


MKP3V120, MKP3V240



**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

**Axial Lead**

AXIAL LEAD  
CASE 59  
STYLE 2



**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)	$V_{\text{DRM}}$ $V_{\text{RRM}}$	$\pm 90$ $\pm 180$	V
On-State RMS Current (All Conduction Angles; $T_L = 80^\circ\text{C}$ , Lead Length = 3/8")	$I_{\text{T (RMS)}}$	$\pm 1.0$	A
Peak Non-Repetitive Surge Current (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")	$R_{\theta\text{JL}}$	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 $V_{\text{DRM}} = 180\text{V}$ , MKP3V240	$I_{\text{DRM}}$	-	-	10	$\mu\text{A}$

### 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	$V_{\text{BO}}$	MKP3V120 $I_{\text{BO}} = 200 \mu\text{A}$	110	-	130	V
		MKP3V240 $I_{\text{BO}} = 200 \mu\text{A}$	220	-	250	
Peak On–State Voltage ( $I_{\text{TM}} = 1 \text{ A Peak}$ , Pulse Width $\leq 300 \mu\text{s}$ , Duty Cycle $\leq 2\%$ )	$V_{\text{TM}}$	-	1.1	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

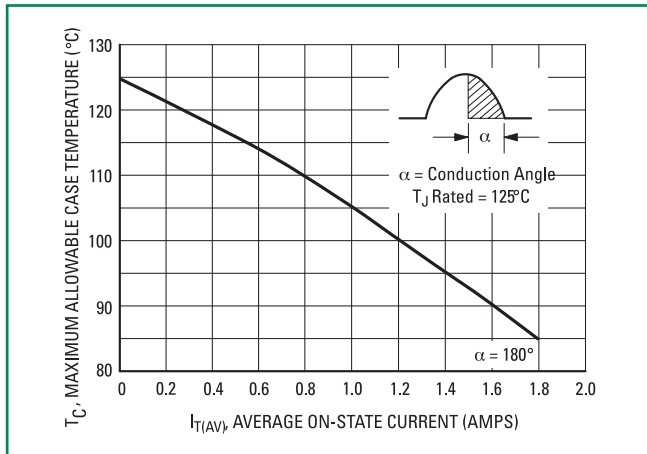
Characteristic	Symbol	Min	Typ	Max	Unit
Critical Rate–of–Rise of On–State Current, Critical Damped Waveform Circuit ( $I_{\text{PK}} = 130 \Omega$ , Pulse Width = 10 $\mu\text{sec}$ )	dv/dt	-	120	-	V/ $\mu\text{s}$

**Voltage Current Characteristic of SCR**

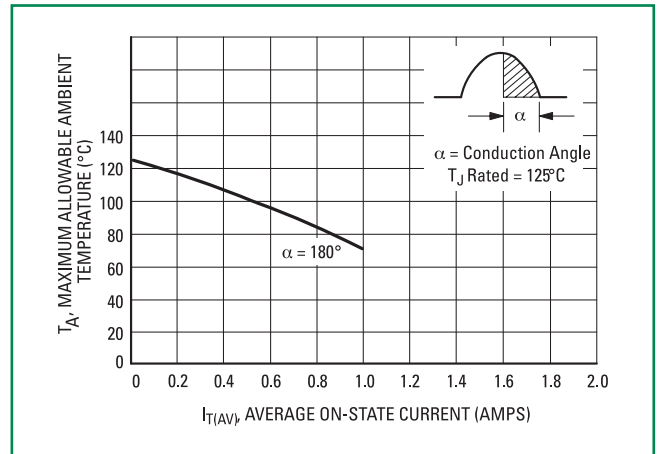
Symbol	Parameter
$V_{DRM}$	Peak Repetitive Forward Off State Voltage
$I_{DRM}$	Peak Forward Blocking Current
$V_{RRM}$	Peak Repetitive Reverse Off State Voltage
$I_{RRM}$	Peak Reverse Blocking Current
$V_{TM}$	Maximum On State Voltage
$I_H$	Holding Current



