

Description - *Not recommended for New Designs*

The M10A Series is a full-featured set of non-isolated, very high efficiency, board-level power modules. Each converter provides the low voltages needed by core logic, ASICs, microcontrollers and microprocessors. The high-density, open-frame design minimizes the board area required to implement the power conversion. The M10A series uses Bourns Switch Power's proprietary V^2 ™ architecture, which provides ultrafast transient response, improved line and load regulation, and very high efficiency.

Designed specifically for board-level use in applications requiring high reliability, the M10A features low losses, high reliability and a low seated height. The initial setpoint accuracy of 0.5 %, and measured low-radiated emissions are superior to most competitive units. The M10A Series provides a 10-amp output at any of its standard output voltages. Beyond the standard output voltages, the series also allows for custom outputs from 1.3 volts to 3.5 volts in 100 mV steps.

Features

- 10-amp Output Current
- Open-frame Design
- 90 % Efficiency
- Overtemperature Protection
- Short-circuit Protection with auto-restart
- Fast Transient Response
- Remote Sense
- Remote Enable
- Trim Function
- 35W/in³ Power Density
- Low 0.38 " Height
- Industry-standard Pin-out

Patents 5,770,940
5,978,195
6,127,814

Common Specifications

	Min	Nom	Max	Units	Notes
Input					
Voltage	4.5	5	5.5	Vdc	4.75V _{in} startup
Current		12		A	
Remote Enable					
High = Disable	2.4			Vdc	
Low = Enable			0.4	Vdc	Open=Enable
E/D Current		1		mA	
Output					
Current	0		10	A	
Current Limit	11			A	
Voltage Setpoint Accuracy			±2	%V _{out}	
Voltage Trim Range	-7		+7	%V _{nom}	
Line Regulation		±0.1		%V _{nom}	
Load Regulation		±0.3		%V _{nom}	±0.2 w/o remote sense
Dynamic Response					
0-100 % load		200		mV	Δi/Δt=3A/μs
		19		μs	
100-0 % load		200		mV	Δi/Δt=3A/μs
		19		μs	
Startup from Power On	30		150	ms	From 4.75 V _{in} to 90 % V _{nom}
Temperature Regulation			±0.02	%V _{out} /°C	
General					
MTBF		1,000		k Hrs	Bellcore TR332, 25 °C
Operating Temperature	0		55	°C	full power, 100 LFM
Storage Temperature	-55		125	°C	
Switching Frequency		250		kHz	



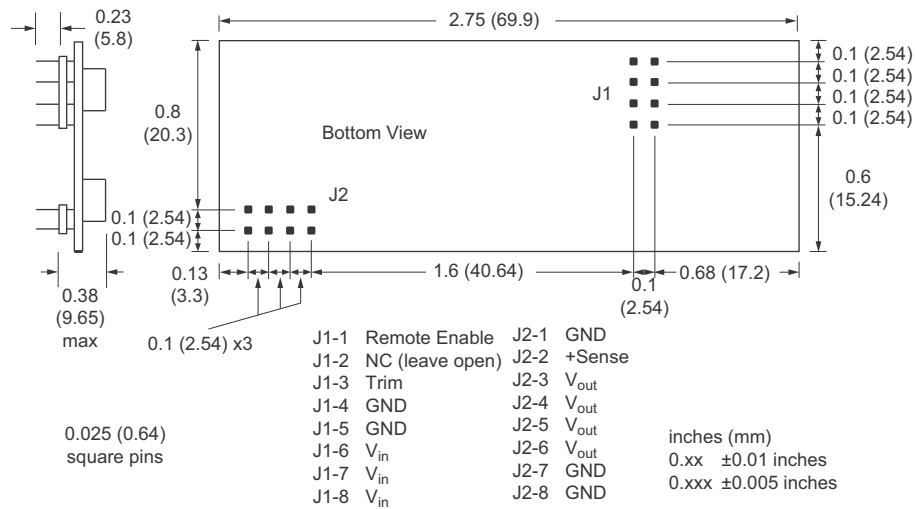
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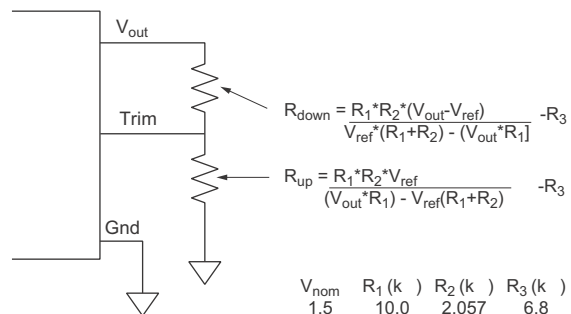
Specifications are subject to change without notice.
Customers should verify actual device performance in their specific applications.

Electrical Specifications

	Nominal Input (V)	Output Voltage (V)	Output Current (A)	Noise (mV pp) typ	Efficiency (%) typ
M10A-5S3.45	5	3.45	10	100	90
M10A-5S3.3	5	3.3	10	100	
M10A-5S2.8	5	2.8	10	100	
M10A-5S2.6	5	2.6	10	100	
M10A-5S2.5	5	2.5	10	100	
M10A-5S2.2	5	2.2	10	100	
M10A-5S2	5	2	10	100	
M10A-5S1.9	5	1.9	10	100	
M10A-5S1.8	5	1.8	10	100	
M10A-5S1.5	5	1.5	10	100	



M10A Trim Circuit



V_{nom}	$R_1(k)$	$R_2(k)$	$R_3(k)$	V_{ref}
1.5	10.0	2.057	6.8	1.244
2.5	2.05	2.07	6.8	1.244
3.3	21.5	14.0	33.2	2.00