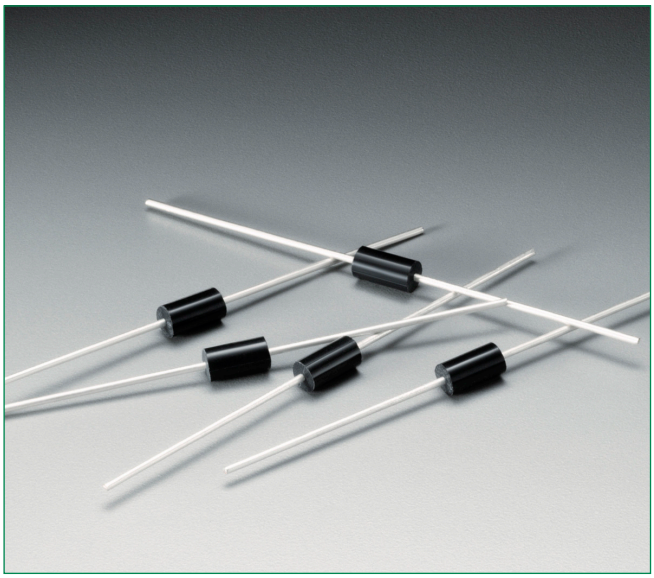
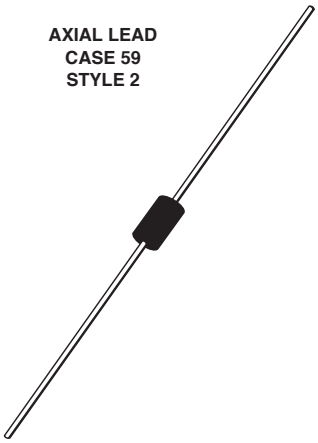
MKP1V120 Series



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

Revised: 08/30/17

Maximum Ratings (T_J = 25°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°C, Lead Length = 3/8")	$I_{T\ (RMS)}$	±0.9	A
Peak Non-Repetitive Surge Current (60 Hz One Cycle, Sine Wave, T_J = 125°C)	I_{TSM}	±4.0	A
Operating Junction Temperature Range	T_J	-40 to +125	°C
Storage Temperature Range	T_{stg}	-40 to +150	°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"	$R_{\theta JL}$	40	°C/W
Lead Solder Temperature (Lead Length ≥ 1/16" from Case, 10 s Max)	T_L	260	°C

Electrical Characteristics - OFF (T_J = 25°C unless otherwise noted; Electricals apply in both directions)

Characteristic	Symbol	Min	Typ	Max	Unit
Repetitive Peak Off–State Current T_J = 25°C (50 to 60 Hz Sine Wave) V_{DRM} = 90V, MKP1V120, MKP1V130 and MKP1V160 V_{DRM} = 180V, MKP1V240	I_{DRM}	-	-	5.0	µA

Electrical Characteristics - ON (T_J = 25°C unless otherwise noted; Electricals apply in both directions)

Characteristic		Symbol	Min	Typ	Max	Unit
Breakover Voltage	35 µA MKP1V120	V_{BO}	110	_	130	V
	35 µA MKP1V130		120	_	140	
	200µA MKP1V160		150	_	170	
	35 µA MKP1V240		220	_	250	
Peak On–State Voltage (I_{TM} = 1 A Peak, Pulse Width ≤ 300 µs, Duty Cycle ≤ 2%)		V_{TM}	–	1.3	1.5	V
Dynamic Holding Current (Sine Wave, 50 to 60 Hz, RL = 100 Ohm)		I_H	_	_	100	mA
Switching Resistance (Sine Wave, 50 to 60 Hz)		R_S	0.1	_	_	kΩ

Dynamic Characteristics

Characteristic	Symbol	Min	Typ	Max	Unit
Critical Rate–of–Rise of On–State Current, Critical Damped Waveform Circuit (I_{PK} = 130 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