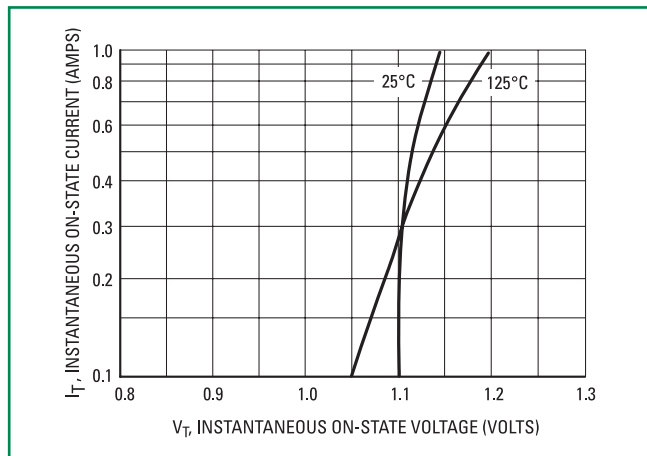
**Figure 1. Maximum Case Temperature**



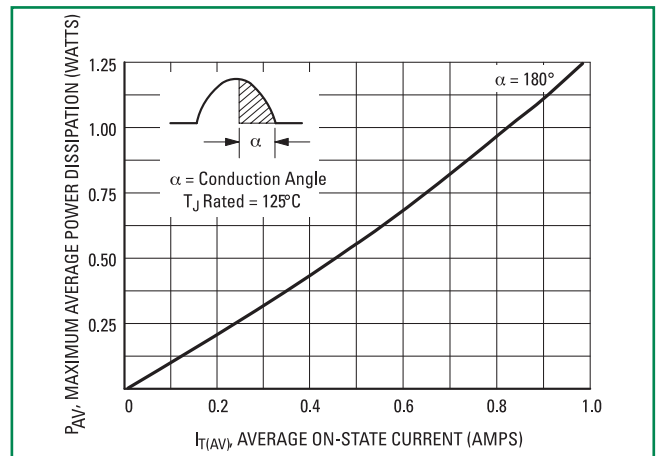
**Figure 2. Maximum Ambient Temperature**



