

Micrel

New Product Highlights

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MIC2875 – 4.8A I_{SW} Synchronous Boost Regulator with Bi-Directional Load Disconnect

The MIC2875 is a compact and highly-efficient 2MHz synchronous boost regulator with a 4.8A switch. It features a bi-directional load disconnect function which prevents any leakage current between the input and output when the device is disabled. The MIC2875 operates in bypass mode automatically when the input voltage is greater than the target output voltage. At light loads, the boost converter goes to the PFM mode to improve the efficiency.

To minimize switching artifacts in the audio band, the MIC2875 is designed to operate with a minimum switching frequency of 45kHz. The MIC2875 also features an integrated anti-ringing switch to minimize EMI.

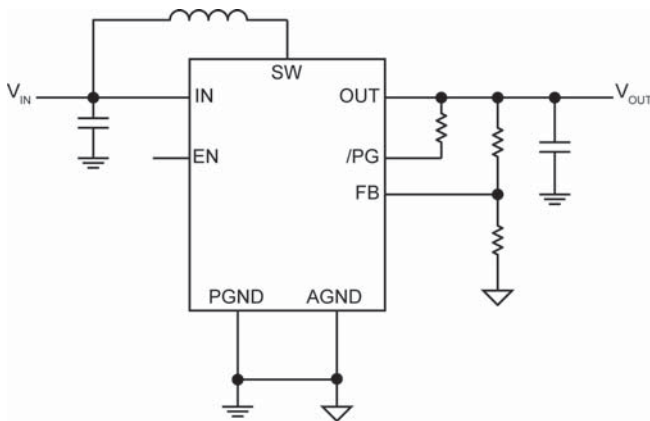
The MIC2875 is available in a 8-pin 2mm × 2mm Thin DFN (TDFN) package, with a junction temperature range of –40°C to +125°C.

Features

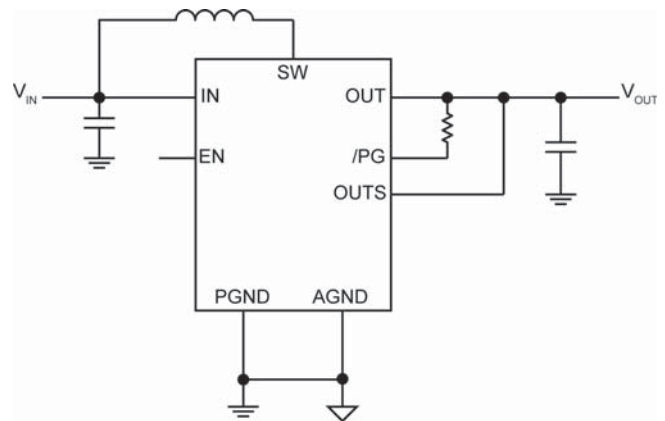
- Input voltage range: 2.5V to 5.5V
- Fully integrated, high-efficiency, 2MHz synchronous boost regulator
- Bi-directional true load disconnect
- Integrated anti-ringing switch
- Minimum switching frequency of 45kHz
- Up to 95% efficiency
- < 1μA shutdown current
- Bypass mode for $V_{IN} \geq V_{OUT}$
- Overcurrent protection and thermal shutdown
- Fixed and adjustable output versions
- 8-pin 2mm x 2mm TDFN package

Applications

- Tablets and smartphones
- USB OTG and HDMI hosts
- Portable power reserve supplies
- Low-noise audio applications
- Portable equipment



**MIC2875 Adjustable Output
Application Schematic**



**MIC2875 Fixed Output
Application Schematic**



The MIC2875 helps keep noise out of the audio band, so the music stays clear.

MIC2876 – 4.8A I_{SW} Synchronous Boost Regulator with Bi-Directional Load Disconnect

The MIC2876 is a compact and highly-efficient 2MHz synchronous boost regulator with a 4.8A switch. It features a bi-directional load disconnect function which prevents any leakage current between the input and output when the device is disabled. The MIC2876 operates in bypass mode automatically when the input voltage is greater than the target output voltage. At light loads, the boost converter goes to the PFM mode to improve the efficiency.

