

MKP1V120 Series

Preferred Device

Sidac High Voltage

Bidirectional Triggers

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. Applications are:

- High Pressure Sodium Vapor Lighting
- Strobes and Flashers
- Ignitors
- High Voltage Regulators
- Pulse Generators
- Used to Trigger Gates of SCR's and Triacs
-  Indicates UL Registered — File #E116110
- Device Marking: Logo, Device Type, e.g., MKP1V120, Date Code
- These devices are available in Pb-free package(s). Specifications herein apply to both standard and Pb-free devices. Please see our website at www.onsemi.com for specific Pb-free orderable part numbers, or contact your local ON Semiconductor sales office or representative.

MAXIMUM RATINGS ($T_J = 25^\circ\text{C}$ unless otherwise noted)

Rating	Symbol	Value	Unit
Peak Repetitive Off-State Voltage (Sine Wave, 50 to 60 Hz, $T_J = -40$ to 125°C) MKP1V120, MKP1V130, MKP1V160 MKP1V240	V_{DRM} , V_{RRM}	± 90 ± 180	V
On-State Current RMS ($T_L = 80^\circ\text{C}$, Lead Length = 3/8", All Conduction Angles)	$I_{\text{T(RMS)}}$	± 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 $+150$	$^\circ\text{C}$

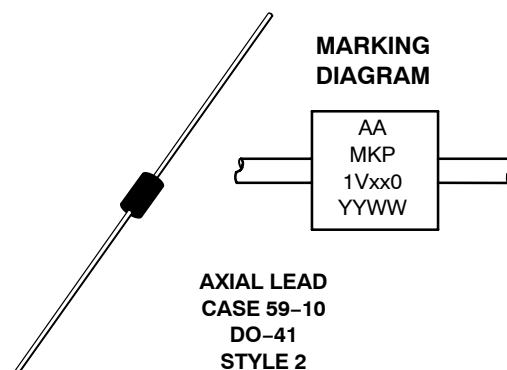
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



ON Semiconductor®

<http://onsemi.com>

SIDACS (∩)
0.9 AMPS RMS
120 – 240 V



AA = Assembly Location
xx = 12, 13, 16 or 24
YY = Year
WW = Work Week

ORDERING INFORMATION

Device	Package	Shipping†
MKP1V120RL	DO-41	5000 Tape & Reel
MKP1V130RL	DO-41	5000 Tape & Reel
MKP1V160	DO-41	1000 Units / Bulk
MKP1V160RL	DO-41	5000 Tape & Reel
MKP1V240	DO-41	1000 Units / Bulk
MKP1V240RL	DO-41	5000 Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

Preferred devices are recommended choices for future use and best overall value.

MKP1V120 Series

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead Lead Length = 3/8"	$R_{\theta JL}$	40	$^{\circ}\text{C}/\text{W}$
Lead Solder Temperature (Lead Length $\geq 1/16"$ from Case, 10 s Max)	T_L	260	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_C = 25^{\circ}\text{C}$ unless otherwise noted; Electricals apply in both directions)

Characteristic	Symbol	Min	Typ	Max	Unit
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OFF CHARACTERISTICS

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
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ON CHARACTERISTICS

Breakover Voltage $I_{\text{BO}} = 35 \mu\text{A}$ MKP1V120 $35 \mu\text{A}$ MKP1V130 $200 \mu\text{A}$ MKP1V160 $35 \mu\text{A}$ MKP1V240	V_{BO}	110 120 150 220	– –	130 140 170 250	Volts
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	Volts
Dynamic Holding Current (Sine Wave, 50 to 60 Hz, $R_L = 100 \text{ Ohm}$)	I_{H}	–	–	100	mA
Switching Resistance (Sine Wave, 50 to 60 Hz)	R_S	0.1	–	–	$\text{k}\Omega$

