



Standard Rectifier

$V_{RRM} = 1600\text{ V}$

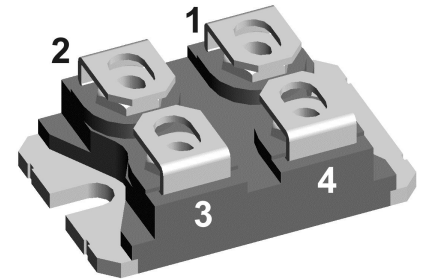
$I_{FAV} = 2 \times 100\text{ A}$

$V_F = 1.21\text{ V}$

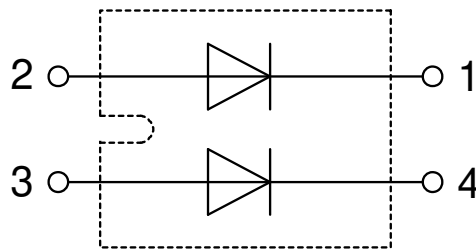
Parallel legs

Part number

DMA200X1600NA



Backside: isolated



Features / Advantages:

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

Applications:

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

Package: SOT-227B (minibloc)

- Isolation Voltage: 3000 V~
- Industry standard outline
- RoHS compliant
- Epoxy meets UL 94V-0
- Base plate: Copper internally DCB isolated
- Advanced power cycling

Disclaimer Notice

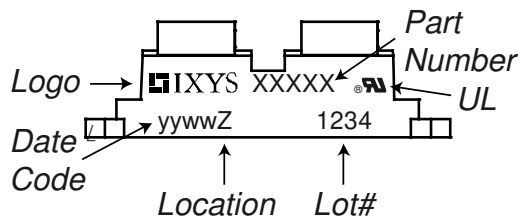
Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.

Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					1700	V
V_{RRM}	max. repetitive reverse blocking voltage					1600	V
I_R	reverse current	$V_R = 1600$ V		$T_{VJ} = 25^\circ\text{C}$		200	μA
		$V_R = 1600$ V		$T_{VJ} = 150^\circ\text{C}$		2	mA
V_F	forward voltage drop	$I_F = 100$ A		$T_{VJ} = 25^\circ\text{C}$		1.24	V
		$I_F = 200$ A				1.55	V
		$I_F = 100$ A		$T_{VJ} = 125^\circ\text{C}$		1.21	V
		$I_F = 200$ A				1.61	V
I_{FAV}	average forward current	$T_C = 100^\circ\text{C}$		$T_{VJ} = 150^\circ\text{C}$		100	A
		rectangular	d = 0.5				
V_{FO}	threshold voltage			$T_{VJ} = 150^\circ\text{C}$		0.80	V
r_F	slope resistance					4	m Ω
		} for power loss calculation only					
R_{thJC}	thermal resistance junction to case					0.3	K/W
R_{thCH}	thermal resistance case to heatsink				0.1		K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		415	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		1.50	kA
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		1.62	kA
		t = 10 ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		1.28	kA
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		1.38	kA
I^2t	value for fusing	t = 10 ms; (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		11.3	kA ² s
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		10.9	kA ² s
		t = 10 ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		8.13	kA ² s
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		7.87	kA ² s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz		$T_{VJ} = 25^\circ\text{C}$		53	pF



Package SOT-227B (minibloc)				Ratings			
Symbol	Definition	Conditions	min.	typ.	max.	Unit	
I_{RMS}	RMS current	per terminal			150	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	
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	10.5	3.2		mm	
$d_{Spb/Apb}$		terminal to backside	8.6	6.8		mm	
V_{ISOL}	isolation voltage	t = 1 second	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	3000		V	
		t = 1 minute		2500		V	

Product Marking



Part description

- D = Diode
- M = Standard Rectifier
- A = (up to 1800V)
- 200 = Current Rating [A]
- X = Parallel legs
- 1600 = Reverse Voltage [V]
- NA = SOT-227B (minibloc)

