



## Description

The MS10A brings a high current output to a surface mount package. Using only a 1 " square footprint, it is perfect for point-of-load applications that demand a high performance power source.

Designed for use with today's latest microprocessors, ASICs, and DSPs, the MS10A provides superior transient response using Bourns Switch Power's patented V<sup>2</sup>™ architecture. Output voltages are user selectable, allowing greater flexibility in design and layout. Each high efficiency converter includes separate control pins for output enable/disable and output voltage trim. The MS10A output can also accept an external voltage across its output; an advantage when power multiple input processors.

## Features

- Low Cost
- 10-amp Output Current
- 92 % Efficiency
- Low 0.36 " Profile
- Remote Sense
- Adjustable V<sub>out</sub>
- Trim Function
- Short-circuit Protection with auto-restart
- Fast Transient Response
- High-temperature Operation
- Remote Enable
- Output Precharge Capability

Patents 5,770,940

## Common Specifications

|                           | Min | Nom  | Max   | Units                 | Notes            |
|---------------------------|-----|------|-------|-----------------------|------------------|
| <b>Input</b>              |     |      |       |                       |                  |
| Voltage                   | 3.0 | 3.3  | 3.6   | Vdc                   |                  |
|                           | 4.5 | 5    | 5.5   | Vdc                   |                  |
| Current                   |     | 10   |       | A                     |                  |
| Remote Enable             |     |      |       |                       |                  |
| High = Disable            | 2.4 |      |       | Vdc                   |                  |
| Low = Enable              |     |      | 0.4   | Vdc                   | Open = Enable    |
| E/D Current               |     | 1    |       | mA                    |                  |
| <b>Output</b>             |     |      |       |                       |                  |
| Current                   | 0   |      | 10    | A                     |                  |
| Current Limit             | 11  |      |       | A                     |                  |
| Voltage Setpoint Accuracy |     | ±1   | ±2    | %V <sub>nom</sub>     |                  |
| Line Regulation           |     | ±0.1 |       | %V <sub>nom</sub>     |                  |
| Load Regulation           |     | ±0.2 |       | %V <sub>nom</sub>     |                  |
| Dynamic Response          |     |      |       |                       |                  |
| 0 to 100 % load           |     | 200  |       | mV                    | Δi/Δt = 3 A/μs   |
|                           |     | 17   |       | μs                    |                  |
| 100 to 0 % load           |     | 200  |       | mV                    | Δi/Δt = 3 A/μs   |
|                           |     | 20   |       | μs                    |                  |
| Temperature Regulation    |     |      | ±0.02 | %V <sub>out</sub> /°C |                  |
| <b>General</b>            |     |      |       |                       |                  |
| MTBF                      |     | 553  |       | k Hrs                 | 25 °C, 80 % load |
| Operating Temperature     | -40 |      | 85    | °C                    |                  |
| Storage Temperature       | -55 |      | 125   | °C                    |                  |
| Switching Frequency       |     | 450  |       | kHz                   | 5 Vin            |
|                           |     | 350  |       | kHz                   | 3.3 Vin          |



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## Electrical Specifications

|           | Nominal Input (V) | Output Voltage (V) | Output Current (A) | Ripple (mV pp) max | Efficiency (%) typ |
|-----------|-------------------|--------------------|--------------------|--------------------|--------------------|
| MS10A-3SA | 3.3               | 1.0 - 2.5          | 10                 | 100                | 92                 |
| MS10A-5SA | 5                 | 1.0 - 3.5          | 10                 | 100                | 92                 |