**Figure 3. Typical Forward Voltage**

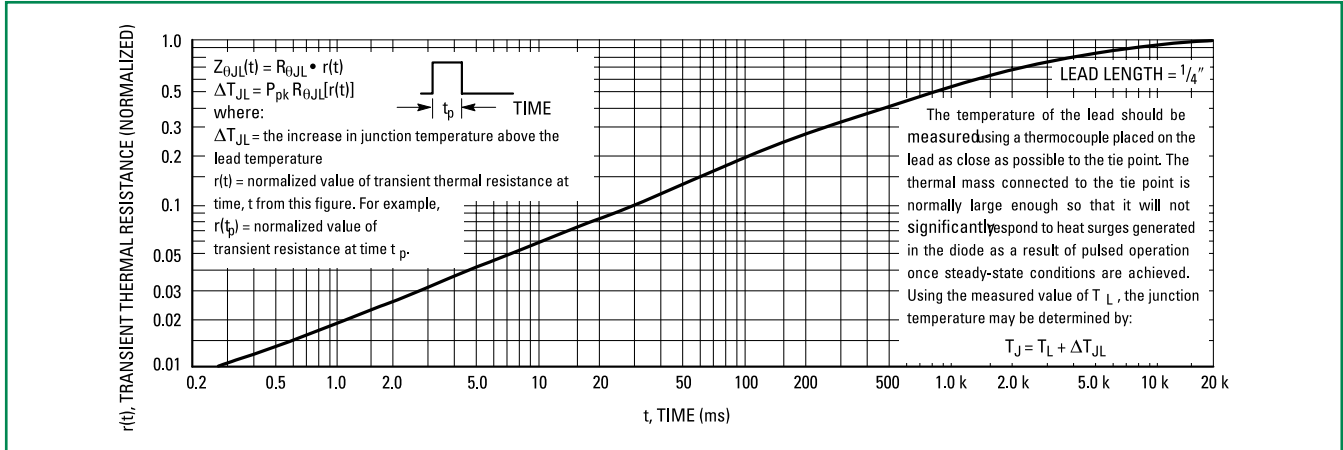


**Figure 4. Typical Power Dissipation**



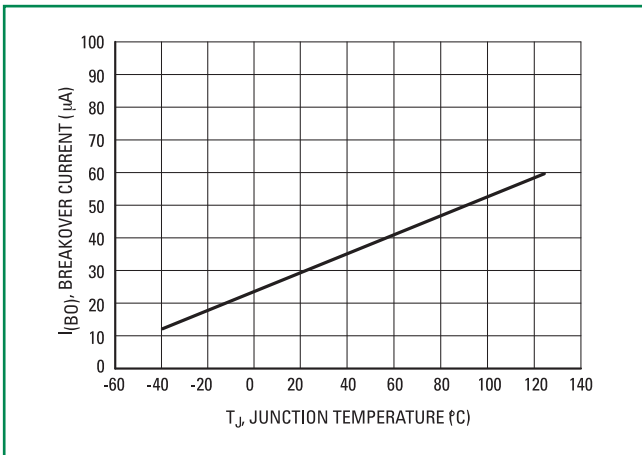
**Thermal Characteristics**

**Figure 5. Thermal Response**

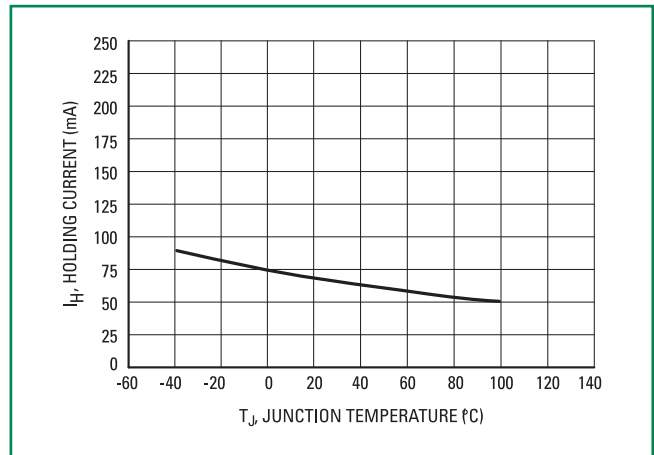


**Typical Characteristics**

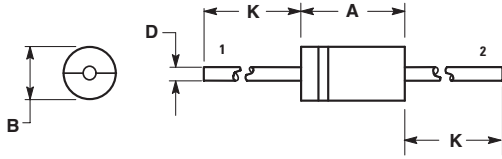
**Figure 6. Typical Breakover Current**



**Figure 7. Typical Holding Current**



**Dimensions**

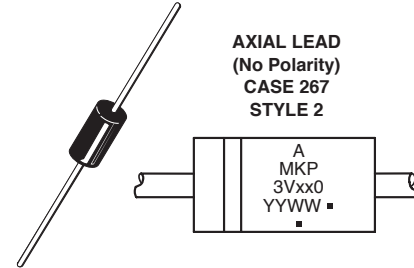


Dim	Inches		Millimeters	
	Min	Max	Min	Max
A	0.287	0.374	7.30	9.50
B	0.189	0.209	4.80	5.30
D	0.047	0.051	1.20	1.30
K	1.000	---	25.40	---

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 Units / Box
MKP3V120RLG		1500 / Tape & Reel
MKP3V240G		500 Units / Box
MKP3V240RLG		1500 / Tape & Reel

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