

Standard Rectifier Module

$$V_{RRM} = 2 \times 1200 \text{ V}$$

$$I_{FAV} = 140 \text{ A}$$

$$V_F = 1.11 \text{ V}$$

Phase leg

Part number

MDMA140P1200TG



Backside: isolated

 E72873



Features / Advantages:

- Package with DCB ceramic
- Improved temperature and power cycling
- Planar passivated chips
- Very low forward voltage drop
- Very low leakage current

Applications:

- Diode for main rectification
- For single and three phase bridge configurations
- Supplies for DC power equipment
- Input rectifiers for PWM inverter
- Battery DC power supplies
- Field supply for DC motors

Package: TO-240AA

- Isolation Voltage: 4800 V~
- Industry standard outline
- RoHS compliant
- Height: 30 mm
- Base plate: DCB ceramic
- Reduced weight
- Advanced power cycling

Disclaimer Notice

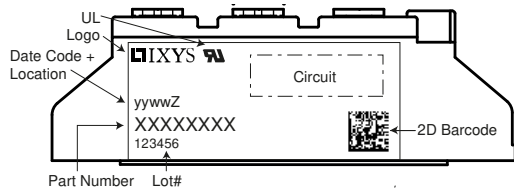
Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice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



Rectifier				Ratings			
Symbol	Definition	Conditions		min.	typ.	max.	Unit
V_{RSM}	max. non-repetitive reverse blocking voltage					1300	V
V_{RRM}	max. repetitive reverse blocking voltage					1200	V
I_R	reverse current	$V_R = 1200$ V		$T_{VJ} = 25^\circ\text{C}$		100	μA
		$V_R = 1200$ V		$T_{VJ} = 150^\circ\text{C}$		3.5	mA
V_F	forward voltage drop	$I_F = 140$ A		$T_{VJ} = 25^\circ\text{C}$		1.18	V
		$I_F = 280$ A				1.43	V
		$I_F = 140$ A		$T_{VJ} = 125^\circ\text{C}$		1.11	V
		$I_F = 280$ A				1.41	V
I_{FAV}	average forward current	$T_C = 100^\circ\text{C}$		$T_{VJ} = 150^\circ\text{C}$		140	A
		rectangular	d = 0.5				
V_{FO}	threshold voltage			$T_{VJ} = 150^\circ\text{C}$		0.78	V
r_F	slope resistance					2.2	m Ω
R_{thJC}	thermal resistance junction to case					0.23	K/W
R_{thCH}	thermal resistance case to heatsink				0.2		K/W
P_{tot}	total power dissipation			$T_C = 25^\circ\text{C}$		540	W
I_{FSM}	max. forward surge current	t = 10 ms; (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		2.80	kA
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		3.03	kA
		t = 10 ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		2.38	kA
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		2.57	kA
I^2t	value for fusing	t = 10 ms; (50 Hz), sine		$T_{VJ} = 45^\circ\text{C}$		39.2	kA ² s
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		38.1	kA ² s
		t = 10 ms; (50 Hz), sine		$T_{VJ} = 150^\circ\text{C}$		28.3	kA ² s
		t = 8,3 ms; (60 Hz), sine		$V_R = 0$ V		27.5	kA ² s
C_J	junction capacitance	$V_R = 400$ V; f = 1 MHz		$T_{VJ} = 25^\circ\text{C}$		116	pF



Package TO-240AA				Ratings			
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		125	°C	
Weight					76	g	
M_D	mounting torque		2.5		4	Nm	
M_T	terminal torque		2.5		4	Nm	
$d_{Spp/App}$	creepage distance on surface striking distance through air	terminal to terminal	13.0	9.7		mm	
$d_{Spb/Apb}$		terminal to backside	16.0	16.0		mm	
V_{ISOL}	isolation voltage	t = 1 second		4800		V	
		t = 1 minute	50/60 Hz, RMS; $I_{ISOL} \leq 1$ mA	4000		V	



Part description

- M = Module
- D = Diode
- M = Standard Rectifier
- A = (up to 1800V)
- 140 = Current Rating [A]
- P = Phase leg
- 1200 = Reverse Voltage [V]
- TG = TO-240AA

Ordering	Ordering Number	Marking on Product	Delivery Mode	Quantity	Code No.
Standard	MDMA140P1200TG	MDMA140P1200TG	Box	36	512703

Equivalent Circuits for Simulation

* on die level

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



Rectifier

$V_{0\ max}$	threshold voltage	0.78	V
$R_{0\ max}$	slope resistance *	1	mΩ



Outlines TO-240AA



General tolerance: DIN ISO 2768 class „c“