The MIC2876 also features an integrated anti-ringing switch to minimize EMI.

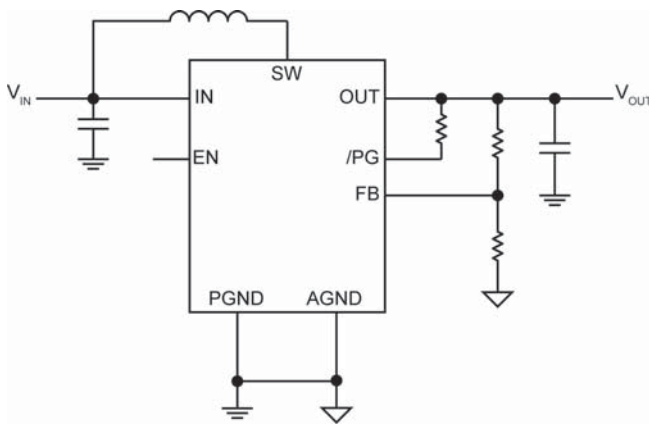
The MIC2876 is available in a 8-pin 2mm × 2mm Thin DFN (TDFN) package, with a junction temperature range of –40°C to +125°C.

Features

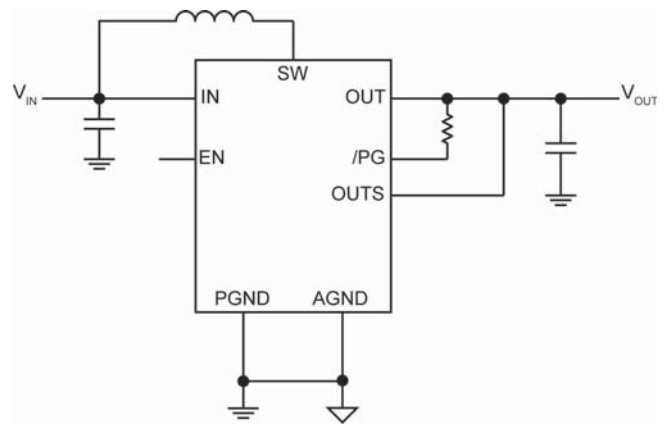
- Input voltage range: 2.5V to 5.5V
- Fully integrated, high-efficiency, 2MHz synchronous boost regulator
- Bi-directional true load disconnect
- Integrated anti-ringing switch
- Up to 95% efficiency
- <1 μ A shutdown current
- Bypass mode for $V_{IN} \geq V_{OUT}$
- Overcurrent protection and thermal shutdown
- Fixed and adjustable output versions
- 8-pin 2mm x 2mm TDFN package

Applications

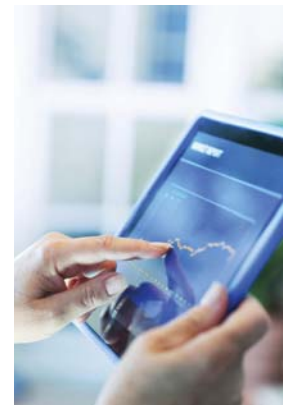
- Tablets and smartphones
- USB OTG and HDMI hosts
- Portable power reserve supplies
- High-current parallel Lithium cell applications
- Portable equipment



**MIC2876 Adjustable Output
Application Schematic**



**MIC2876 Fixed Output
Application Schematic**



The MIC2876 helps tablets and other portable devices perform better.

MIC95410 – 6.6mΩ $R_{DS(ON)}$, 7A, 5.5V V_{IN} Load Switch in 1.2mm × 2.0mm QFN Package

The MIC95410 is a high-side load switch for computing and ultra-dense embedded computing boards where high-current low-voltage rails from sub-1V to 5.5V have to be sectioned. The integrated 6.6mΩ $R_{DS(ON)}$ N-channel MOSFET ensures low voltage drop and low power dissipation while delivering up to 7A of load current.