DYNAMIC CHARACTERISTICS

Critical Rate-of-Rise of On-State Current, Critical Damped Waveform Circuit ($I_{\text{PK}} = 130 \text{ Amps}$, Pulse Width = 10 μsec)	di/dt	–	120	–	$\text{A}/\mu\text{s}$
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MKP1V120 Series

Voltage Current Characteristic of SIDAC (Bidirectional Device)

Symbol	Parameter
I_{DRM}	Off State Leakage Current
V_{DRM}	Off State Repetitive Blocking Voltage
V_{BO}	Breakover Voltage
I_{BO}	Breakover Current
I_H	Holding Current
V_{TM}	On State Voltage
I_{TM}	Peak on State Current

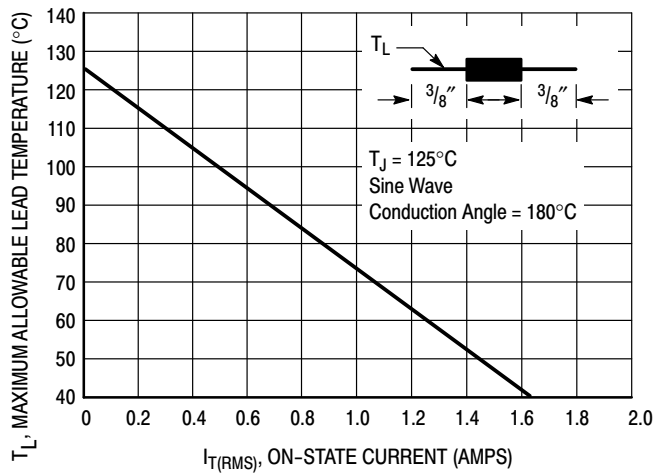
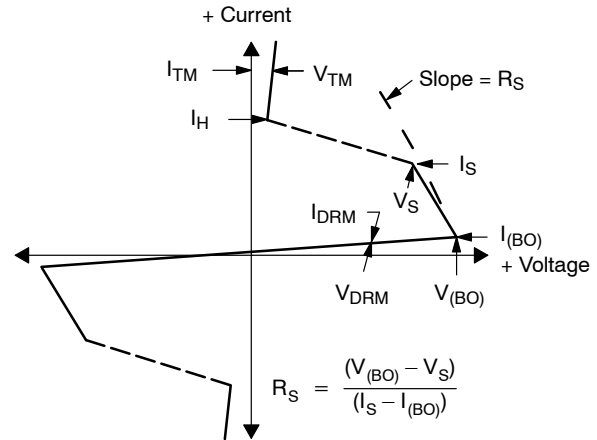