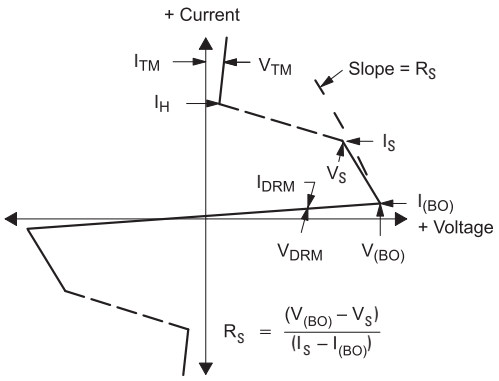


Figure 1. Maximum Lead Temperature

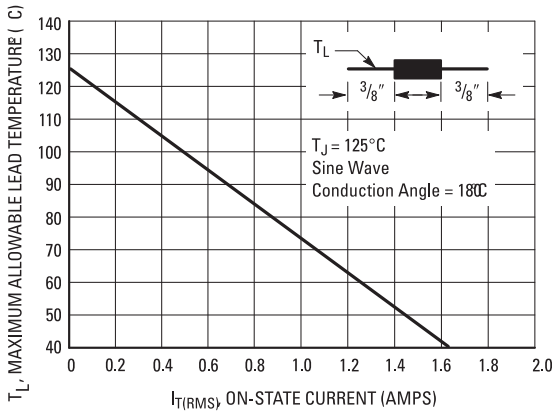


Figure 2. Maximum Ambient Temperature

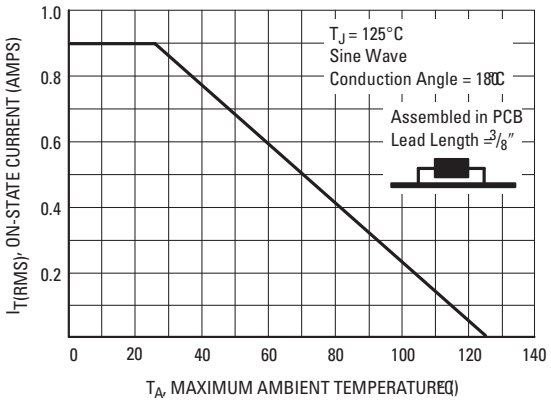


Figure 3. Typical On–State Voltage

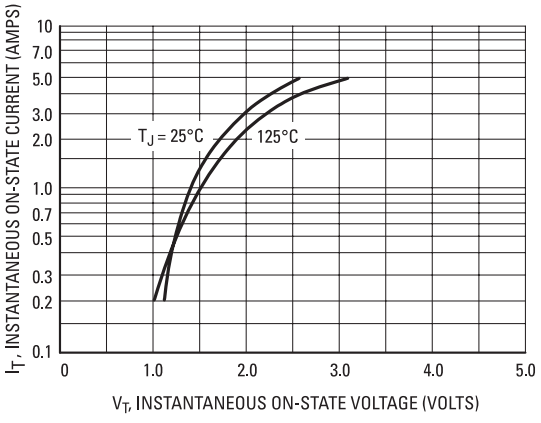
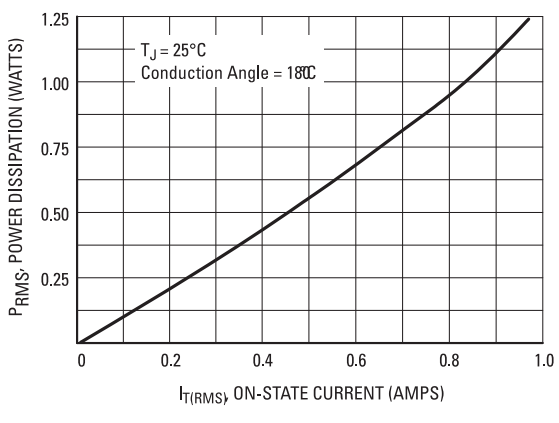