The MIC95410 is internally powered by a separated bias voltage from 2.7V to 9V. It includes a TTL-logic level to gate a voltage translator driving a charge pump, and an output discharge function when disabled. The OFF-state current from bias supply (V_S) and the power switch OFF-state leakage current (I_{OFF}) are both below 1μA.

The MIC95410 provides user-adjustable slew-rate-controlled turn-on to limit the in-rush current to the input supply voltage.

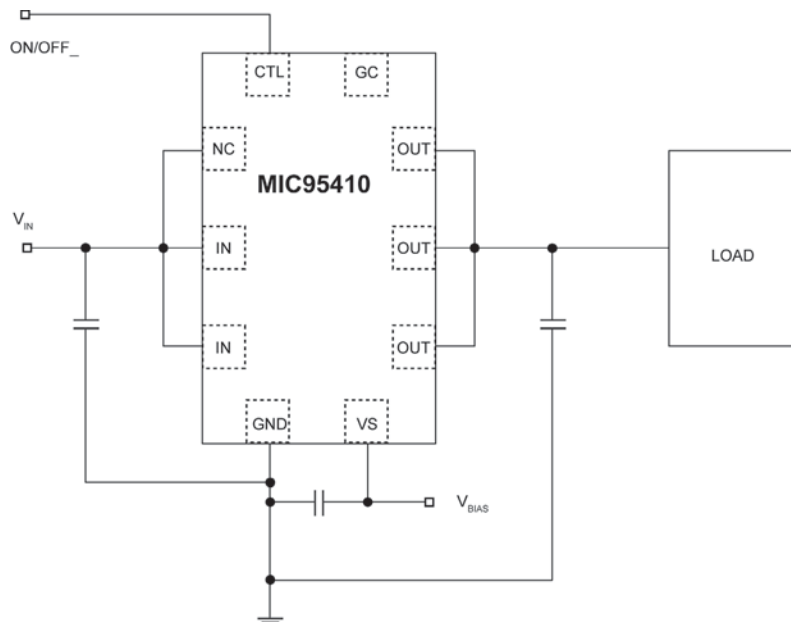
The MIC95410 is available in a thermally efficient, space-saving 10-pin 1.2mm x 2.0mm QFN package with 0.5mm pin pitch and an operating junction temperature range from -40°C to +125°C.

Features

- Ultra-low $R_{DS(ON)}$: 6.6mΩ typical
- True 7A current capability
- Power rail switching from sub-1V to 5.5V
- Bias voltage from 2.7V to 9V
- ≤1μA OFF-state bias supply current
- ≤1μA OFF-state power switch leakage current
- Adjustable slew rate for inrush current-limiting by external capacitor
- Load discharge
- TTL-compatible control input
- 10-pin 1.2mm x 2.0mm QFN package, 0.5mm pin pitch
- -40°C to +125°C junction temperature range

Applications

- Embedded computing boards
- Servers
- Data storage equipment



MIC95410 Typical Application



The MIC95410 helps keep servers and data storage devices performing optimally.

SY88022AL – 11.3Gbps Laser Diode Driver

The SY88022AL is a single 3.3V supply, small form-factor, multi-rate laser driver for telecom/datacom applications using FP/DFB lasers at data rates up to 11.3125Gbps. The driver can deliver a modulation current of up to 75mA into a 15Ω external load with a fast edge rate below 25ps, and a bias current of up to 80mA. Having an equalizer at the input will compensate for the SFP+ connector and line card long traces.

The SY88022AL interfaces with MIC3003, Micrel's highly advanced optical module controller, as an easy-to-use chipset solution for SFP+ optical module applications. The MIC3003 allows for many features, including modulation and bias current control, automatic power control, and temperature compensation using look up tables. The MIC3003 comes in 4mm × 4mm QFN (MIC3003GML) and 3mm × 3mm QFN (MIC3003GFL) packages.

