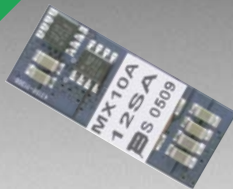


\*RoHS COMPLIANT



**BOURNS®**

## Features

- Industry standard SMT package
- Output voltage programmable from 0.75 V<sub>dc</sub> to 5.5 V<sub>dc</sub> via external resistor
- 10 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)
- Optional sequencing function

## MX(T)10A-12SA SMT Non-Isolated Power Module

### Description

Bourns® MX(T)10A-12SA 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 and optional output voltage sequencing.

### Specifications

Parameter	Min.	Nom.	Max.	Units	Notes
<b>INPUT</b>					
Voltage	8.3	12	14	V <sub>dc</sub>	
Current			7.0	A <sub>dc</sub>	
Remote: ON/OFF					
Low or Open =	Standard On	-P option Off	0.4	V <sub>dc</sub>	10 µA max.
High =	Off	On	V <sub>in</sub>	V <sub>dc</sub>	1 mA max.
<b>OUTPUT</b>					
Voltage Adjustment Range	0.75		5.5	V <sub>dc</sub>	
Current	0.0		10.0	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>	0 to +85 °C
Ripple (pk-pk) (20 MHz Bandwidth)		30	75	mVpk-pk	1 µF ceramic//10 µF tantalum capacitors
Ripple (rms)		12	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 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)		100 25		mV µs	2 x 150 µF polymer capacitors
<b>GENERAL</b>					
MTBF		10,000		kHrs	
Operating Temperature	-40		+85	°C	
Storage Temperature	-55		+125	°C	
Switching Frequency		300		kHz	
Efficiency (V <sub>in</sub> = 12 V <sub>dc</sub> , T <sub>A</sub> = 25 °C, Full Load)		87.5		%	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>
		92.0		%	V <sub>o, set</sub> = 2.5 V <sub>dc</sub>
		93.0		%	V <sub>o, set</sub> = 3.3 V <sub>dc</sub>
		95.0		%	V <sub>o, set</sub> = 5.0 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

\*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:

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

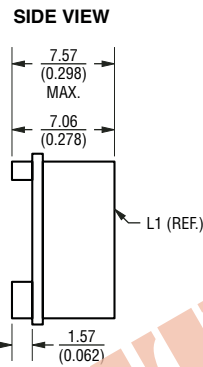
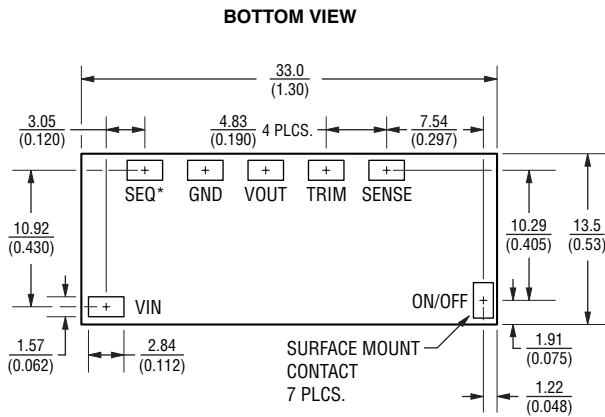
Via application of external voltage between Trim and GND:

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

# MX(T)10A-12SA SMT Non-Isolated Power Module

# BOURNS®

## Product Dimensions

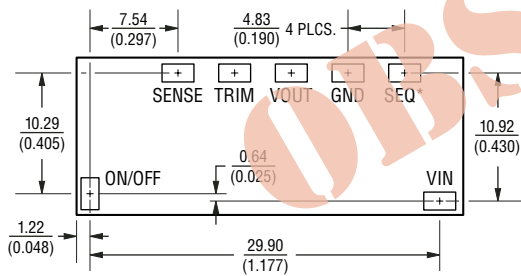


DIMENSIONS:  
MM  
(INCHES)

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

\*Pin Stuffed with MXT10A option only, absent with MX10A standard

## Recommended Pad Layout

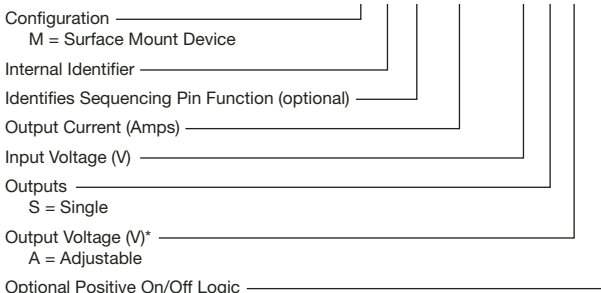


RECOMMENDED PAD SIZE:  $\frac{3.56}{(0.140)} \times \frac{2.41}{(0.095)}$  MIN.  
 $\frac{4.19}{(0.165)} \times \frac{2.79}{(0.110)}$  MAX.

\*Pad required with MXT10A option only,  
not required with MX10A standard

## How to Order

**M X (T) 10A - 12 S A (-P)**

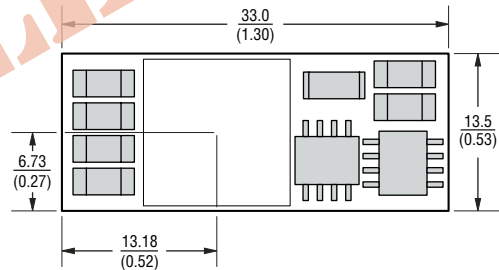


\*Fixed output voltage parts and optional features available; contact factory.

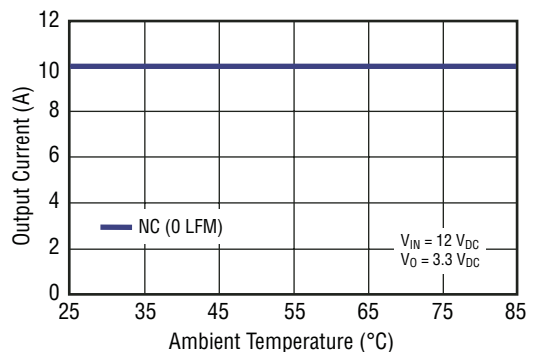
REV. C 08/06

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

## Pick and Place Location



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



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