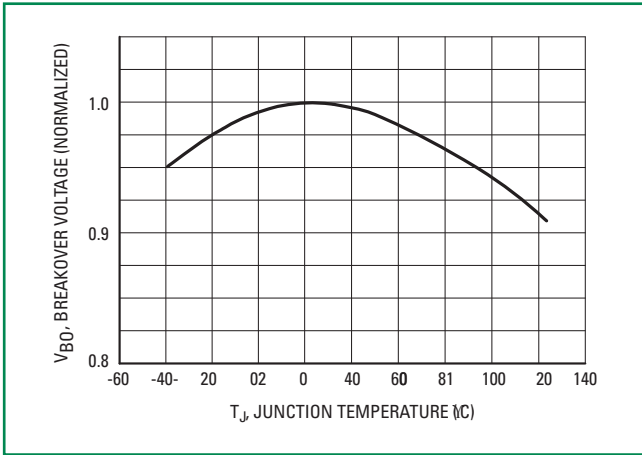
**Figure 4. Typical Power Dissipation**



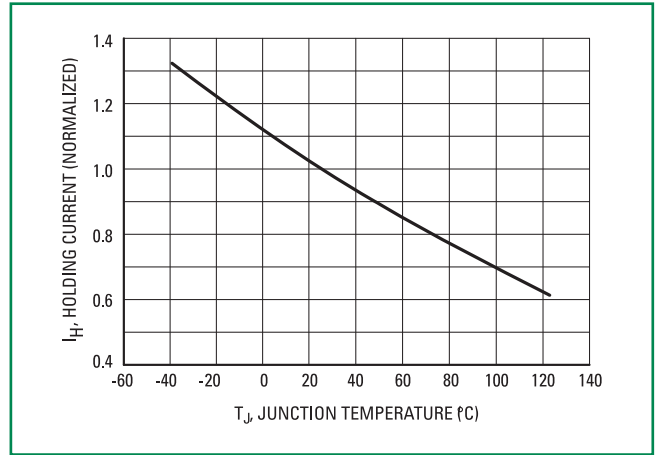
**Figure 7. Typical RMS Current Derating**



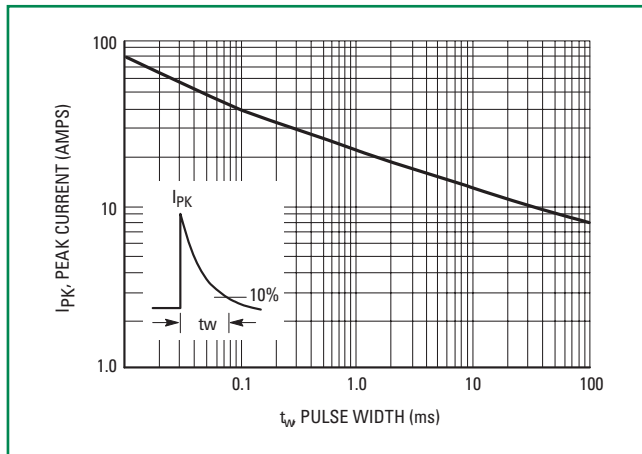
**Figure 9. Typical Exponential Static dv/dt Versus Peak Voltage**



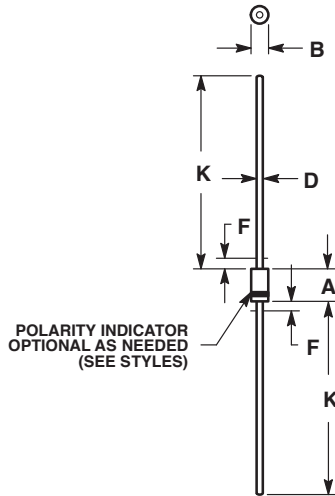
**Figure 10. Typical Exponential Static dv/dt Vs Junction Temperature**



**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.

**Disclaimer Notice** - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at: [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics)