Low Voltage Standard Rectifier

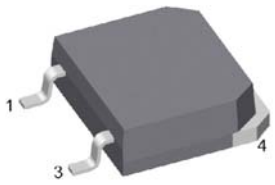
V_{RRM}	=	1200 V
I_{FAV}	=	100 A
V_F	=	1,32 V

Single Diode

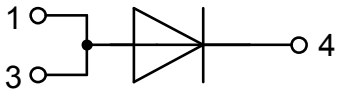
Part number

DLA100IM1200TZ

Marking on Product: DLA100IM1200TZ



Backside: cathode



Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour
- High commutation robustness
- High surge capability

Applications:

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

Package: TO-268AA (D3Pak-HV)

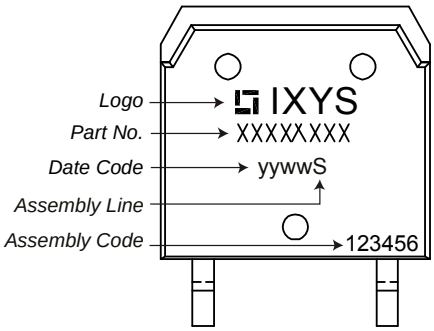
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- High creepage distance between terminals

Rectifier

Symbol	Definition	Conditions		Ratings min.	typ.	max.	Unit
V_{RSM}	*max. non-repetitive reverse blocking voltage*		T_{VJ} = 25°C			1300	V
V_{RRM}	*max. repetitive reverse blocking voltage*		T_{VJ} = 25°C			1200	V
I_R	*reverse current*	V_R = 1200 V	T_{VJ} = 25°C			20	µA
		V_R = 1200 V	T_{VJ} = 150°C			0,1	mA
V_F	*forward voltage drop*	I_F = 100 A	T_{VJ} = 25°C			1,34	V
		I_F = 200 A				1,68	V
		I_F = 100 A	T_{VJ} = 150°C			1,32	V
		I_F = 200 A				1,75	V
I_{FAV}	*average forward current*	T_C = 105°C 180° sine	T_{VJ} = 175°C			100	A
V_{F0}	*threshold voltage* } *for power loss calculation only*		T_{VJ} = 175°C			0,85	V
r_F	*slope resistance* }					4,6	mΩ
R_{thJC}	*thermal resistance junction to case*					0,35	K/W
R_{thCH}	*thermal resistance case to heatsink*				0,15		K/W
P_{tot}	*total power dissipation*		T_C = 25°C			430	W
I_{FSM}	*max. forward surge current*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			1,30	kA
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			1,41	kA
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			1,11	kA
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			1,20	kA
I^2t	*value for fusing*	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			8,45	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			8,21	kA²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			6,11	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			5,94	kA²s
C_J	*junction capacitance*	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		43		pF

Package TO-268AA (D3Pak-HV)			Ratings			
Symbol	**Definition**	**Conditions**	**min.**	**typ.**	**max.**	**Unit**
I_{RMS}	*RMS current*	per terminal			70	A
T_{VJ}	*virtual junction temperature*		-55		175	°C
T_{op}	*operation temperature*		-55		150	°C
T_{stg}	*storage temperature*		-55		150	°C
Weight				4		g
F_C	*mounting force with clip*		20		120	N
$d_{Spp/App}$	*creepage distance on surface | striking distance through air*	*terminal to terminal*	9,4			mm
$d_{Spb/Apb}$		*terminal to backside*	5,6			mm

Product Marking



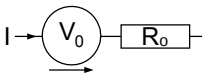
Part description

D = Diode
L = Low Voltage Standard Rectifier
A = (up to 1200V)
100 = Current Rating [A]
IM = Single Diode
1200 = Reverse Voltage [V]
TZ = TO-268AA (D3Pak) (2HV)

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard		DLA100IM1200TZ			

Equivalent Circuits for Simulation

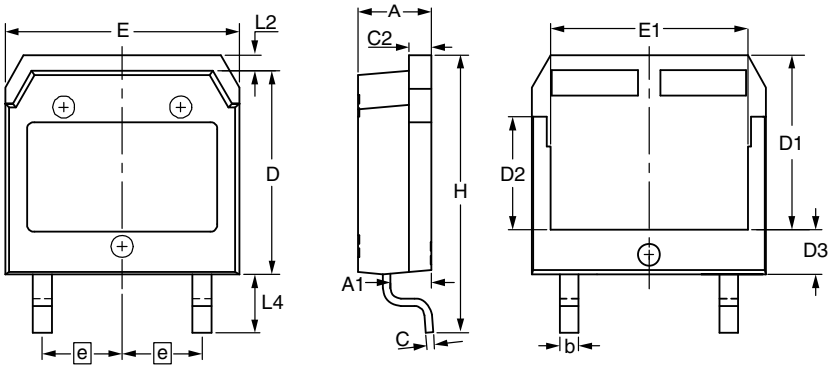
** on die level* T_{VJ} = 175°C

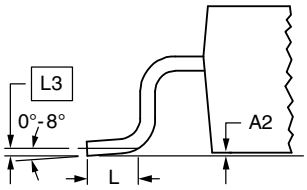


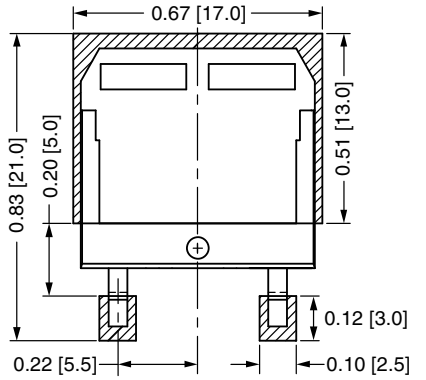
Rectifier

$V_{0\,max}$	*threshold voltage*	0,85	V
$R_{0\,max}$	*slope resistance **	2,6	mΩ

Outlines TO-268AA (D3Pak-HV)

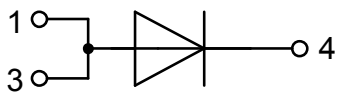






RECOMMENDED MINIMUM FOOT PRINT

Dim.	Millimeter		Inches	
	min	max	min	max
A	4.90	5.10	0.193	0.201
A1	2.70	2.90	0.106	0.114
A2	0.02	0.25	0.001	0.010
b	1.15	1.45	0.045	0.057
C	0.40	0.65	0.016	0.026
C2	1.45	1.60	0.057	0.063
D	13.80	14.00	0.543	0.551
D1	11.80	12.10	0.465	0.476
D2	7.50	7.80	0.295	0.307
D3	2.90	3.20	0.114	0.126
E	15.85	16.05	0.624	0.632
E1	13.30	13.60	0.524	0.535
e	5.450 BSC		0.215 BSC	
H	18.70	19.10	0.736	0.752
L	1.70	2.00	0.067	0.079
L2	1.00	1.15	0.039	0.045
L3	0.250 BSC		0.010 BSC	
L4	3.80	4.10	0.150	0.161



