

Micrel New Product Highlights

Micrel Inc., is a leading global manufacturer of IC solutions for the worldwide analog, Ethernet and high-bandwidth markets. The Company's products include advanced mixed-signal, analog and power semiconductors; high performance communication, clock management, Ethernet switch and physical layer transceiver ICs. Company customers include leading manufacturers of enterprise, consumer, industrial, mobile, telecommunications, automotive, and computer products. Corporation headquarters and state-of-the-art wafer fabrication facilities are located in San Jose, CA with regional sales and support offices and advanced technology design centers situated throughout the Americas, Europe and Asia. In addition, the Company maintains an extensive network of distributors and reps worldwide.

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Table of Contents

MIC2026A/2076A.....	2
MIC2808	2
MIC22950	3
MIC4782	3
MIC29xxx.....	4
MIC35152	4
MIC35302	4
MIC39152	5
MIC39302	5
MIC47150	5
MIC47300	5
SY84402L.....	6
SY88022L	6
SY88024L.....	6
SY89530U	6
SY89531L.....	6
KSZ9021GN.....	7
KSZ9021RL/RN	7
Quarterly Releases	8

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MIC2026A/2076A — Dual-Channel Power Distribution Switch

The MIC2026A and MIC2076A are high-side MOSFET switches optimized for general-purpose power distribution requiring circuit protection. The MIC2026A is particularly well suited for USB applications.

The MIC2026A/2076A are internally current limited and have thermal shutdown that protects the device and load.

The MIC2076A offers “smart” shutdown that reduces current consumption in fault modes. When the MIC2076A goes into thermal shutdown due to current limiting, the output is latched off until the switch is reset. The MIC2076A can be reset by removing the load, toggling the enable input, or cycling V_{IN} .

Both devices employ soft-start circuitry that minimizes inrush current in applications where highly capacitive loads are employed.

A fault status output flag is asserted during overcurrent or thermal shutdown conditions. Transient faults are internally filtered.

Features

- 2.7V to 5.5V operating range
- 100m Ω typical $R_{DS(ON)}$ at 5.0V
- 140m Ω maximum $R_{DS(ON)}$ at 5.0V
- 500mA minimum continuous current per channel
- Short circuit protection with thermal shutdown
- Thermally isolated channels
- Soft-start circuit
- Fault status flag with 3ms filter eliminates false assertions
- UVLO (Undervoltage lockout)
- Reverse current flow blocking (no “body diode”)
- Circuit breaker mode (MIC2076A)
- Logic-compatible inputs
- Low quiescent current
- Available in an 8-pin SOIC package

Applications

- USB peripherals
- General purpose power switching
- ACPI power distribution
- Notebook PCs, PDAs
- PC card hot swap

MIC2808 — RF PA Power Management IC 2MHz, 600mA DC/DC w/DAC Input and Bypass Switch, Dual Low Noise 200mA/30mA LDO Regulator

The MIC2808 integrates a high performance 600mA DC/DC step down regulator intended for powering a power amplifier (PA) in a mobile phone with dual low noise low dropout (LDO) regulators for the rest of the RF application. Optimized for low noise performance, the MIC2808 improves efficiency in the handset without compromising quality.

The MIC2808 has a 2MHz, constant frequency pulse width modulated (PWM) DC/DC regulator designed for low noise operation and high efficiency. The output voltage (V_{OUT}) is variable from 0.3V to the input voltage (V_{IN}), adjustable from 0.3V to 3.6V through a DAC input when $V_{IN} > V_{OUT}$. The regulator will work in a 100% duty cycle mode to offer maximum power and efficiency in the application. In addition to 100% duty cycle, the DC/DC regulator has a bypass mode of operation where the input voltage node (PVIN pin) is shorted to the output voltage node (OUT pin) through a 95m Ω switch.

The integrated dual low noise low dropout regulators are optimized for high PSRR capability and fast turn-on times. The constant frequency DC/DC regulator, along with dual low noise LDO regulators, enables a very quiet and efficient solution for mobile applications.

The MIC2808 is a μ Cap design, operating with small ceramic output capacitors and inductors for stability, reducing required board space and component cost.

