MKP3V120, MKP3V240

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.

Features

- 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
- These are Pb-Free Devices*

MAXIMUM RATINGS (T_J = 25°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) MKP3V120 MKP3V240	V_{DRM}, V_{RRM}	±90 ±180	V
On-State RMS Current (T_L = 80°C, Lead Length = 3/8″, All Conduction Angles)	$I_{T(RMS)}$	±1.0	A
Peak Non-Repetitive Surge Current (60 Hz One Cycle Sine Wave, Peak Value, T_J = 125°C)	I_{TSM}	±20	A
Operating Junction Temperature Range	T_J	- 40 to +125	°C
Storage Temperature Range	T_{stg}	- 40 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Lead (Lead Length = 3/8″)	$R_{\theta JL}$	15	°C/W
Lead Solder Temperature (Lead Length ≥ 1/16″ from Case, 10 s Max)	T_L	260	°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.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

ON Semiconductor®

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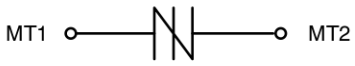
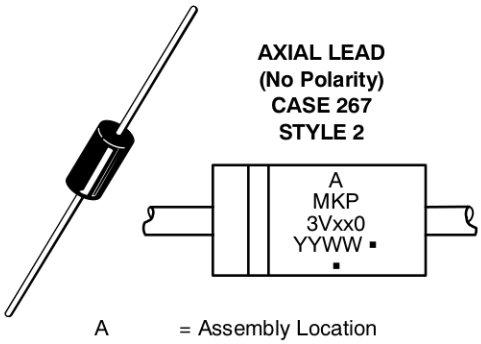
SIDACS (Ⓤ)
1 AMPERE RMS
120 and 240 VOLTS



MARKING DIAGRAM



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†
MKP3V120	Axial Lead*	500 Units/Box
MKP3V120G	Axial Lead*	500 Units/Box
MKP3V120RLG	Axial Lead*	1500/Tape & Reel
MKP3V240	Axial Lead*	500 Units/Box
MKP3V240G	Axial Lead*	500 Units/Box
MKP3V240RL	Axial Lead*	1500/Tape & Reel
MKP3V240RLG	Axial Lead*	1500/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.

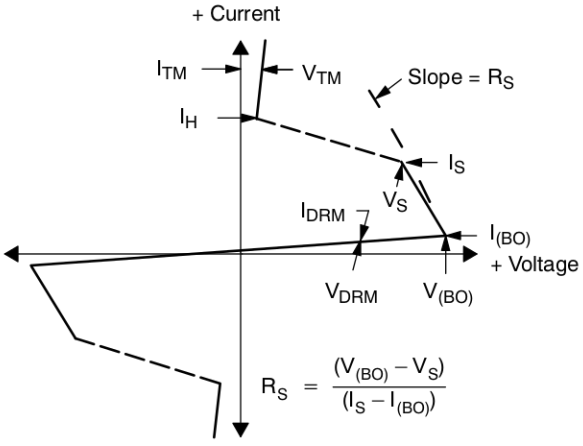
Preferred devices are recommended choices for future use and best overall value.

ELECTRICAL CHARACTERISTICS (T_C = 25°C unless otherwise noted; Electricals apply in both directions)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Repetitive Peak Off-State Current (50 to 60 Hz Sine Wave)		I_{DRM}	-	-	10	μA
V_{DRM} = 90 V	MKP3V120					
V_{DRM} = 180 V	MKP3V240					
ON CHARACTERISTICS						
Breakover Voltage, I_{BO} = 200 μA		V_{BO}				V
	MKP3V120		110	-	130	
	MKP3V240		220	-	250	
Breakover Current		I_{BO}	-	-	200	μA
Peak On-State Voltage (I_{TM} = 1 A Peak, Pulse Width ≤ 300 μs, Duty Cycle ≤ 2%)		V_{TM}	-	1.1	1.5	V
Dynamic Holding Current (Sine Wave, 60 Hz, R_L = 100 Ω)		I_H	-	-	100	mA
Switching Resistance (Sine Wave, 50 to 60 Hz)		R_S	0.1	-	-	kΩ
DYNAMIC CHARACTERISTICS						
Critical Rate-of-Rise of On-State Current, Critical Damped Waveform Circuit (I_{PK} = 130 Ω, Pulse Width = 10 μsec)		di/dt	-	120	-	A/μs

