



Features

- Industry standard SMT package
- Output voltage programmable from 0.75 V_{dc} to 5.5 V_{dc} via external resistor
- 3 A output current
- Up to 95 % efficiency
- Small size, low profile
- Cost-efficient
- Low output ripple and noise
- High reliability
- Remote on/off
- Output overcurrent protection (non-latching)

MX3A-12SA(-P) SMT Non-Isolated Power Module

Description

Bourns® MX3A-12SA(-P) is a non-isolated DC-DC converter offering designers a cost and space-efficient solution with standard features such as remote on/off, precisely regulated programmable output voltage and overcurrent protection.

Specifications

Parameter	Min.	Nom.	Max.	Units	Notes
INPUT					
Voltage	8.3	12	14	V _{dc}	18 V max. for -W version
Current			2.0	A _{dc}	
Remote ON/OFF:	<u>Standard</u>		<u>-P Option</u>		
Low or Open =	On	Off	0.4	V _{dc}	10 µA max.
High =	Off	On	V _{in}	V _{dc}	1 mA max.
OUTPUT					
Voltage Adjustment Range	0.75		5.5	V _{dc}	
Current	0.0		3.0	A _{dc}	
Voltage Setpoint Accuracy	-2.5		2.5	% V _{o,set}	
Line Regulation		0.3		% V _{o,set}	
Load Regulation		0.4		% V _{o,set}	
Temperature Regulation		0.4		% V _{o,set}	0 to +85 °C
Ripple (pk-pk) (20 MHz Bandwidth)		30	50	mVpk-pk	1 µF ceramic//10 µF tantalum capacitors
Ripple (rms)		10	15	mVrms	1 µF ceramic//10 µF tantalum capacitors
Dynamic Load Response: 50 % to 100 % Load or 100 % to 50 % Load; (Δi/Δt = 2.5 A/µs; 25 °C)		200 25		mV µs	1 µF ceramic//10 µF tantalum capacitors
50 % to 100 % Load or 100 % to 50 % Load; (Δi/Δt = 2.5 A/µs; 25 °C)		75 100		mV µs	2 x 100 µF polymer capacitors
GENERAL					
MTBF		13,000		kHrs	
Operating Temperature	-40		+85	°C	
Storage Temperature	-55		+125	°C	
Switching Frequency		300		kHz	
Efficiency (V _{in} = 12 V _{dc} , T _A = 25 °C, Full Load)		86.0		%	V _{o,set} = 1.2 V _{dc}
		88.0		%	V _{o,set} = 1.5 V _{dc}
		90.0		%	V _{o,set} = 1.8 V _{dc}
		91.0		%	V _{o,set} = 2.5 V _{dc}
		93.0		%	V _{o,set} = 3.3 V _{dc}
		95.0		%	V _{o,set} = 5.0 V _{dc}

Applications

- Intermediate Bus architecture
- Distributed power applications
- Workstations and servers
- Telecom equipment
- Enterprise networks including LANs/WANs
- Latest generation ICs (DSP, FPGA, ASIC) and microprocessor powered applications

*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.

Specifications are subject to change without notice.

Customers should verify device performance in their specific applications.

Output Voltage Programming

Via external trim resistor between Trim and GND:

$$R_{\text{trim}} = \left[\frac{10.5}{V_o - 0.7525} - 1.0 \right] k\Omega$$

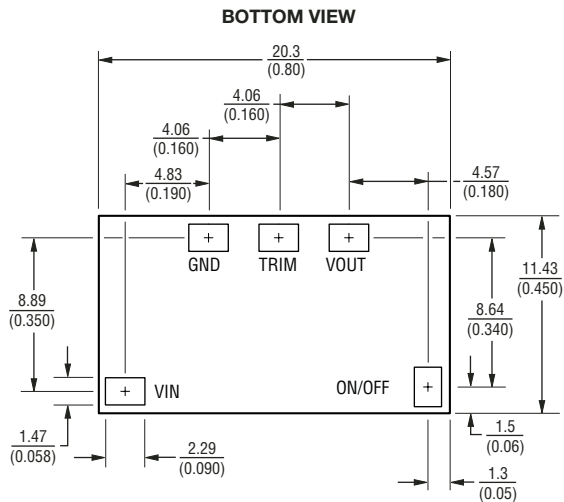
Via application of external voltage between Trim and GND:

$$V_{\text{trim}} = (0.7 - 0.0667 \times \{V_o - 0.7525\})$$

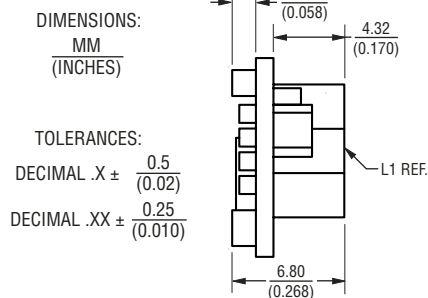
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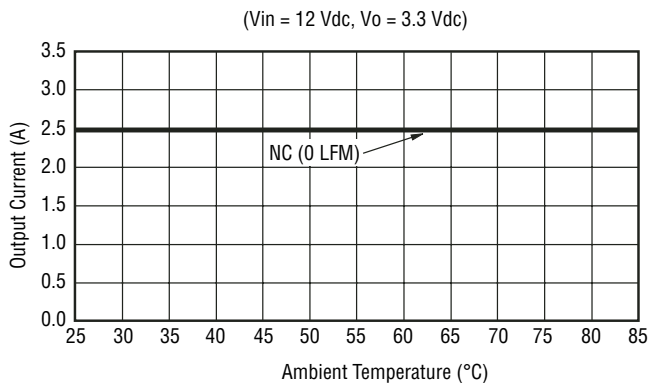
Product Dimensions



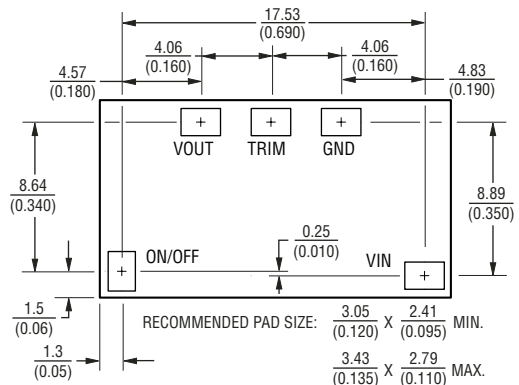
SIDE VIEW



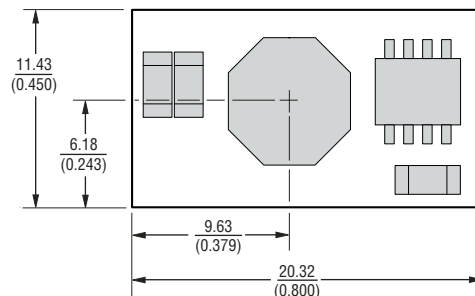
Derating Output Current vs. Local Ambient Temp & Airflow



Recommended Pad Layout



Pick and Place Location



How to Order

M X 3 A - 12 S A (-P)

Configuration

- M = Surface Mount Device

Internal Identifier

Output Current (Amps)

Input Voltage (V)

Outputs

- S = Single

Output Voltage (V)

- A = Adjustable

Optional Positive On/Off Logic

Fixed output voltage parts and optional features available; contact factory.



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