Rectifier

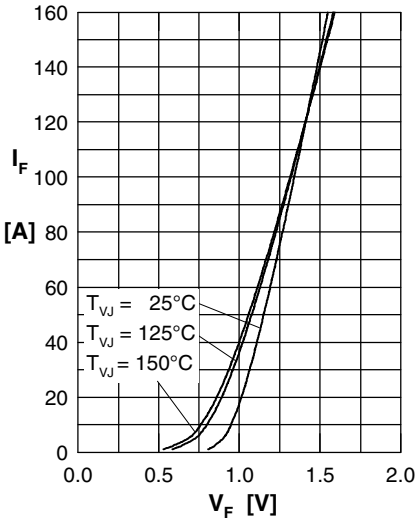


Fig. 1 Forward current versus voltage drop per diode

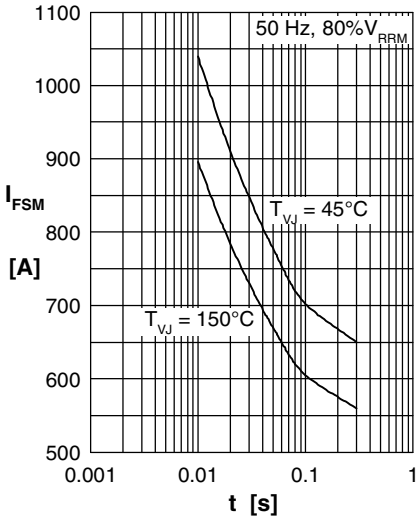


Fig. 2 Surge overload current versus time per diode

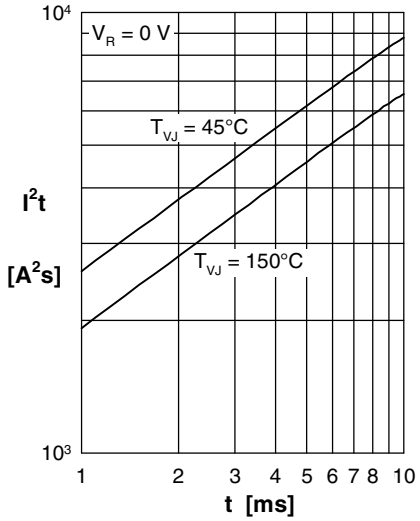


Fig. 3 I^2t versus time per diode

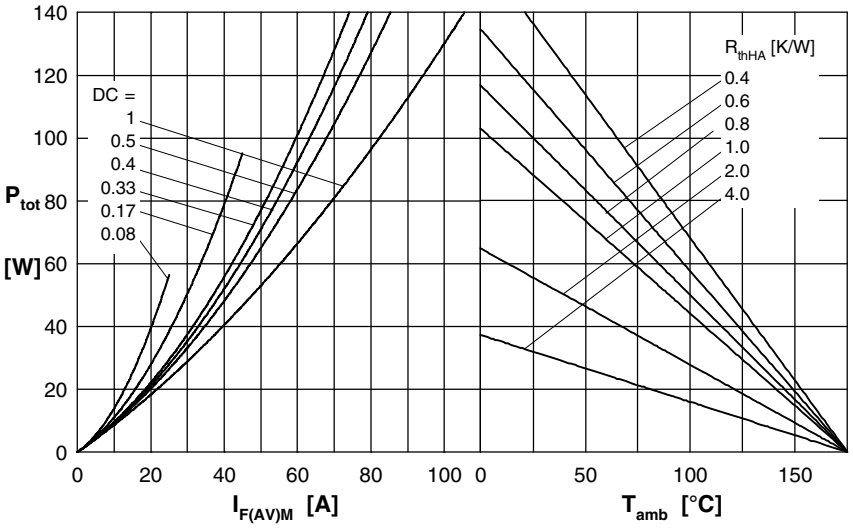


Fig. 4 Power dissipation versusdirect output current and ambient temperature per diode

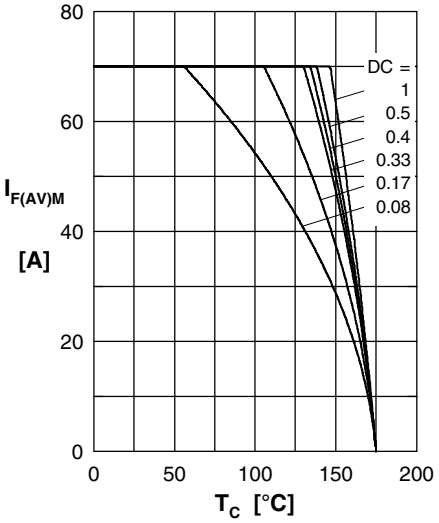


Fig. 5 Max. forward current versus case temperature per diode

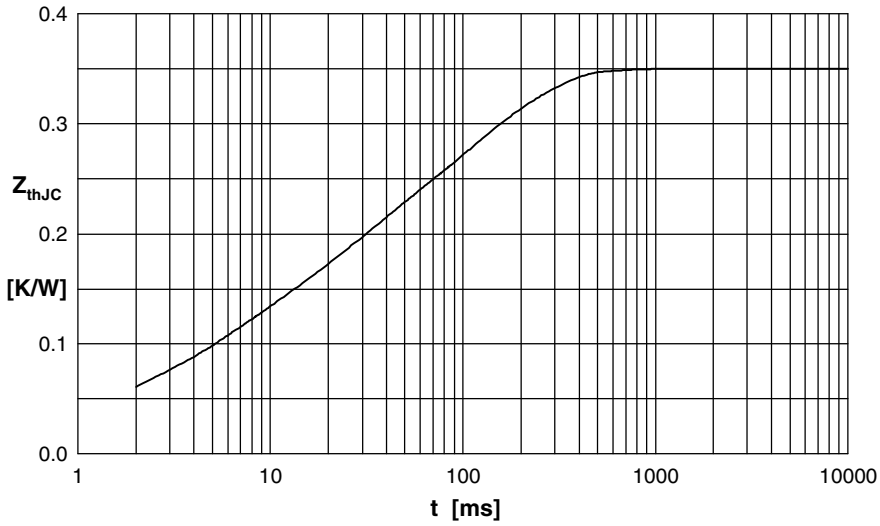


Fig. 6 Transient thermal impedance junction to case versus time per diode

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.023	0.0006
2	0.065	0.0038
3	0.094	0.0190
4	0.168	0.1300