Figure 1. Maximum Lead Temperature

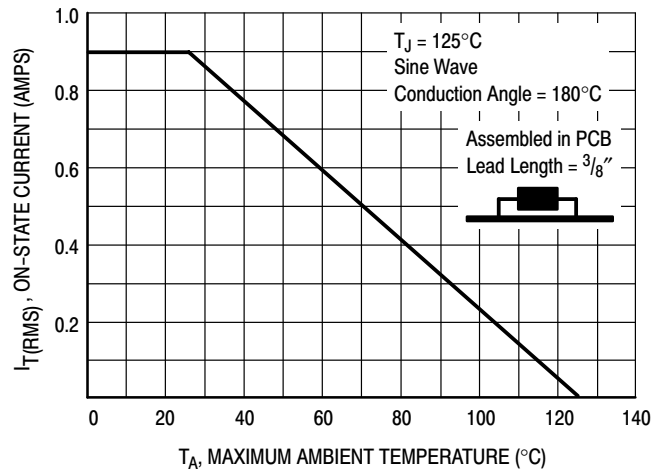


Figure 2. Maximum Ambient Temperature

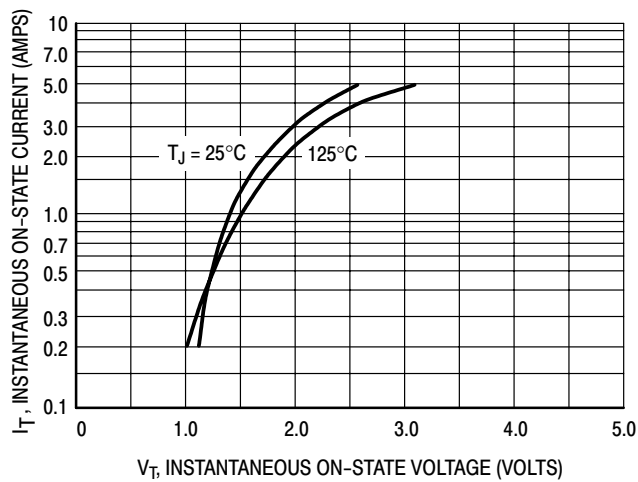


Figure 3. Typical On-State Voltage

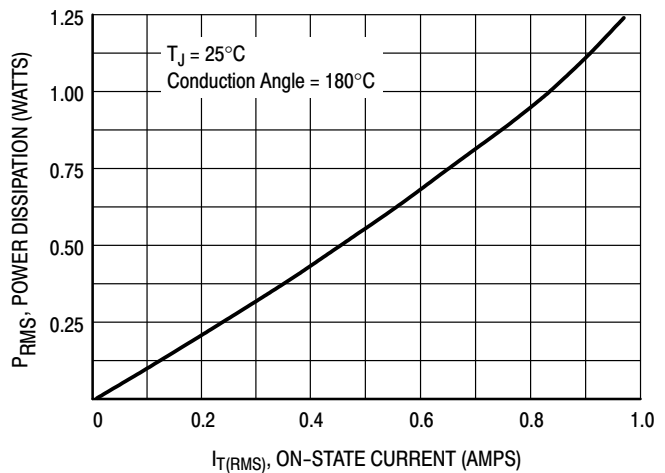


Figure 4. Typical Power Dissipation

THERMAL CHARACTERISTICS

MKP1V120 Series

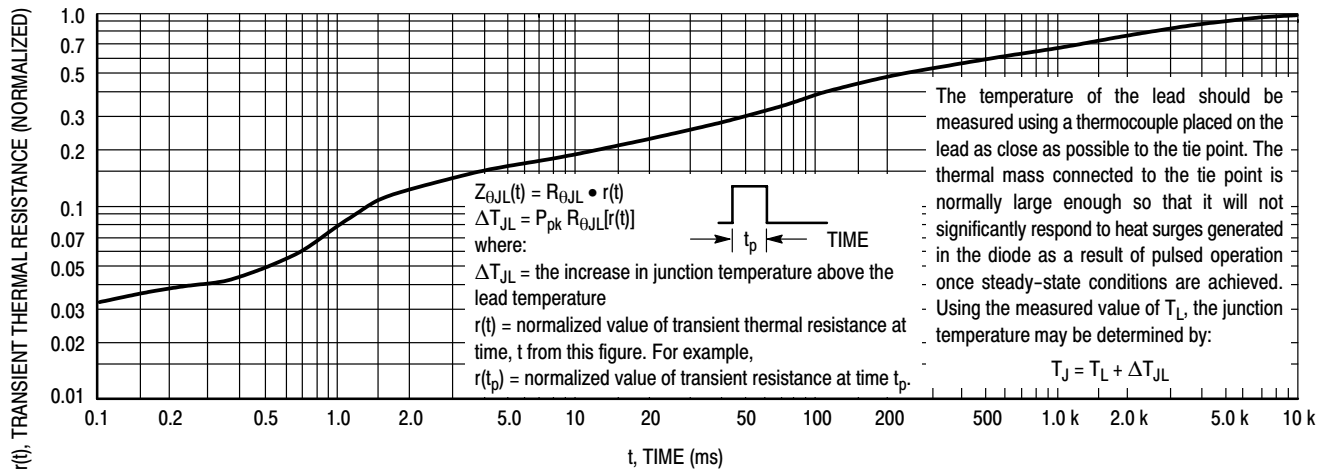


Figure 5. Thermal Response

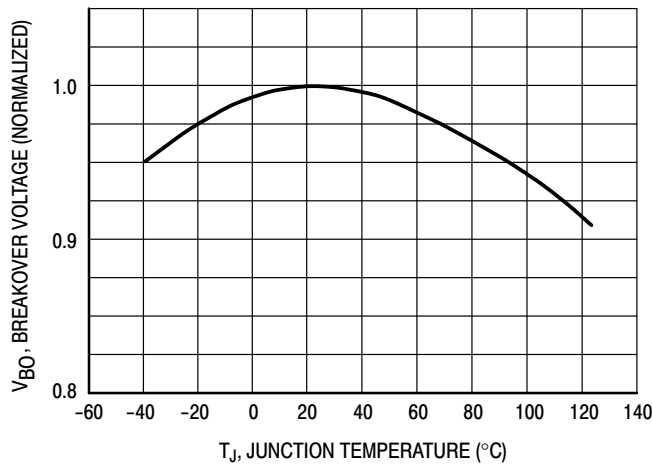


Figure 6. Typical Breakover Voltage

