

AMSRI-78-EZ

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SIP3 Package

The AMSRI-78-EZ series are SIP3 DC/DC high efficiency switching regulators and ideal substitutes for LM78xx series three-terminal linear regulators. The switching regulators feature high efficiency, low loss, short circuit protection, and there is no need for a heat sink.

It also features excellent reliability and performance while offering a wide input voltage range of 4.75-36VDC as well as an output voltage of -15~15V. This compact SIP3 design will surely benefit your new system design.

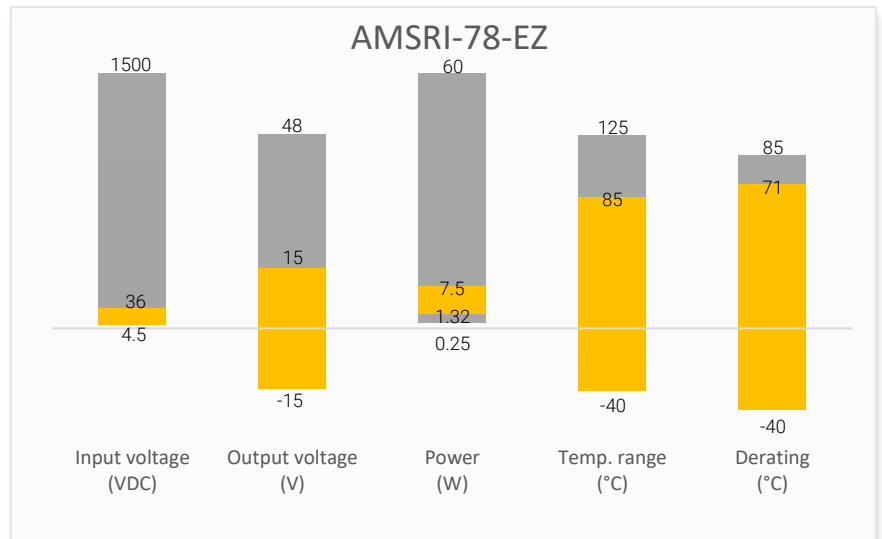
This new series offers great operating temperatures, from -40 to 85°C with full power up to 71°C. Additionally, 5,000,000 hours MTBF comes standard.

The AMSRI-78-EZ is suitable for instrumentation, industrial control and electric power.

Features

- Pin-out compatible with LM78XX Linear
- Non isolated, heatsinks not required
- Efficiency up to 95%
- Operating Temp: -40 °C to +85 °C
- Short circuit protection: Continuous, Auto recovery
- No-load input current as low as 0.3mA
- Regulated output

Summary



Training



Product Training Video
(click to open)



Press Release

Coming Soon!

Application Notes

Applications



IoT



Industrial



Telecom



Portable Equipment

Models & Specifications



| Model | Input Voltage (VDC) | Output Voltage (VDC) | Output Current max (mA) | Maximum capacitive Load (μF) | Efficiency Vin Min (%) | Efficiency Vin Max (%) |
|----------------|---------------------|----------------------|-------------------------|------------------------------|------------------------|------------------------|
| AMSRI-783.3-EZ | 4.75-36 | 3.3 | 500 | 1000 | 90 | 78 |
| | 4.75-25 | -3.3 | -400 | 470 | 75 | 78 |
| AMSRI-7805-EZ | 6.5-36 | 5 | 500 | 1000 | 92 | 84 |
| | 6.5-27 | -5 | -500 | 470 | 78 | 83 |
| AMSRI-7809-EZ | 12-36 | 9 | 500 | 1000 | 95 | 90 |
| | 7-23 | -9 | -200 | 470 | 85 | 86 |
| AMSRI-7812-EZ | 15-36 | 12 | 500 | 1000 | 95 | 92 |
| | 7-20 | -12 | -200 | 470 | 83 | 87 |
| AMSRI-7815-EZ | 18-36 | 15 | 500 | 1000 | 95 | 93 |
| | 7-18 | -15 | -200 | 470 | 81 | 87 |

Output Specification

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------|----------------------|---------|---------|----------|
| Voltage accuracy | 100% load | 2 | ±3 | % |
| Line regulation | 100% load | | 0.3 | % |
| Load regulation | 10-100% load | 0.4 | 0.6 | % |
| Ripple & Noise* | 3.3/5 Vout models | | 75 | mV pk-pk |
| | Others | | 100 | mV pk-pk |
| Transient response | 50% load step change | 250 | | μs |

* Ripple and Noise are measured at 20MHz bandwidth. Please refer to the application note for specific detail.

