

Features

- Industry standard SMT package
- Output voltage programmable from 0.75 V_{dc} to 5.5 V_{dc} 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	
INPUT						
Voltage	8.3	12	14	V _{dc}		
Current			7.0	A _{dc}		
Remote: ON/OFF						
Low or Open =	Standard On	-P option Off		0.4 V _{in}	V _{dc} V _{dc}	10 µA max. 1 mA max.
High =	Off	On				
2.4						
OUTPUT						
Voltage Adjustment Range	0.75		5.5	V _{dc}		
Current	0.0		10.0	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)		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	
GENERAL						
MTBF		10,000		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)		87.5		%	V _{o, set} = 1.2 V _{dc}	
		89.0		%	V _{o, set} = 1.5 V _{dc}	
		90.0		%	V _{o, set} = 1.8 V _{dc}	
		92.0		%	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:

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

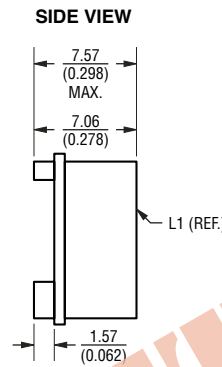
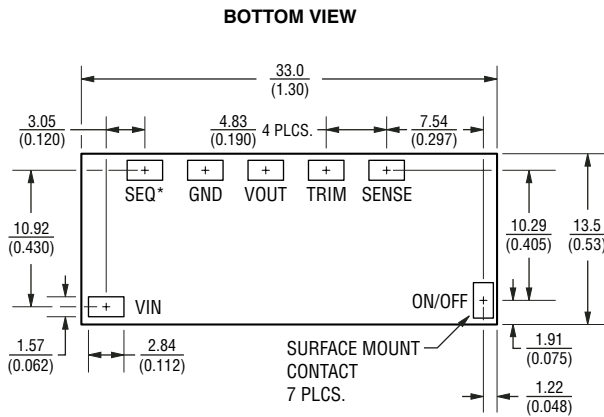
Via application of external voltage between Trim and GND:

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

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BOURNS®

Product Dimensions

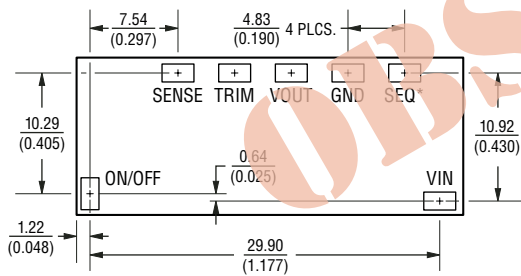


DIMENSIONS:
MM
(INCHES)

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

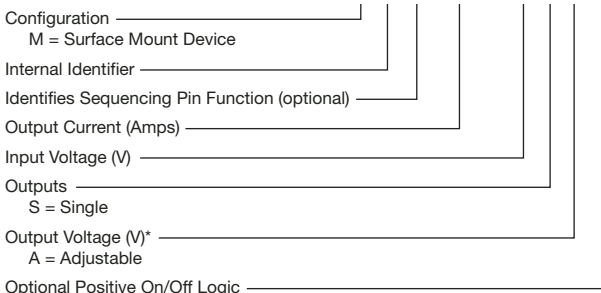


RECOMMENDED PAD SIZE: $\frac{3.56}{(0.140)} \times \frac{2.41}{(0.095)}$ MIN.
 $\frac{4.19}{(0.165)} \times \frac{2.79}{(0.110)}$ MAX.

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

How to Order

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

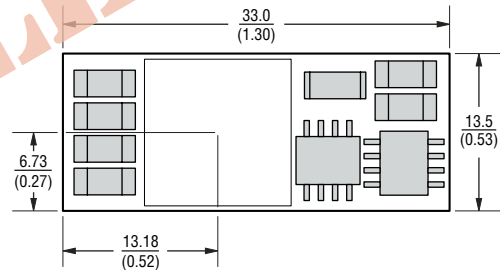


*Fixed output voltage parts and optional features available; contact factory.

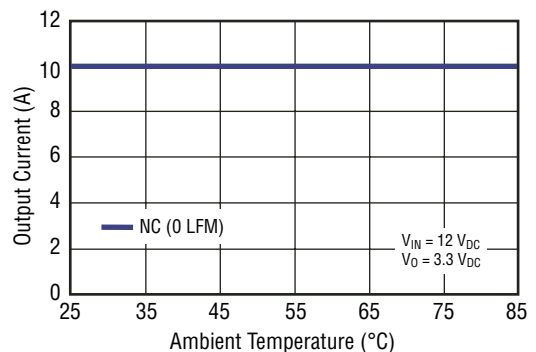
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Pick and Place Location



Derating Output Current vs. Local Ambient Temp & Airflow



Reliable Electronic Solutions

Asia-Pacific: Tel: +886-2 2562-4117 • Fax: +886-2 2562-4116

Europe: Tel: +41-41 768 5555 • Fax: +41-41 768 5510

The Americas: Tel: +1-951 781-5500 • Fax: +1-951 781-5700

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