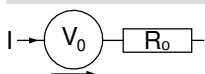
Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	DMA200X1600NA	DMA200X1600NA	Tube	10	518461

Similar Part	Package	Voltage class
DMA200XA1600NA	SOT-227B (minibloc)	1600
DAA200X1800NA	SOT-227B (minibloc)	1800
DAA200XA1800NA	SOT-227B (minibloc)	1800

Equivalent Circuits for Simulation

* on die level

$T_{VJ} = 150^{\circ}C$



Rectifier

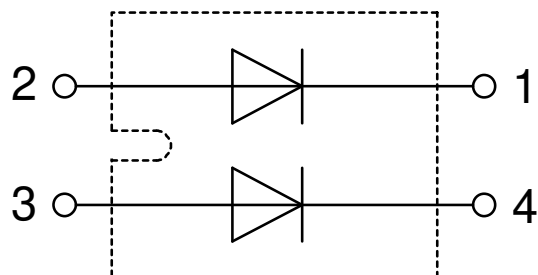
$V_{0\ max}$	threshold voltage	0.8	V
$R_{0\ max}$	slope resistance *	2.2	mΩ



Outlines SOT-227B (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



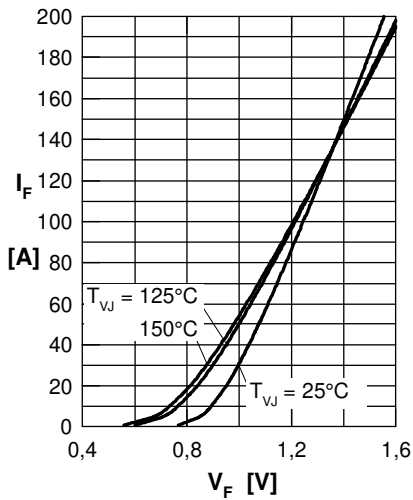
Rectifier


Fig. 1 Forward current versus voltage drop per diode

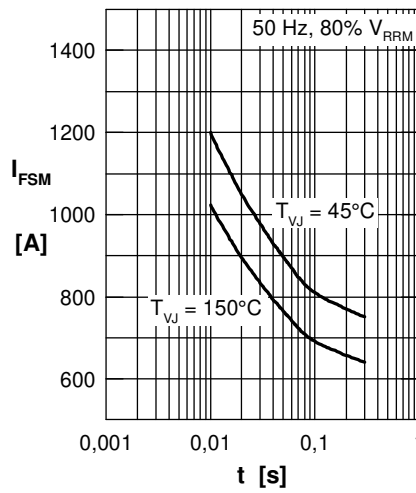


Fig. 2 Surge overload current

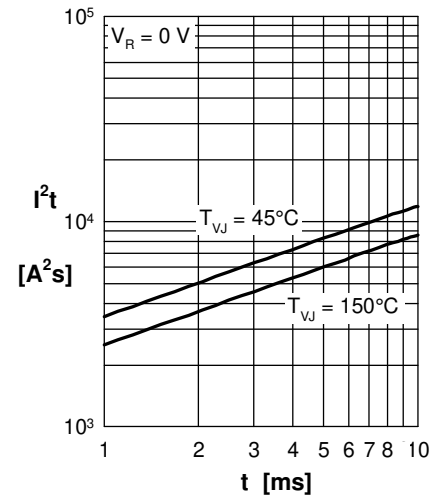
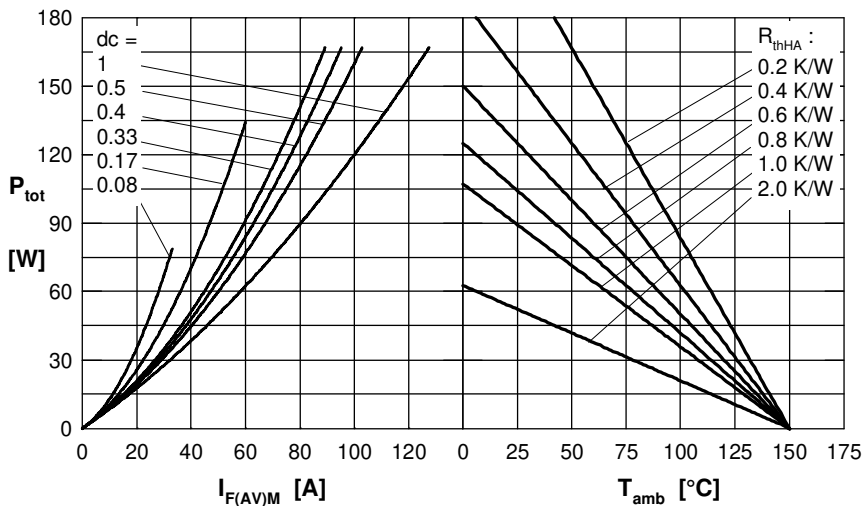

