

## Features

- Industry standard SMT package
- Output voltage programmable from 0.75 V<sub>dc</sub> to 3.6 V<sub>dc</sub> via external resistor
- 6 A output current
- Up to 96 % 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-3-5SA SMT Non-Isolated Power Module

### Description

Bourns® MXT6A-3-5SA 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
<b>INPUT</b>					
Voltage	2.4		5.5	V <sub>dc</sub>	V <sub>in</sub> (min) = V <sub>O</sub> + 0.5 V, V <sub>O</sub> > 1.9 V
Current			6.0	A <sub>dc</sub>	
Remote ON/OFF:					
Low or Open =	Standard On	-P Option Off		V <sub>dc</sub>	10 µA max.
High =	Off	On	2.4	V <sub>in</sub>	1 mA max.
<b>OUTPUT</b>					
Voltage Adjustment Range	0.75		3.63	V <sub>dc</sub>	
Current	0.0		6.0	A <sub>dc</sub>	
Voltage Setpoint Accuracy	-2.0		2.0	% V <sub>O,set</sub>	
Line Regulation		0.3		% V <sub>O,set</sub>	
Load Regulation		0.4		% V <sub>O,set</sub>	
Temperature Regulation		0.4		% V <sub>O,set</sub>	
Ripple (pk-pk) (20 MHz Bandwidth)		40	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)		130 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)		50 50		mV µs	2 x 150 µF polymer capacitors
<b>GENERAL</b>					
MTBF		15,000,000		hours	
Operating Temperature	-40		+85	°C	
Storage Temperature	-55		+125	°C	
Switching Frequency		300		kHz	
Efficiency		81.0		%	V <sub>O,set</sub> = 0.75 V <sub>dc</sub>
(V <sub>in</sub> = 5.0 V <sub>dc</sub> , T <sub>A</sub> = 25 °C, Full Load)		87.0		%	V <sub>O,set</sub> = 1.2 V <sub>dc</sub>
		89.0		%	V <sub>O,set</sub> = 1.5 V <sub>dc</sub>
		90.0		%	V <sub>O,set</sub> = 1.8 V <sub>dc</sub>
		93.0		%	V <sub>O,set</sub> = 2.5 V <sub>dc</sub>
		95.0		%	V <sub>O,set</sub> = 3.3 V <sub>dc</sub>

### 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:

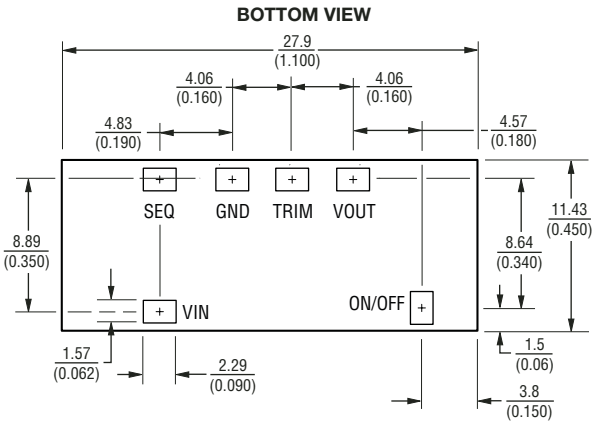
$$R_{\text{trim}} = \left[ \frac{21.07}{V_o - 0.7525} - 5.11 \right] \text{ k}\Omega$$

Via application of external voltage between Trim and GND:

$$V_{\text{trim}} = (0.7 - 0.1698 \times \{V_o - 0.7525\})$$

# MXT6A-3-5SA SMT Non-Isolated Power Module **BOURNS®**

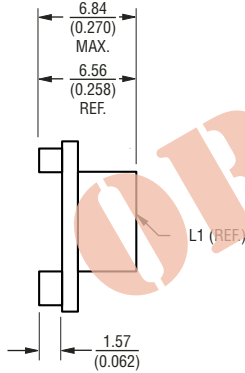
### Product Dimensions



### SIDE VIEW

DIMENSIONS:  
MM  
(INCHES)

TOLERANCES:  
DECIMAL .X ± 0.5  
(0.02)  
DECIMAL .XX ± 0.25  
(0.010)

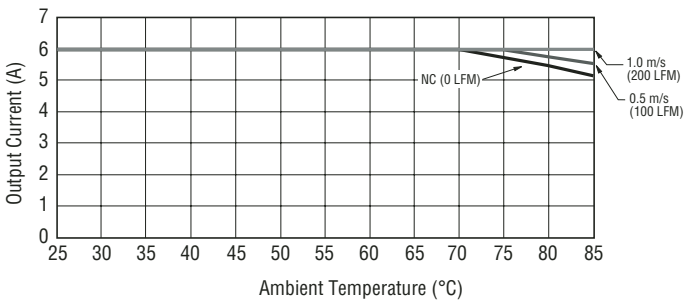


### Pinout Detail

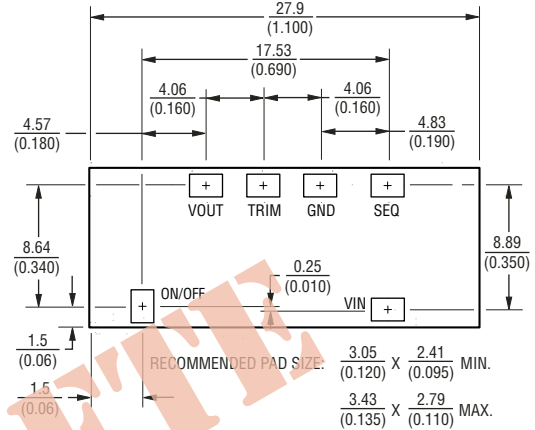
PIN	FUNCTION
1	ON/OFF
2	VIN
3	SEQ
4	GND
5	TRIM
6	VOUT

### Derating Output Current vs. Local Ambient Temp & Airflow

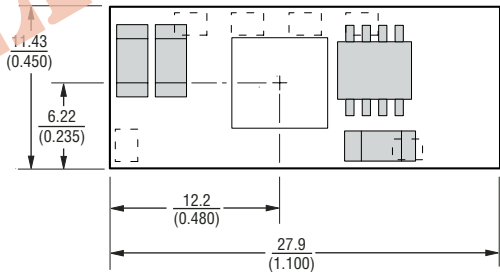
( $V_{in} = 5.0 \text{ Vdc}$ ,  $V_o = 3.3 \text{ Vdc}$ )



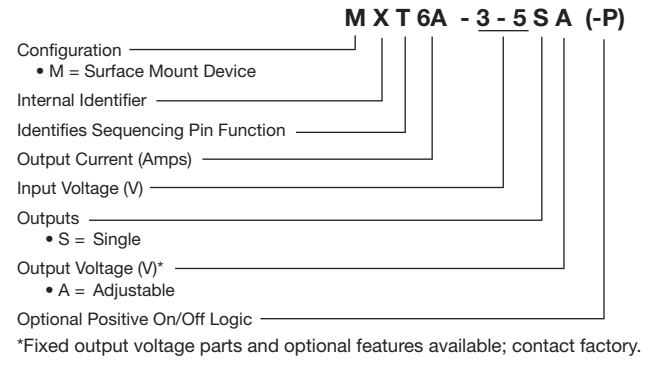
### Recommended Pad Layout



### Pick and Place Location



### How to Order



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