

Features

- Industry standard SMT package
- Output voltage programmable from 0.75 V_{dc} to 5.5 V_{dc} via external resistor
- 6 A output current
- Up to 92 % efficiency
- Small size, low profile
- Cost-efficient
- Low output ripple and noise
- High reliability
- Remote on/off
- Output overcurrent protection (non-latching)
- Sequencing function

MXT6A-12SA SMT Non-Isolated Power Module

Description

Bourns® MXT6A-12SA is a non-isolated DC-DC converter offering designers a cost and space-efficient solution with standard features such as sequencing, 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}	
Current			4.5	A _{dc}	
Remote ON/OFF:	Standard	-P Option			
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		6.0	A _{dc}	
Voltage Setpoint Accuracy	-2.0		2.0	% 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)		50	75	mVpk-pk	1 μF ceramic//10 μF tantalum capacitors
Ripple (rms)		15	30	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		mV	1 μF ceramic//10 μF tantalum capacitors
		25		μs	
50 % to 100 % Load or 100 % to 50 % Load; (Δi/Δt = 2.5 A/μs; 25 °C)		50		mV	2 x 150 μF polymer capacitors
		50		μs	
GENERAL					
MTBF		10,000		kHrs	
Operating Temperature	-40		+85	°C	
Storage Temperature	-55		+125	°C	
Switching Frequency		300		kHz	
Efficiency		81.0		%	V _{o,set} = 1.2 V _{dc}
(V _{in} = 12 V _{dc} , T _A = 25 °C, Full Load)		84.0		%	V _{o,set} = 1.5 V _{dc}
		86.0		%	V _{o,set} = 1.8 V _{dc}
		88.0		%	V _{o,set} = 2.5 V _{dc}
		90.0		%	V _{o,set} = 3.3 V _{dc}
		92.0		%	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

Output Voltage Programming

Via external trim resistor between Trim and GND:

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

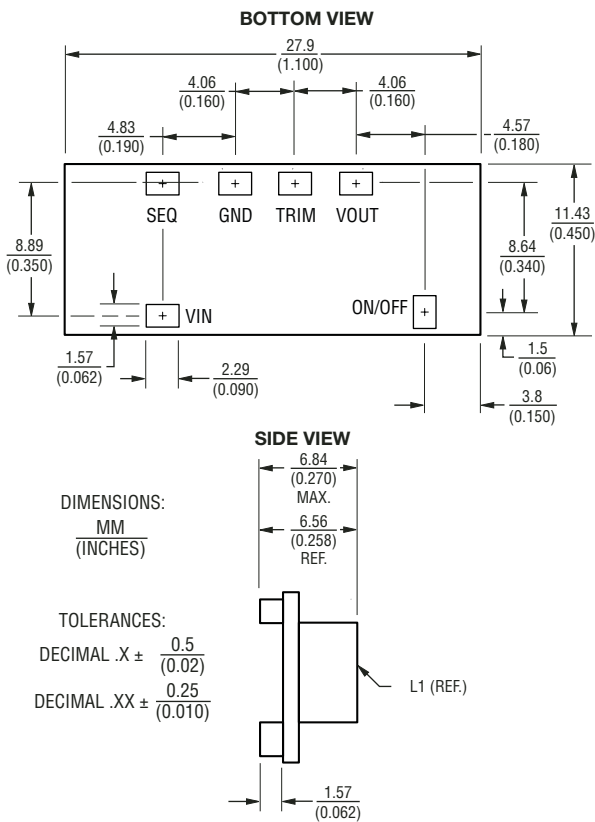
Via application of external voltage between Trim and GND:

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

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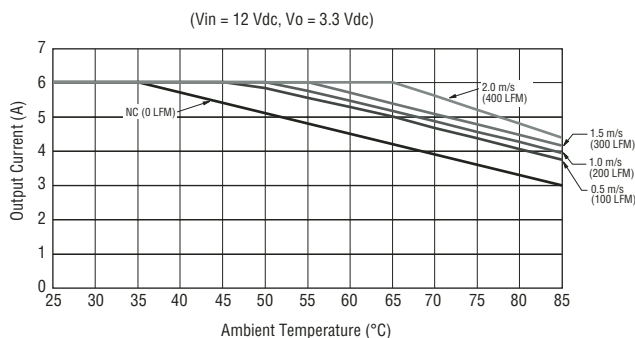
Product Dimensions



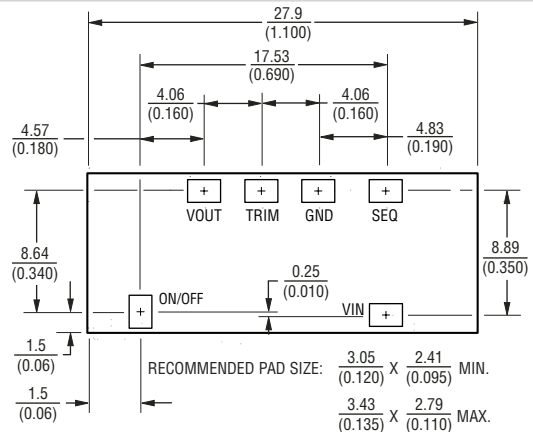
Pinout Detail

PIN	FUNCTION
1	ON/OFF
2	VIN
3	SEQ
4	GND
5	TRIM
6	VOUT

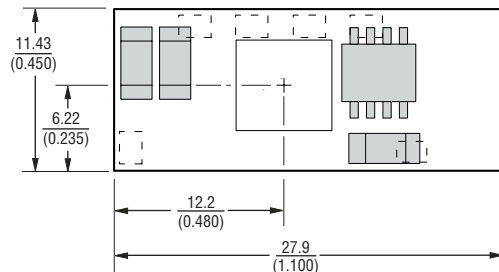
Derating Output Current vs. Local Ambient Temp & Airflow



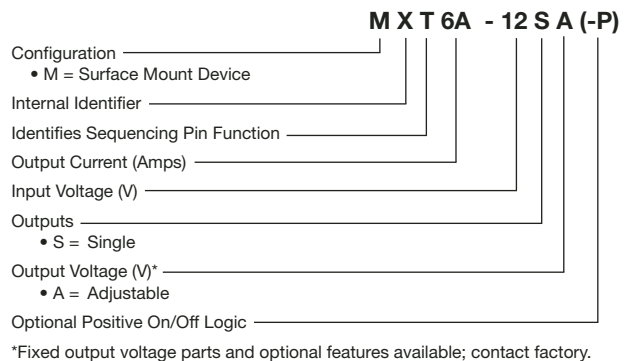
Recommended Pad Layout



Pick and Place Location



How to Order



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REV. B 08/06

Specifications are subject to change without notice.
 Customers should verify device performance in their specific applications.