 Fig. 3 I^2t versus time per diode


Fig. 4 Power dissipation vs. direct output current & ambient temperature

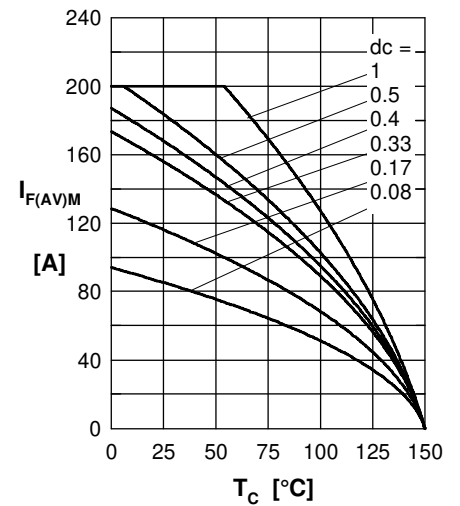


Fig. 5 Max. forward current versus case temperature

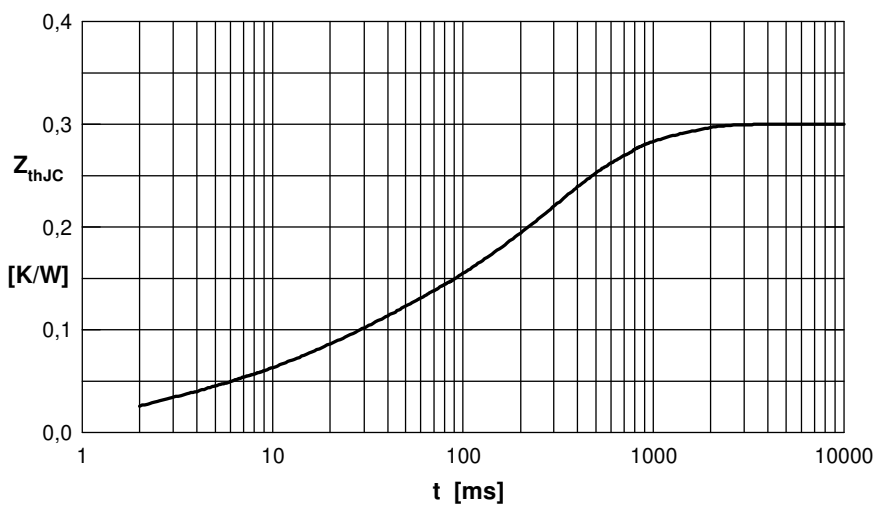


Fig. 6 Transient thermal impedance junction to case

 Constants for Z_{thJC} calculation:

i	R_{thi} (K/W)	t_i (s)
1	0.025	0.011
2	0.027	0.002
3	0.048	0.027
4	0.080	0.600
5	0.120	0.220