General Specifications

| Parameters | Conditions | Typical | Maximum | Units |
|--------------------------|---|---|---------|-------|
| Switching frequency | Full load, nominal input | 440 | | KHz |
| Short circuit protection | Continuous, auto recovery | | | |
| Operating temperature | With derating at 71°C | -40 to +85 | | °C |
| Storage temperature | | -55 to +125 | | °C |
| Cooling | Free air convection | | | |
| Humidity | Non-condensing | | 95 | % RH |
| Case material | Black plastic | | | |
| Weight | | 2 | | g |
| Dimensions (L x W x H) | | 0.46 x 0.30 x 0.41 inches (11.60 x 7.60 x 10.40 mm) | | |
| MTBF | 5 000 000 hrs (MIL-HDBK -217F, t=+25°C) / Full Load | | | |

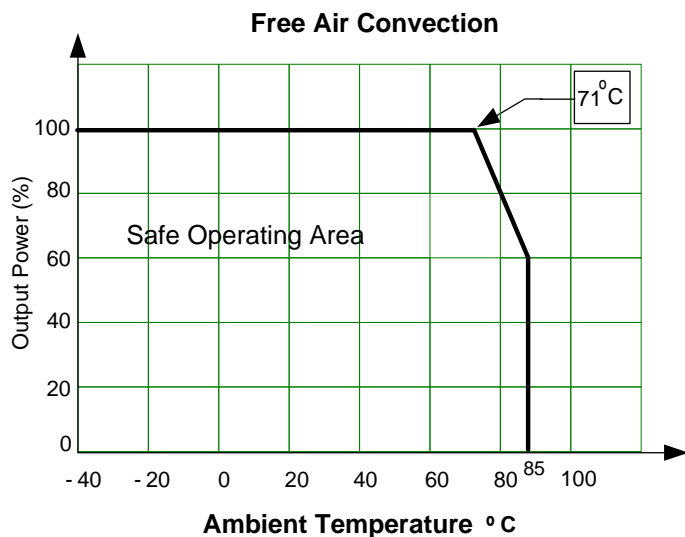
NOTE: All specifications in this datasheet are measured at an ambient temperature of 25°C, humidity<75%, nominal input voltage and at rated output load unless otherwise specified.

Safety Specifications

| Parameters | | |
|------------|--|---|
| Standards | EMC - Conducted and radiated emission | CISPR32 / EN55032, class B with the recommended EMI circuit |
| | Electrostatic Discharge Immunity | IEC/EN 61000-4-2 Contact ±4KV, Criteria B |
| | RF, Electromagnetic Field Immunity | IEC/EN 61000-4-3 10V/m, Criteria A |
| | Electrical Fast Transient/Burst Immunity | IEC/EN 61000-4-4 ±1KV, Criteria B |

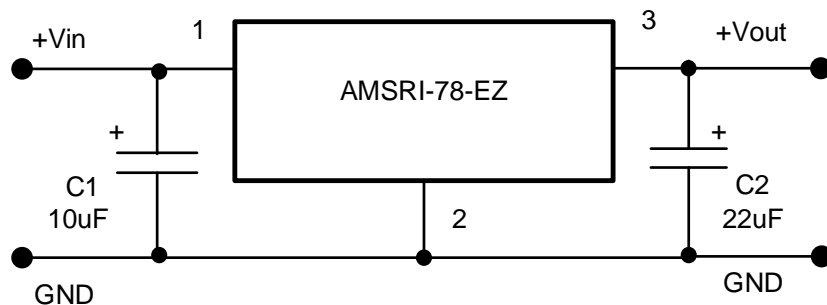
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|------------------------------------|---|
| Surge Immunity | IEC/EN 61000-4-5 L-L ± 1 KV, Criteria B |
| RF, Conducted Disturbance Immunity | IEC/EN 61000-4-6 3Vr.m.s, Criteria A |

