Standard Rectifier
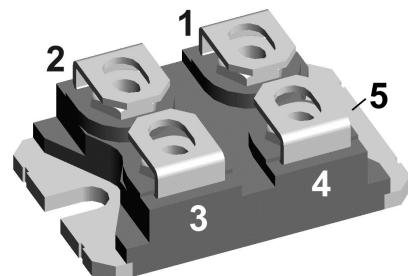
|		
V_{RRM}	=	1600 V
I_{FAV}	= 2x	50 A
V_F	=	1.13 V
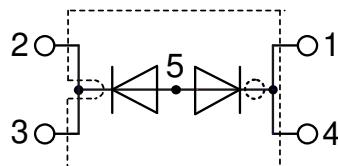
Common Anode

Part number

DMA100A1600NB

Backside: anode

Features / Advantages:

- Planar passivated chips
- Very low leakage current
- Very low forward voltage drop
- Improved thermal behaviour

Applications:

- Diode for main rectification

Package: SOT-227UI (minibloc)

- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0

Disclaimer Notice
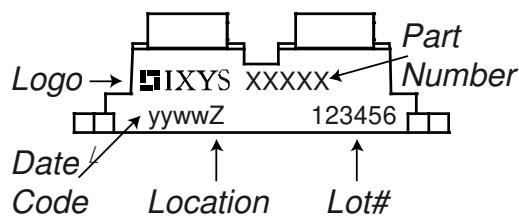
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Rectifier | Ratings

Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage		T_{VJ} = 25°C			1700	V
V_{RRM}	max. repetitive reverse blocking voltage		T_{VJ} = 25°C			1600	V
I_R	reverse current	V_R = 1600 V	T_{VJ} = 25°C			100	µA
		V_R = 1600 V	T_{VJ} = 150°C			1.5	mA
V_F	forward voltage drop	I_F = 50 A	T_{VJ} = 25°C			1.19	V
		I_F = 100 A				1.39	V
		I_F = 50 A	T_{VJ} = 125°C			1.13	V
		I_F = 100 A				1.39	V
I_{FAV}	average forward current	T_C = 95°C	T_{VJ} = 150°C			50	A
		rectangular d = 0.5					
V_{F0}	threshold voltage ⎫ for power loss calculation only		T_{VJ} = 150°C			0.86	V
r_F	slope resistance ⎭					5.3	mΩ
R_{thJC}	thermal resistance junction to case					0.6	K/W
R_{thCH}	thermal resistance case to heatsink				0.1		K/W
P_{tot}	total power dissipation		T_C = 25°C			210	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			850	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			920	A
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			725	A
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			780	A
I^2t	value for fusing	t = 10 ms; (50 Hz), sine	T_{VJ} = 45°C			3.62	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			3.52	kA²s
		t = 10 ms; (50 Hz), sine	T_{VJ} = 150°C			2.63	kA²s
		t = 8,3 ms; (60 Hz), sine	V_R = 0 V			2.53	kA²s
C_J	junction capacitance	V_R = 400 V; f = 1 MHz	T_{VJ} = 25°C		28		pF

Package   SOT-227UI (minibloc)
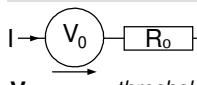
Symbol	Definition	Conditions	min.	typ.	max.	Unit
I$_{RMS}$	RMS current	per terminal			200	A
T$_{VJ}$	virtual junction temperature		-40		150	°C
T$_{op}$	operation temperature		-40		125	°C
T$_{stg}$	storage temperature		-40		150	°C
Weight				30		g
M$_{D}$	mounting torque		1.1		1.5	Nm
M$_{T}$	terminal torque		1.1		1.5	Nm

Ratings

Product Marking

Logo →
Part Number
Date Code
Location
Lot#

IXYS XXXXX
yywwZ   123456
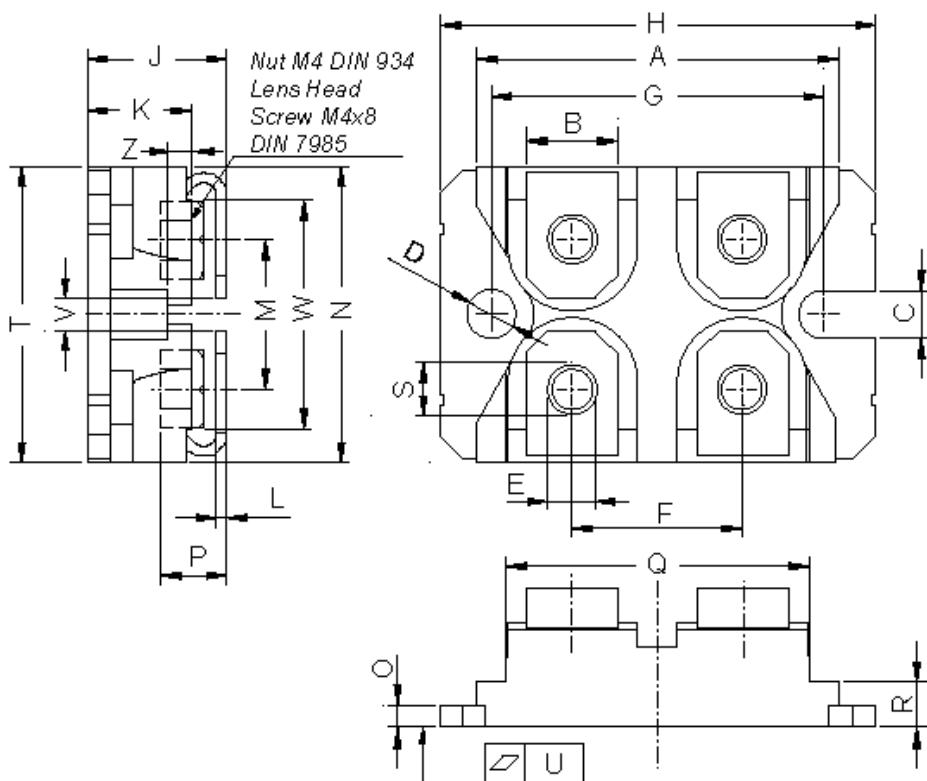
Part description

D = Diode
M = Standard Rectifier
A = (up to 1800V)
100 = Current Rating [A]
A = Common Anode
1600 = Reverse Voltage [V]
NB = SOT-227UI (minibloc)
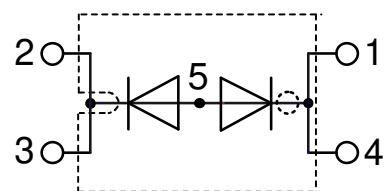
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DMA100A1600NB	DMA100A1600NB	Tube	10	526693

Equivalent Circuits for Simulation   *on die level*   T$_{VJ}$ = 150°C

I → V$_0$ → R$_0$

Rectifier

V$_{0\ max}$	threshold voltage	0.86	V
R$_{0\ max}$	slope resistance *	3.4	mΩ

Outlines   SOT-227UI (minibloc)

Dim.	Millimeter		Inches	
	min	max	min	max
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.23	1.488	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.74	0.84	0.029	0.033
M	12.50	13.10	0.492	0.516
N	25.15	25.42	0.990	1.001
O	1.95	2.13	0.077	0.084
P	4.95	6.20	0.195	0.244
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.167
S	4.55	4.85	0.179	0.191
T	24.59	25.25	0.968	0.994
U	-0.05	0.10	-0.002	0.004
V	3.20	5.50	0.126	0.217
W	19.81	21.08	0.780	0.830
Z	2.50	2.70	0.098	0.106

Nut M4 DIN 934
Lens Head
Screw M4x8
DIN 7985
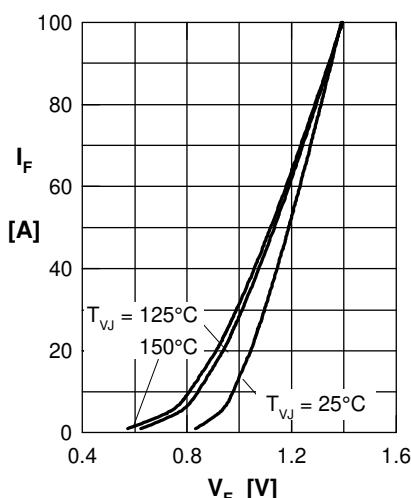
Rectifier

Fig. 1 Forward current versus voltage drop per diode
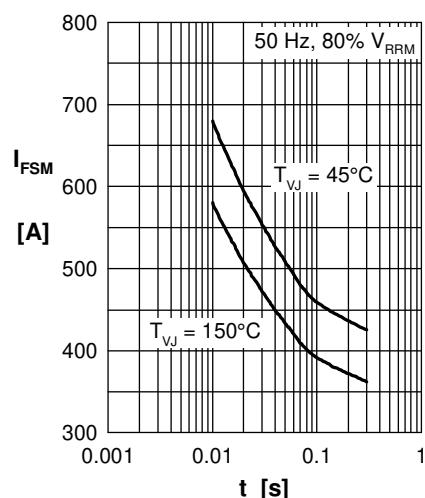

Fig. 2 Surge overload current
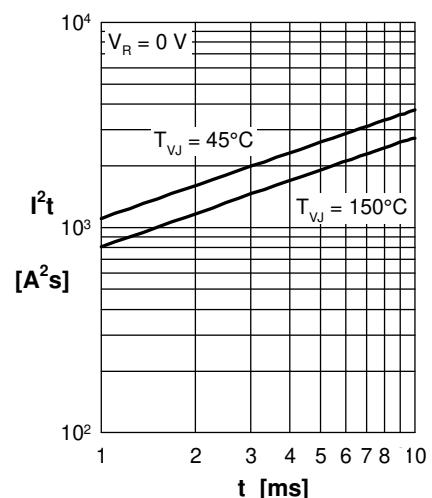
Fig. 3 I^2t versus time per diode
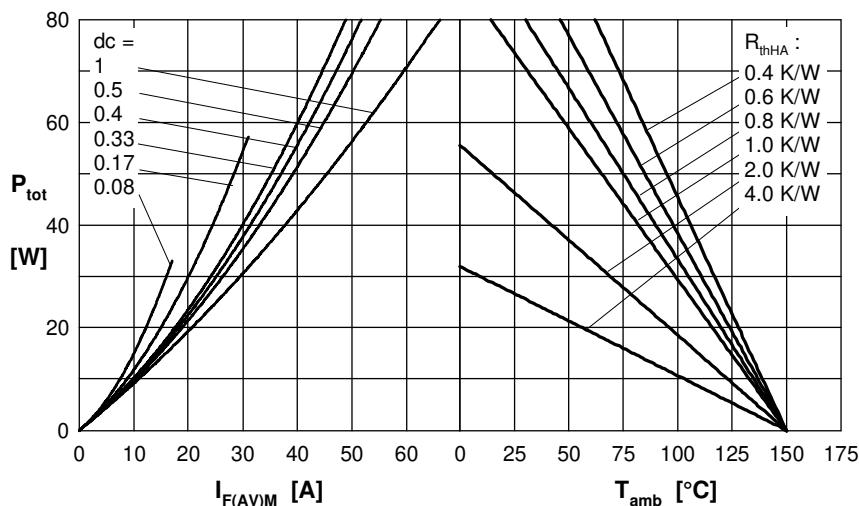
Fig. 4 Power dissipation vs. direct output current & ambient temperature
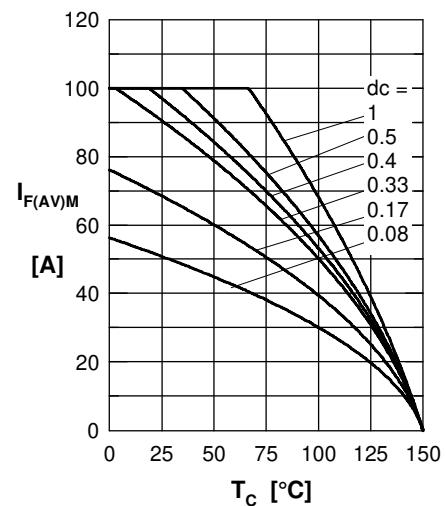
Fig. 5 Max. forward current versus case temperature
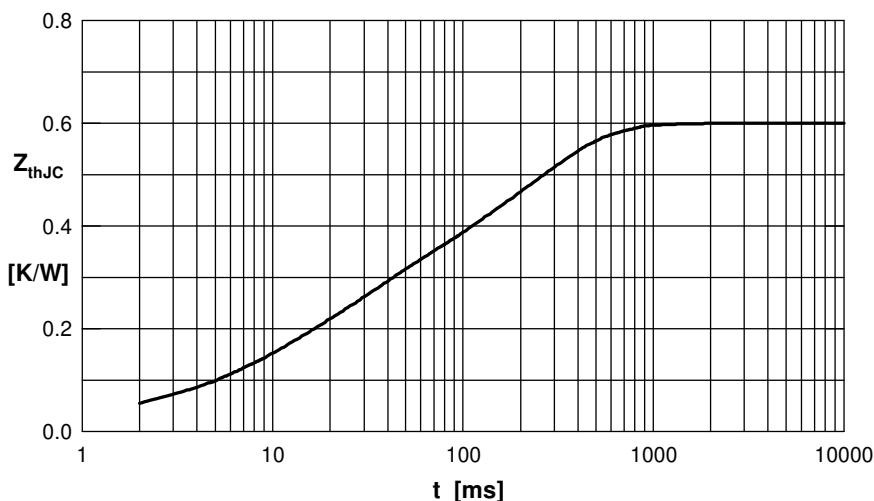
Fig. 6 Transient thermal impedance junction to case

Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.0240	0.01000
2	0.0160	0.00001
3	0.0500	0.00500
4	0.1800	0.02300
5	0.3300	0.22000

IXYS reserves the right to change limits, conditions and dimensions.   Data according to IEC 60747and per semiconductor unless otherwise specified   20200526c