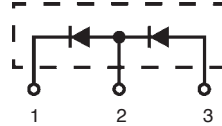
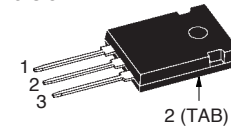
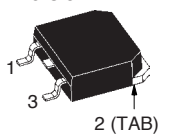
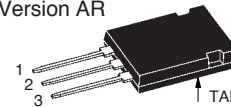


# Phase-leg Rectifier Diode

$V_{RRM} = 1200/1600 \text{ V}$   
 $I_{F(RMS)} = 2 \times 43 \text{ A}$   
 $I_{F(AV)M} = 2 \times 28 \text{ A}$

$V_{RSM}$	$V_{RRM}$	TO-247 AD	TO-268 AA	ISOPLUS 247™
V	V	Type		
1300	1200	DSP 25-12A	DSP 25-12AT	
1700	1600	DSP 25-16A	DSP 25-16AT	DSP 25-16AR


**TO-247 AD**  
Version A

**TO-268 AA**  
Version AT

**ISOPLUS 247™**  
Version AR


1 = Cathode, 2 = Anode/Cathode, 3 = Anode

Symbol	Test Conditions	Maximum Ratings
$I_{F(RMS)}$	$T_{VJ} = T_{VJM}$	43 A
$I_{F(AV)M}$	$T_{case} = 100^\circ\text{C}; 180^\circ \text{ sine}$	28 A
$I_{FSM}$	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz), sine	300 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	330 A
$I_{\text{pt}}$	$T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz), sine	270 A
	$t = 8.3 \text{ ms}$ (60 Hz), sine	300 A
$I_{\text{pt}}$	$T_{VJ} = 45^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz), sine	450 A <sup>2s</sup>
	$t = 8.3 \text{ ms}$ (60 Hz), sine	450 A <sup>2s</sup>
$I_{\text{pt}}$	$T_{VJ} = 150^\circ\text{C}; t = 10 \text{ ms}$ (50 Hz), sine	340 A <sup>2s</sup>
	$t = 8.3 \text{ ms}$ (60 Hz), sine	325 A <sup>2s</sup>
$T_{VJ}$		-40...+180 °C
$T_{VJM}$		180 °C
$T_{stg}$		-40...+150 °C
$M_d^*$	mounting torque M3	0.8...1.2 Nm
$F_c$	mounting force with clip	20...120 N
$V_{ISOL}^{**}$	50/60 Hz, RMS, $t = 1 \text{ minute}$ , leads-to-tab	2500 V~
<b>Weight</b>	TO-268 / TO-247	4 / 6 g

\* Version A only; \*\* Version AR only

**Features**

- International standard packages JEDEC TO-247 AD and TO-268 AA surface mountable
- For single and three phase bridge configuration
- Planar passivated chips
- Epoxy meets UL 94V-0 flammability classification
- Version AR isolated and UL registered E153432

Symbol	Test Conditions	Characteristic Values
$I_R$	$T_{VJ} = 150^\circ\text{C}$ $V_R = V_{RRM}$	$\leq 2 \text{ mA}$
$V_F$	$I_F = 55 \text{ A}; T_{VJ} = 25^\circ\text{C}$	$\leq 1.6 \text{ V}$
$V_{T0}$	For power-loss calculations only	0.8 V
$r_T$	$T_{VJ} = T_{VJM}$	15 mΩ
$R_{thJC}$	DC current	1.5 K/W
$R_{thCH}$	DC current (with heatsink compound)	0.4 K/W
<b>a</b>	Maximum allowable acceleration	100 m/s <sup>2</sup>

**TO-268 AA Outline**

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.9	5.1	.193	.201
A <sub>1</sub>	2.7	2.9	.106	.114
A <sub>2</sub>	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b <sub>2</sub>	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E <sub>1</sub>	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3	0.25 BSC		.010 BSC	
L4	3.80	4.10	.150	.161

Data according to IEC 60747 and refer to a single diode  
IXYS reserves the right to change limits, test conditions and dimensions

**TO-247 AD and ISOPLUS 247™**

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D*	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