Derating

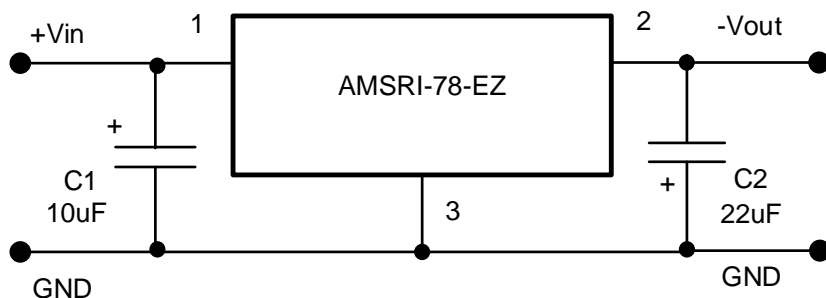


Typical application circuit

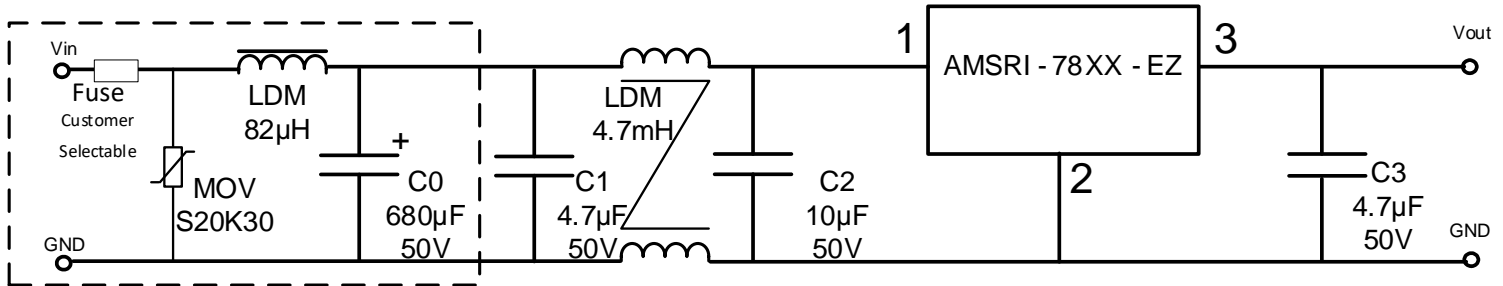
Standard Application circuit – positive output



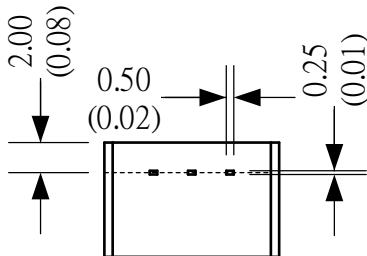
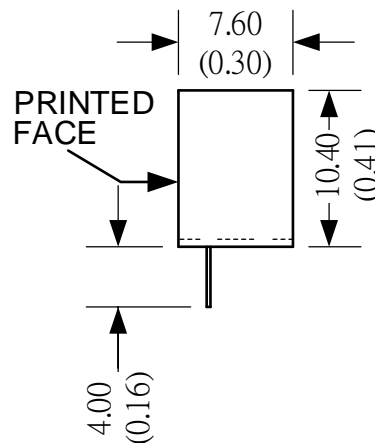
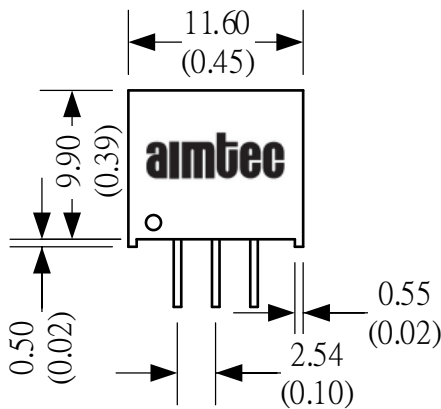
Standard Application circuit – negative output



EMI Recommended circuit



Dimensions



Dimensions are in mm (inch)
Pin Tolerance : ± 0.05 mm (0.002 inch)
Pin Distance : ± 0.25 mm (0.01 inch)
Case Tolerance : ± 0.50 mm (0.02 inch)

Pin Out Specifications

| Pin | Single |
|-----|-----------|
| 1 | +V Input |
| 2 | Ground |
| 3 | +V Output |

NOTE: 1. Datasheets are updated as needed and as such, specifications are subject to change without notice. Once printed or downloaded, datasheets are no longer controlled by Aimtec; refer to www.aimtec.com for the most current product specifications. 2. Product label shown, including safety agency certifications on label, may vary based on the date manufactured. 3. Mechanical drawings and specifications are for reference only. 4. All specifications are measured at an ambient temperature of 25°C, humidity < 75%, nominal input voltage and at rated output load unless otherwise specified. 5. Aimtec may not have conducted destructive testing or chemical analysis on all internal components and chemical at the time of publishing this document. CAS numbers and other limited information are considered proprietary and may not be available for release. 6. This product is not designed for use in critical life support systems, equipment used in hazardous environments, nuclear control systems or other such applications which necessitate specific safety and regulatory standards other than the ones listed in this datasheet. 7. Warranty is in accordance with Aimtec's standard Terms of Sale available at www.aimtec.com.