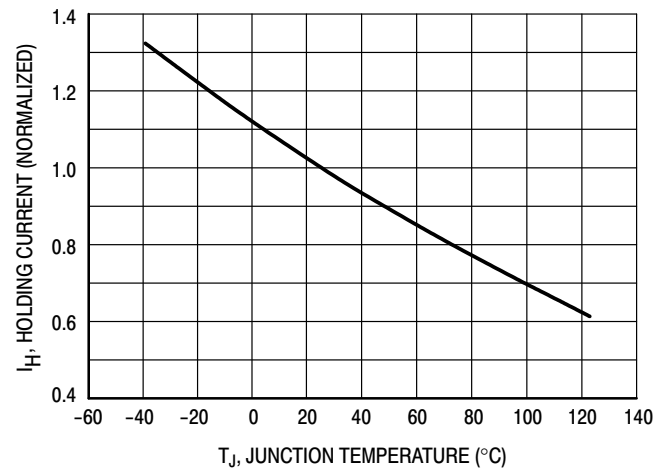


Figure 7. Typical Holding Current

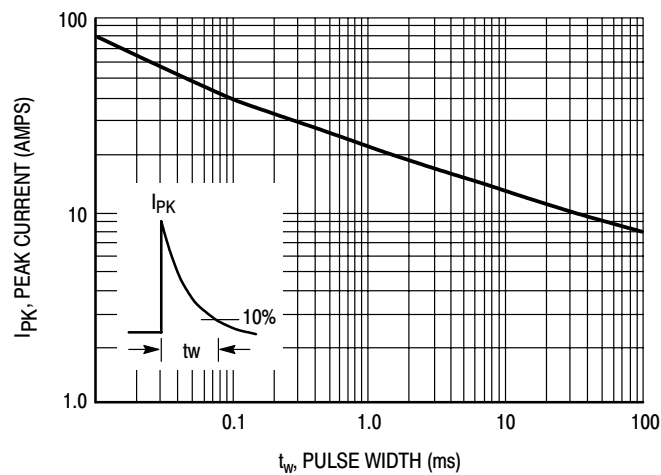
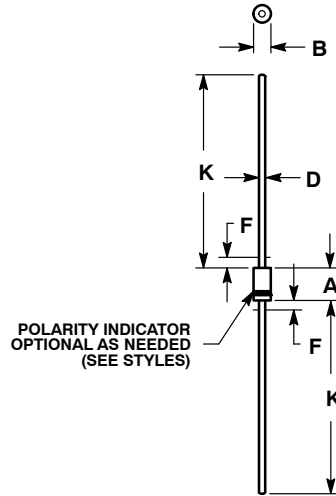


Figure 8. Pulse Rating Curve

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PACKAGE DIMENSIONS

AXIAL LEAD CASE 59-10 ISSUE U



NOTES:

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.

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
K	1.000	---	25.40	---

STYLE 2:

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