\* ISOPLUS 247™ without hole

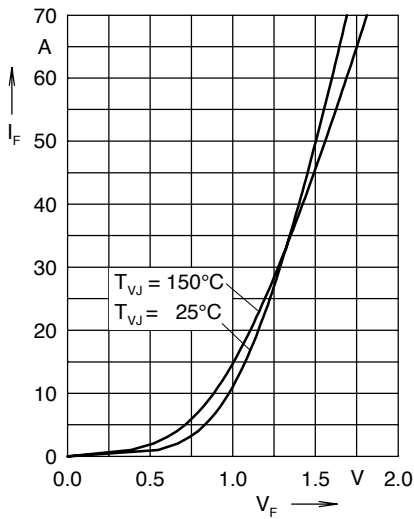


Fig. 1 Forward current versus voltage drop per diode

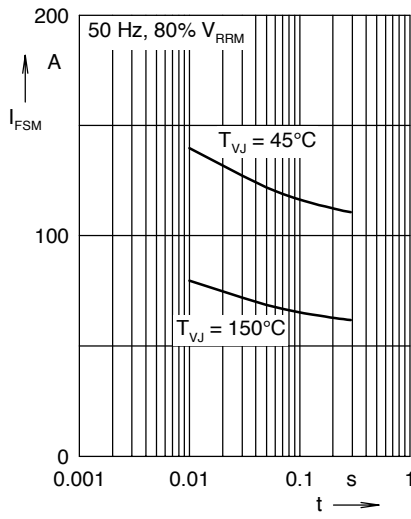


Fig. 2 Surge overload current

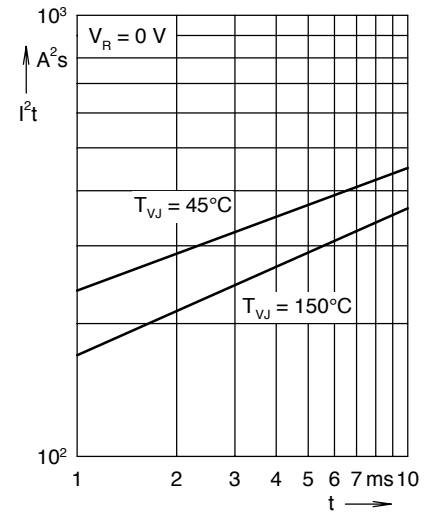


Fig. 3  $I^2t$  versus time per diode

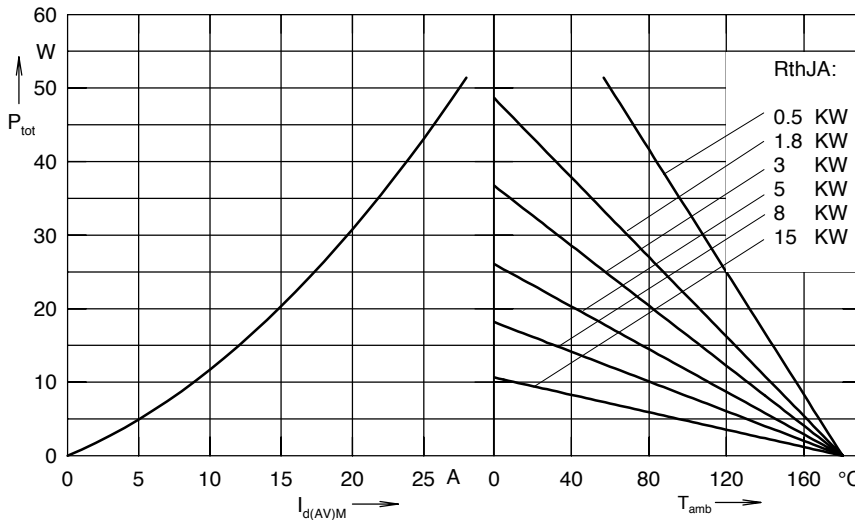


Fig. 4 Power dissipation versus direct output current and ambient temperature, sine 180°

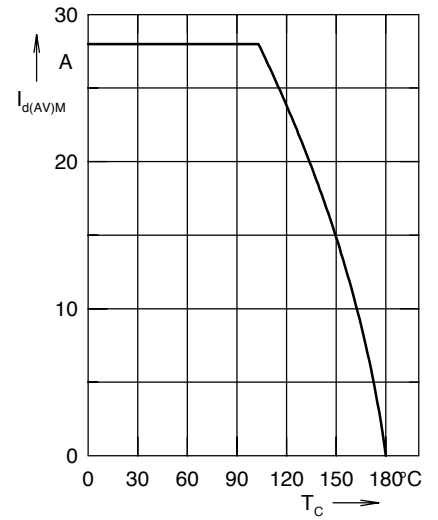


Fig. 5 Max. forward current versus case temperature

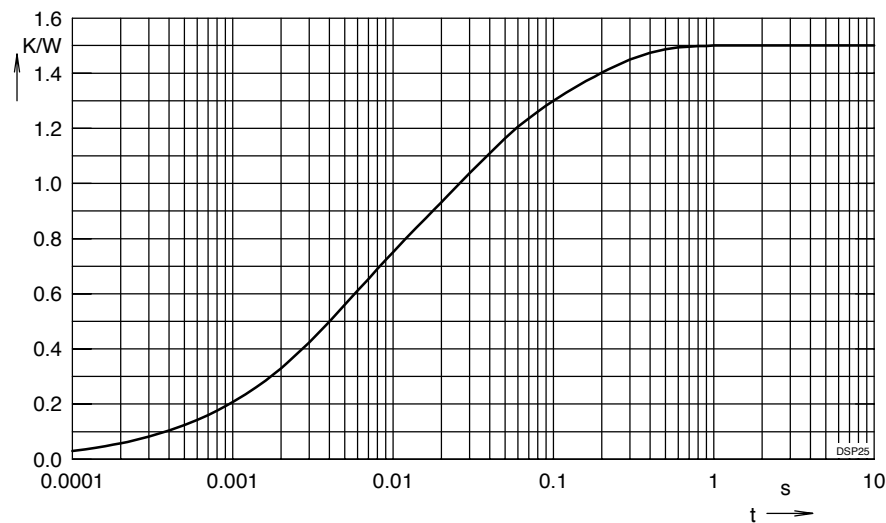


Fig. 6 Transient thermal impedance junction to case

Constants for  $Z_{thjC}$  calculation:

i	$R_{thi}$ (K/W)	$t_i$ (s)
1	0.06075	0.0004
2	0.183	0.00256
3	0.3405	0.0045
4	0.543	0.0242
5	0.3728	0.15