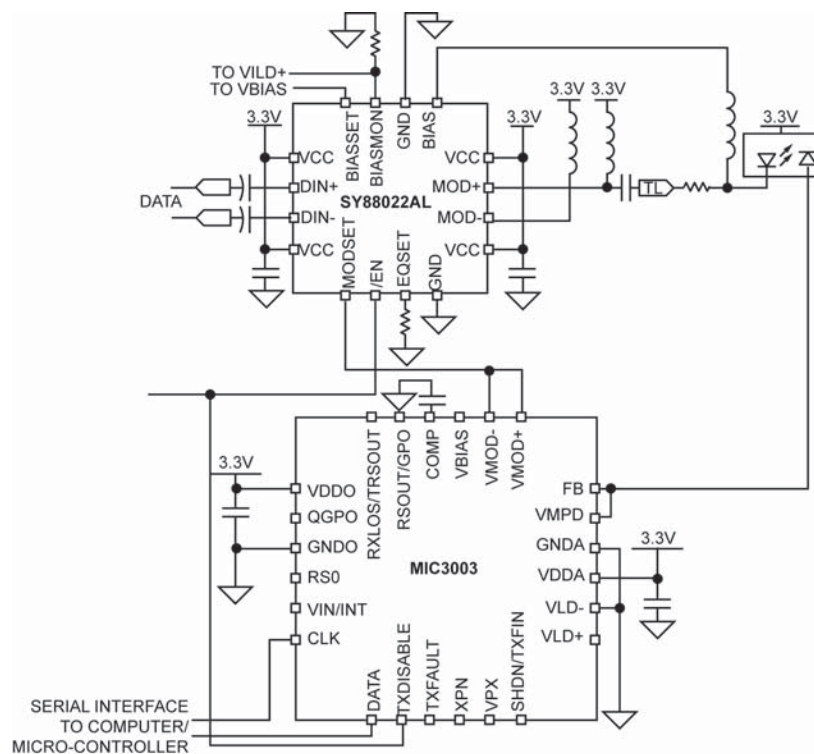
The SY88022AL operates on a single 3.3V power supply and comes in a 3mm × 3mm QFN package.

Features

- Operates from a single 3.3V supply
- Data rate operation up to 11.3125Gbps
- Modulation current up to 75mA
- Fast edges rates, below 25ps
- Bias current up to 80mA
- Input equalizer
- Small form factor 3mm x 3mm QFN package

Applications

- Multi-rate LAN, MAN applications up to 11.3Gbps: 8xFC, 10G GbE, SONET OC-192, and SDH STM-64
- SFP+, XFP, XPAK, XENPAK, X2, MSA 300 optical modules
- OBSAI, CPRI



SY88022AL Typical Application Circuit



The SY88022AL assists in keeping data rates high in multiple applications.

Linear and Power Solutions (LPS) Products - Quarterly Releases

Part Number	Description	Evaluation Board	Production	Package(s)	Comments
DC/DC Switching Regulators					
MIC2875	4.8A I_{SW} Synchronous Boost Regulator with Bi-Directional Load Disconnect	X	X	8-pin 2mm x 2mm TDFN	Datasheet Online
MIC2876	4.8A I_{SW} Synchronous Boost Regulator with Bi-Directional Load Disconnect	X	X	8-pin 2mm x 2mm TDFN	Datasheet Online
Power Switching					
MIC95410	6.6mΩ $R_{DS(ON)}$, 7A, 5.5V V_{th} Load Switch in 1.2mm x 2.0mm QFN Package	X	X	10-pin 1.2mm x 2.0mm QFN	Datasheet Online

Timing and Communications Group (TCG) Products - Quarterly Releases

Part Number	Description	Evaluation Board	Production	Package(s)	Comments
Laser Diode Drivers					
SY88022AL	11.3Gbps Laser Diode Driver		X	16-pin 3mm x 3mm QFN	Datasheet Online

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