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



CURRENT DERATING

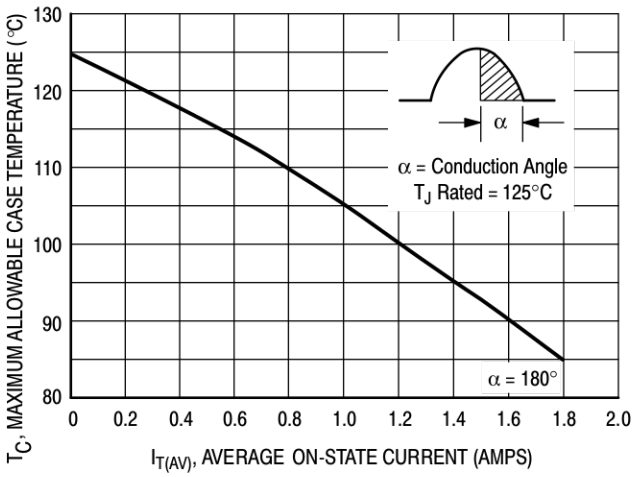


Figure 1. Maximum Case Temperature

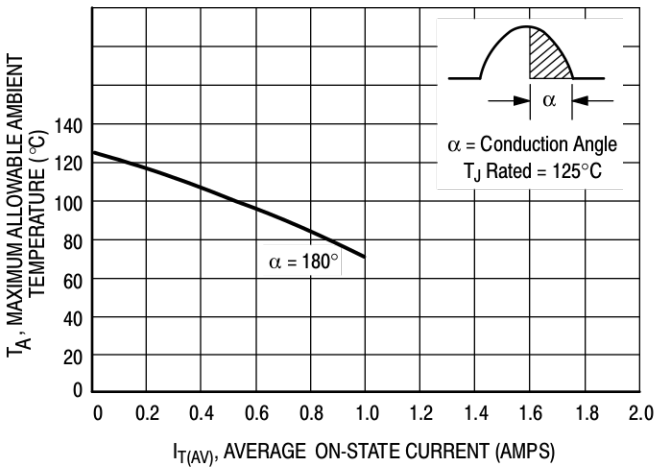


Figure 2. Maximum Ambient Temperature

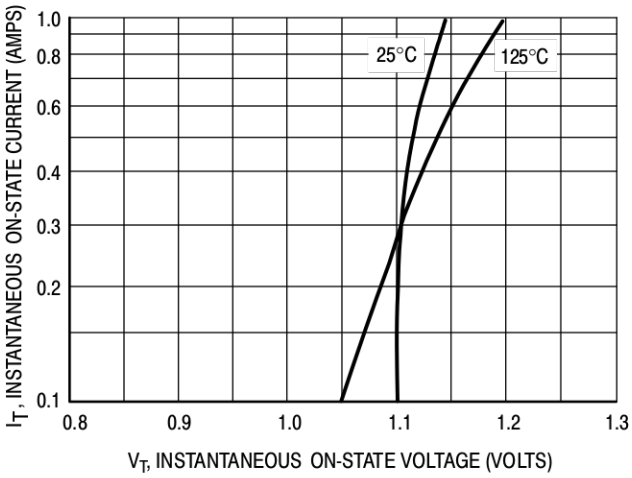


Figure 3. Typical Forward Voltage

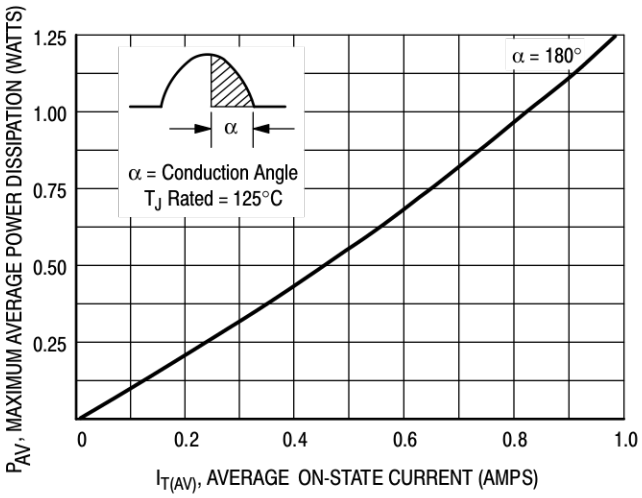


Figure 4. Typical Power Dissipation

THERMAL CHARACTERISTICS

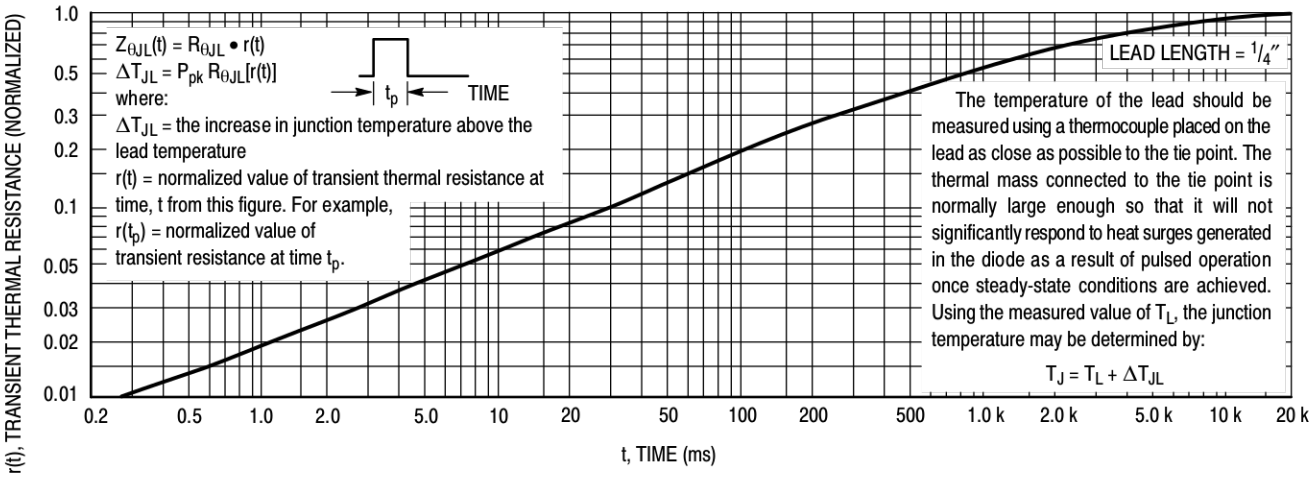


Figure 5. Thermal Response

TYPICAL CHARACTERISTICS

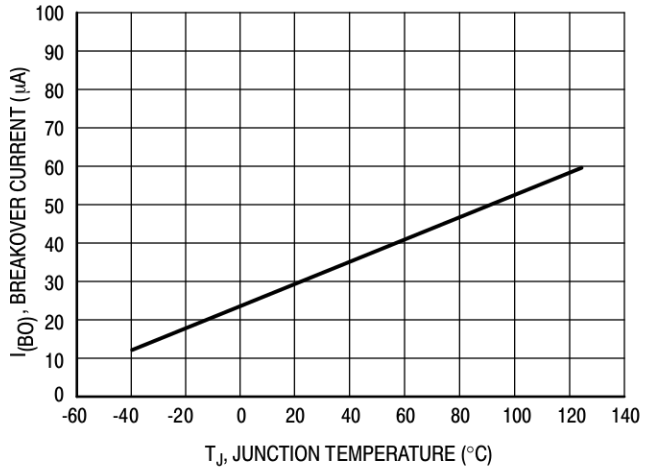


Figure 6. Typical Breakover Current

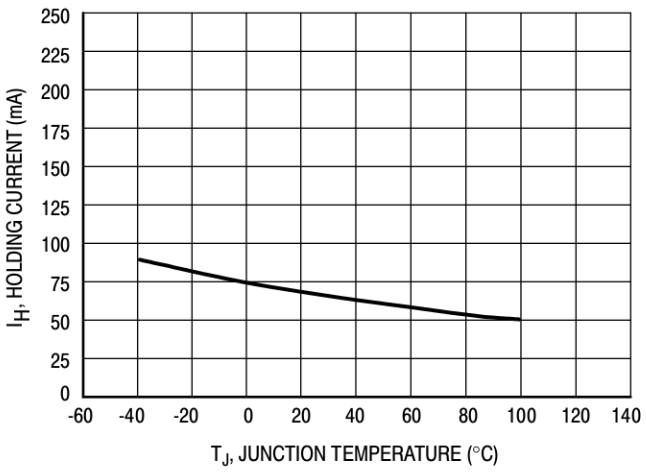
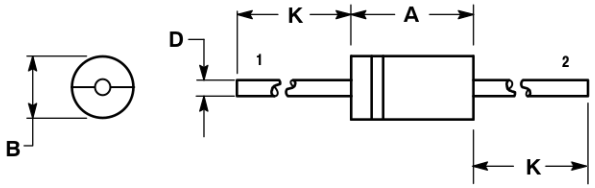


Figure 7. Typical Holding Current

PACKAGE DIMENSIONS

AXIAL LEAD
CASE 267-03
ISSUE G



NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 267-01 AND 267-02 OBSOLETE, NEW STANDARD 267-03.

	INCHES		MILLIMETERS	
DIM	MIN	MAX	MIN	MAX
A	0.370	0.380	9.40	9.65
B	0.190	0.210	4.83	5.33
D	0.048	0.052	1.22	1.32
K	1.000	---	25.40	---

STYLE 2:
NO POLARITY

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:
Literature Distribution Center for ON Semiconductor
P.O. Box 5163, Denver, Colorado 80217 USA
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MKP3V120/D