

## 45A, 1200V Standard Rectifier

### Description

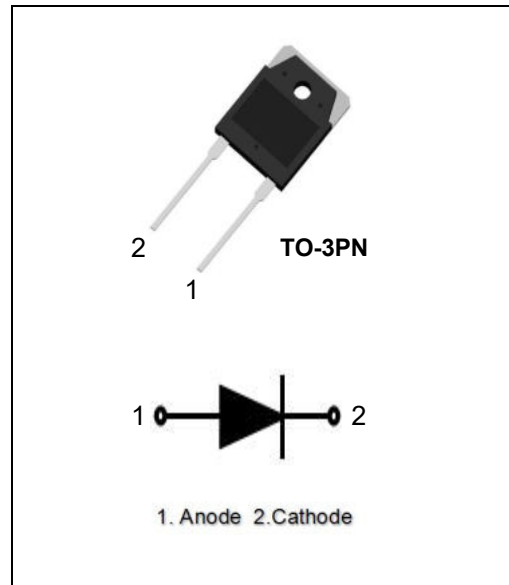
The AKD45120SN is a Standard Rectifier. It's a SIPOS+GPP double passivation chip, with high reliability. It has low leakage current and low forward voltage drop, Improved thermal behaviour

### Features

- Typical Forward Voltage:  $V_F=1.25V@ I_F=45A$
- Reverse Voltage:  $V_{RRM}=1200V$
- Avalanche Energy Rated
- SIPOS+GPP double passivation

### Applications

- Diode for main rectification
- For single and three phase
- Bridge configurations



### Absolute Maximum Ratings per diode at $T_C=25^\circ C$ unless otherwise noted

Symbol	Parameter		Ratings	Unit	
$V_{RRM}$	Peak Repetitive Reverse Voltage		1200	V	
$V_{RWM}$	Working Peak Reverse Voltage		1200	V	
$V_R$	DC Blocking Voltage		1200	V	
$I_{F(AV)}$	Average Rectified Forward Current	per device at $T_C=120^\circ C$	45	A	
$I_{FSM}$	Non-repetitive Peak Surge Current	t = 10 ms (50 Hz), sine	$T_{VJ}= 45^\circ C$ $V_R = 0 V$	500	A
			$T_{VJ}= 150^\circ C$ $V_R = 0 V$	420	
$I^2t$	value for fusing	t = 10 ms (50 Hz), sine	$T_{VJ}= 45^\circ C$ $V_R = 0 V$	1130	A <sup>2</sup> S
			$T_{VJ}= 150^\circ C$ $V_R = 0 V$	820	
$T_J$	Operating Junction Temperature Range		-40~+150	$^\circ C$	
$T_{STG}$	Storage Temperature Range		-40~+150	$^\circ C$	

## Thermal Characteristics

Symbol	Parameter	Ratings	Unit
$R_{th(J-C)}$	Thermal Resistance, Junction to case	0.55	$^{\circ}C/W$

## Electrical Characteristics per diode @ $T_C=25^{\circ}C$ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$V_F$	Forward Voltage Drop	$I_F=45A$	-	1.25	1.50	V
		$I_F=45A, T_C=120^{\circ}C$	-		1.23	V
$I_R$	Reverse Leakage Current	$V_R=1200V$	-	-	1	mA

## Typical Performance Characteristics

Fig. 1. Typical Characteristics:  $V_F$  vs.  $I_F$

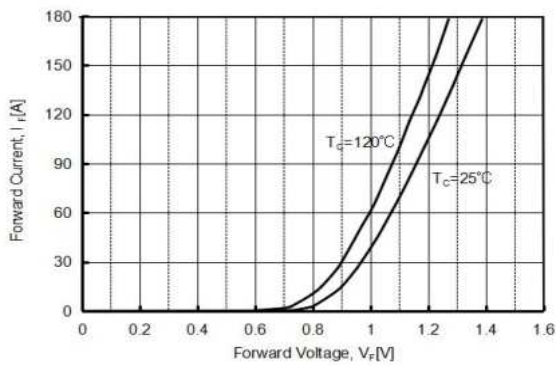


Fig. 2. Typical Characteristics:  $V_R$  vs.  $I_R$

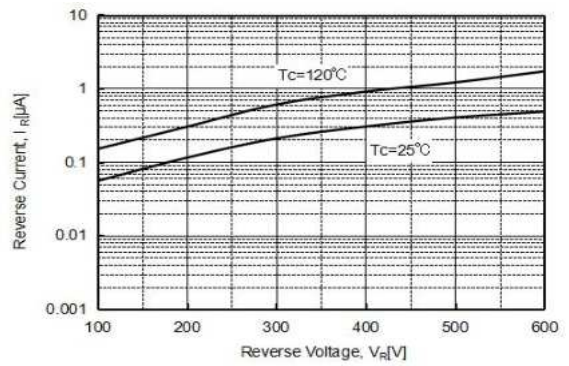
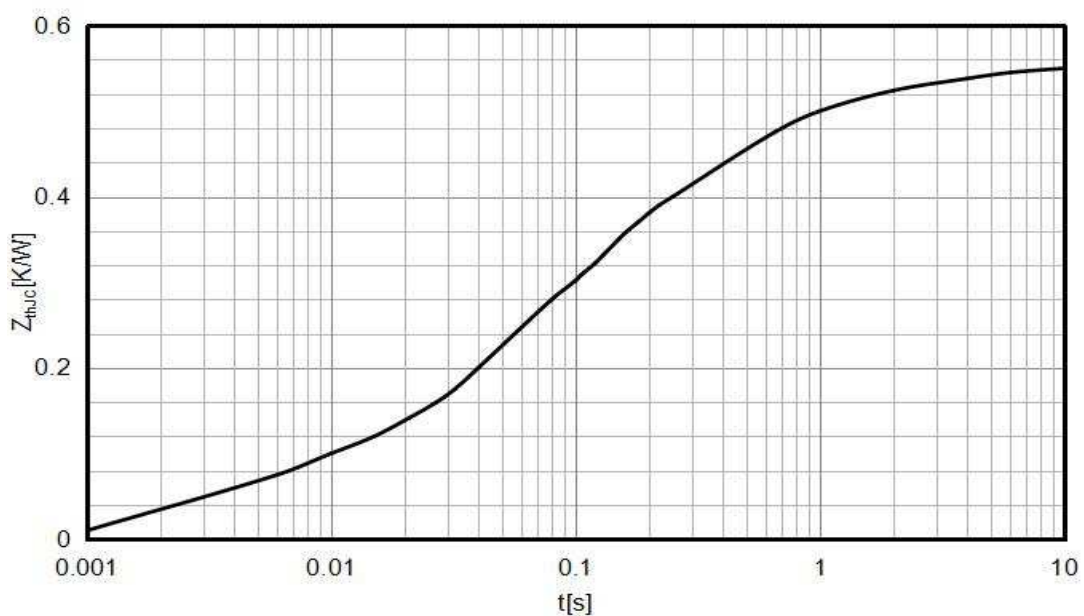


Fig. 3. Transient thermal impedance junction to case



**Package Dimensions**

**TO-3PN**

(Dimensions in Millimeters)

