

M15A SERIES

HDLV
Family



Description

The M15A Series is a full-featured set of non-isolated, very high-efficiency, board-level power modules. Each converter steps a 5 V input down to lower voltages required by core logic, ASICs, microcontrollers and microprocessors. The high-density (50 W/cu. in.) brick package minimizes the board area required to implement the power conversion. The M15A utilizes Bourns Switch Power's proprietary V²™ 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 M15A Series features lower losses, higher reliability and a lower seated height than similar units in the market. The initial setpoint accuracy of 0.2 % and measured low-radiated emissions are also superior to most competitive units. It provides a 15-amp output at any of its standard output voltages. Beyond the standard output voltages, the series also allows custom outputs from 1.30 volts to 3.50 volts in 100 mV steps.

Features

- 15-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
- 50W/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 | 4.75 V Startup |
| Current | | 17 | | A | |
| Remote Enable | | | | | |
| High = Disable | 2.4 | | | Vdc | |
| Low = Enable | | | 0.4 | Vdc | Open=Enable |
| E/D Current | | 1 | | mA | |
| Output | | | | | |
| Current | 0 | | 15 | A | |
| Current Limit | 16.5 | | | A | |
| Voltage Setpoint Accuracy | | | ±2 | %V _{nom} | |
| Line Regulation | | ±0.1 | | %V _{nom} | |
| Load Regulation | | ±0.3 | | %V _{nom} | ±0.2 w/o remote sense |
| Voltage Trim Range | -7 | | +7 | %V _{nom} | |
| Dynamic Response | | | | | |
| 0-100 % Load | | 200 | | mV | Δi/Δt=3A/μs |
| | | 20 | | μs | |
| 100-0 % Load | | 200 | | mV | Δi/Δt=3A/μs |
| | | 20 | | μs | |
| Temperature Regulation | | | ±0.02 | %V _{out} /°C | |
| General | | | | | |
| MTBF | | 1,000 | | k Hrs | Bellcore TR332, 25 °C full power, 100 LFM |
| Operating Temperature | 0 | | 55 | °C | |
| 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.

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Electrical Specifications

| | Nominal Input (V) | Output Voltage (V) | Output Current (A) | Noise (mV pp) typ | Efficiency (%) typ |
|-------------|-------------------------|--------------------------|--------------------------|-------------------------|--------------------------|
| M15A-5S3.45 | 5 | 3.45 | 15 | 100 | 90 |
| M15A-5S3.3 | 5 | 3.3 | 15 | 100 | 90 |
| M15A-5S2.8 | 5 | 2.8 | 15 | 100 | |
| M15A-5S2.6 | 5 | 2.6 | 15 | 100 | |
| M15A-5S2.5 | 5 | 2.5 | 15 | 100 | |
| M15A-5S2.2 | 5 | 2.2 | 15 | 100 | |
| M15A-5S2 | 5 | 2 | 15 | 100 | |
| M15A-5S1.9 | 5 | 1.9 | 15 | 100 | |
| M15A-5S1.8 | 5 | 1.8 | 15 | 100 | |
| M15A-5S1.5 | 5 | 1.5 | 15 | 100 | |

