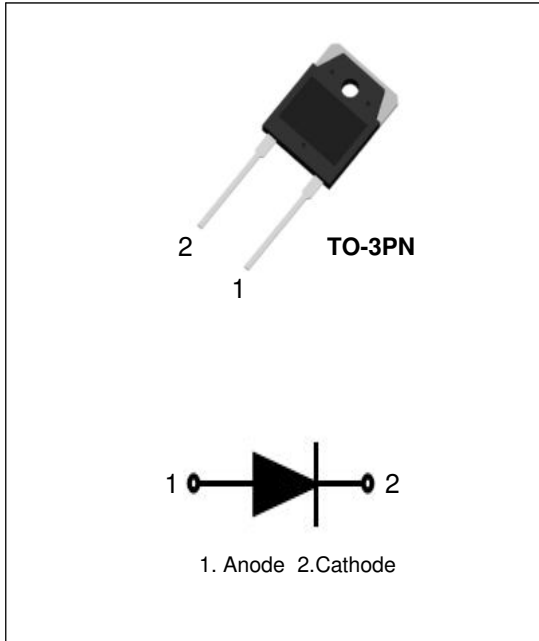# 45A, 1600V Standard Rectifier

Description

The AKD45160SN 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=1.1V@ I_F=45A

• Reverse Voltage: V_{RRM}=1600V

• Avalanche Energy Rated

• SIPOS+GPP double passivation

Applications

• Diode for main rectification

• For single and three phase

• Bridge configurations

2   **TO-3PN**
1

1 ▷|— 2

1. Anode 2.Cathode

Absolute Maximum Ratings per diode at T_C=25 ℃ unless otherwise noted

Symbol	Parameter		Ratings	Unit
V_{RRM}	Peak Repetitive Reverse Voltage		1600	V
V_{RWM}	Working Peak Reverse Voltage		1600	V
V_R	DC Blocking Voltage		1600	V
$I_{F(AV)}$	Average Rectified Forward Current	per device at T_C=120℃	45	A
I_{FSM}	Non-repetitive Peak Surge Current	t = 10 ms (50 Hz), sine · T_{VJ}= 45℃ V_R = 0 V	600	A
		T_{VJ}= 150℃ V_R = 0 V	500	
I^2t	value for fusing	t = 10 ms (50 Hz), sine · T_{VJ}= 45℃ V_R = 0 V	1130	A²S
		T_{VJ}= 150℃ V_R = 0 V	820	
T_J	Operating Junction Temperature Range		-40~+150	℃
T_{STG}	Storage Temperature Range		-40~+150	℃

Thermal Characteristics

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

Electrical Characteristics per diode @T_C=25 ℃ unless otherwise noted

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage Drop	I_F=45A	-	1.1	1.50	V
		I_F=45A, T_C=120℃	-		1.23	V
I_R	Reverse Leakage Current	V_R=1600V	-	-	1	mA

Typical Performance Characteristics

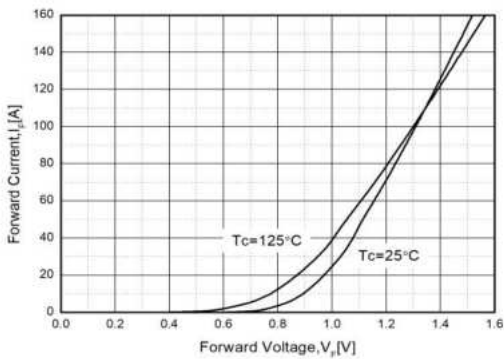Fig. 1. Typical Characteristics: V_F vs. I_F
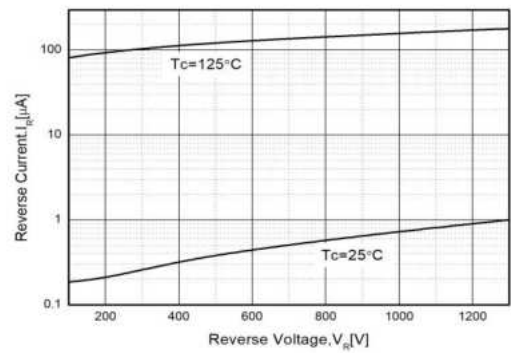
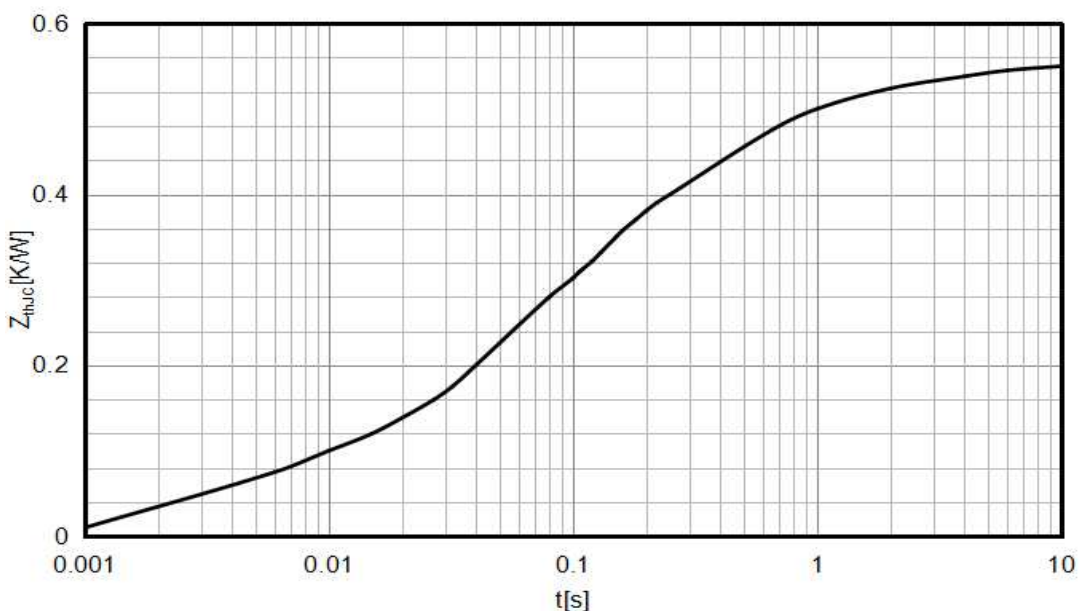Fig. 2. Typical Characteristics: V_R vs. I_R

Fig. 3. Transient thermal impedance junction to case

AIKO ELECTRO

Package Dimensions

TO-3PN

(Dimensions in Millimeters)

15.6±0.2
13.6±0.2
9.6±0.2
⌀3.3±0.1
3.8±0.2
13.9±0.2
12.76±0.2
18.7±0.2
19.9±0.2
23.4±0.2
2±0.2
3±0.2
1±0.2
3.5±0.2
16.5±0.2
5.45±0.2
5.45±0.2

4.8±0.2
1.45±0.1
18.7±0.2
2.4±0.2
0.65±0.1