Figure 4. Typical Power Dissipation



Revised: 08/30/17

Figure 7. Typical RMS Current Derating

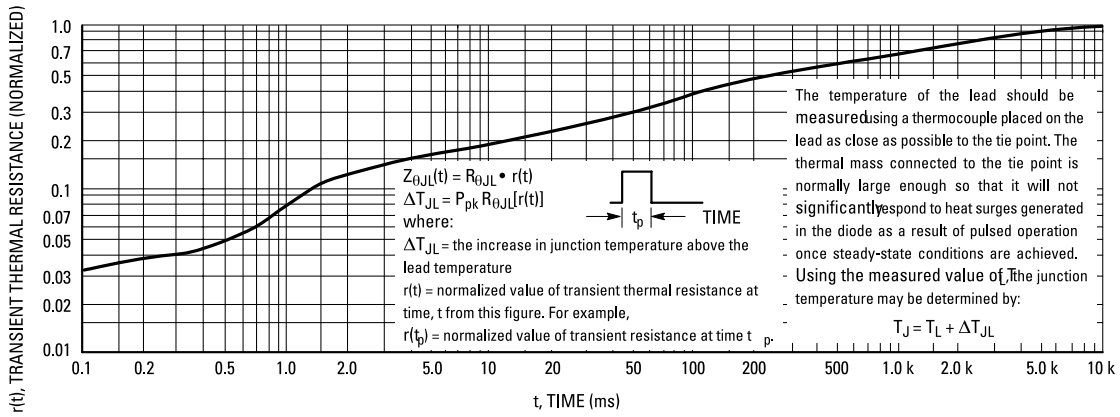


Figure 9. Typical Exponential Static dv/dt Versus Peak Voltage

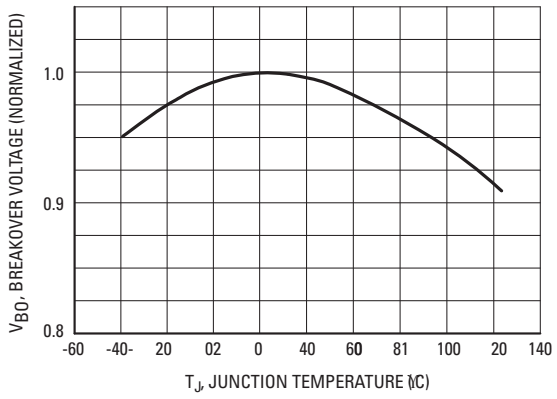


Figure 10. Typical Exponential Static dv/dt Vs Junction Temperature

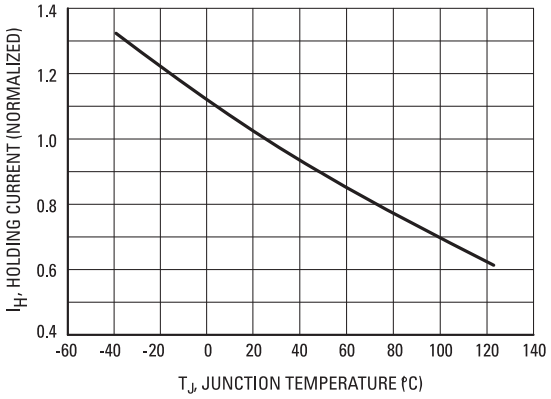
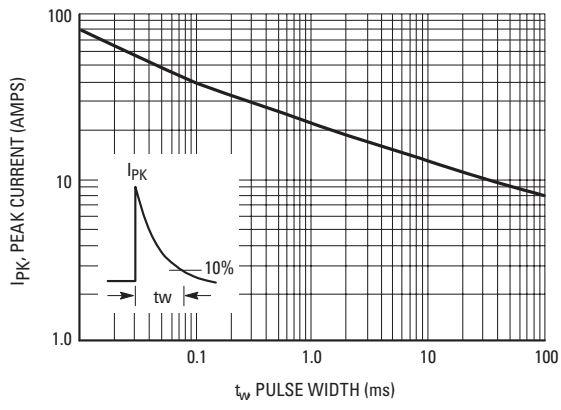


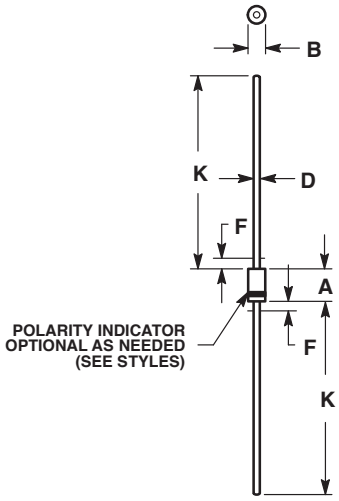
Figure 11. Maximum Non–Repetitive Surge Current



Thyristors

Surface Mount – 120V - 240V > MKP1V120 Series

Dimensions



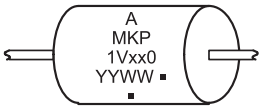
Dim	Inches		Millimeters	
	Min	Max	Min	Max
A	0.161	0.205	4.10	5.20
B	0.079	0.106	2.00	2.70
D	0.028	0.034	0.71	0.86
F	---	0.050	---	1.27

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

AXIAL LEAD
CASE 59
STYLE 2



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.