Features

- 2.7V to 5.5V input voltage range
- Stable with ceramic output capacitors
- Thermal shutdown and current-limit protection
- Available in 16-pin (2.0mm x 2.5mm) Thin MLF® package

RF PA Power Supply DC/DC Regulator

- Adjustable output power supply – DAC controlled
 - $V_{OUT} = V_{DAC} \times 3$
- Bypass mode operation
 - Internal 95m Ω switch between PVIN and OUT pins
 - $V_{DAC} > 1.2V$
- Up to 600mA output current in PWM mode
- 100% duty cycle operation for maximum efficiency
- Tiny 4.7 μ H, 1 μ F output inductor and capacitor
- Low-noise 2MHz PWM operation
- >90% efficiency

Dual Low Noise Low Dropout Regulators

- High accuracy – $\pm 2\%$ over temperature
- High PSRR – greater than 70dB
- Very low output noise – 32 μ V_{RMS}
- LDO1 – 200mA output current capability
- LDO2 – 30mA output current capability

Applications

- CDMA2000 and UMTS/WCDMA mobile phones
- WiMAX/Wibro and WiFi modules
- Power amplifier modules (PAMs) with linear PAs

MIC22950 — 10A Integrated Switch Synchronous Buck Regulator with Frequency Programmable to 2MHz

The Micrel MIC22950 is a high efficiency 10A integrated switch synchronous buck (step-down) regulator. The MIC22950 switching frequency is programmable from 400kHz to 2MHz, allowing the customer to optimize designing either for efficiency or for the smallest footprint. The MIC22950 achieves over 95% efficiency while still switching at 2MHz over a broad load range.

The ultra-high speed control loop keeps the output voltage within regulation, even under extreme transient load swings commonly found in FPGAs and low voltage ASICs.

The output voltage can be adjusted down to 0.7V in order to address all low voltage power needs.

The MIC22950 features a full range of sequencing and tracking options. The enable and the delay pins, when combined with the power good pin, allow multiple outputs to be sequenced in several ways during turn on and turn off. The RC (Ramp Control™) pin allows the device to be connected to any another device in the Micrel MIC22x00 family of products, to keep the output voltages within a certain delta V during start up.

Features

- 2.6V to 5.5V supply voltage
- Fully integrated MOSFET switches
- Adjustable output voltage option down to 0.7V
- Output load current up to 10A
- Full sequencing and tracking capability
- Power on reset
- Efficiency > 95% across a broad load range
- Operating frequency programmable: 400kHz to 2MHz
- Ultra-fast transient response
- 100% maximum duty cycle
- Micropower shutdown
- Thermal shutdown and current-limit protection
- Available in a 32-pin (5mm x 5mm) MLF® package
- -40°C to +125°C junction temperature range

Applications

- High power density point-of-load conversion
- Base stations, servers and routers
- Blu-ray players, DVD recorders
- Computer peripherals
- FPGAs, DSP and low voltage ASIC power

MIC4782 — 1.8MHz, Dual 2A Integrated Switch Buck Regulator

The Micrel MIC4782 is a high efficiency dual PWM buck (step-down) regulator that provides dual 2A output current. The MIC4782 operates at 1.8MHz. A proprietary internal compensation technique allows a closed loop bandwidth of over 200kHz.

The low on-resistance internal P-Channel MOSFET of the MIC4782 allows efficiencies of over 92%, reduces external components count and eliminates the need for an expensive current sense resistor.

The MIC4782 operates from 3V to 6V input and the output can be adjusted down to 0.6V. The device can operate with a maximum duty cycle of 100% for use in low-dropout conditions.

Features

- 3V to 6V supply voltage
- 1.8MHz PWM mode
- 2A dual output
- Greater than 92% efficiency
- 100% maximum duty cycle
- Adjustable output voltage option down to 0.6V
- Ultra-fast transient response
- Ultra-small external components
- Stable with a 1μH inductor and a 4.7μF output capacitor
- Fully integrated 2A MOSFET switches
- Micro-power shutdown
- Thermal shutdown and current-limit protection
- Available in a 16-pin (3mm x 3mm) MLF® package
- -40°C to +125°C junction temperature range

Applications

- Broadband: xDSL modems
- Automotive satellite radios
- HD STB, DVD/TV recorder
- Computer peripherals: printers and graphic cards
- FPGA/ASIC
- General point-of-load

MIC29xxx Family — High-Current Low-Dropout Regulators

The MIC29150/29300/29500/29750 are high current, high accuracy, low-dropout voltage regulators. Using Micrel's proprietary Super β PNP® process featuring a PNP pass element, these regulators offer 350mV to 425mV (full load) typical dropout voltages and very low ground current. Designed for high current loads, these devices also find applications in lower current, extremely low dropout-critical systems, where their tiny dropout voltage and ground current values are important attributes.

The MIC29150/29300/29500/29750 are fully protected against overcurrent faults, reversed input polarity, reversed lead insertion, over-temperature operation, and positive and negative transient voltage spikes. Five pin fixed voltage versions feature logic level ON/OFF control and an error flag which signals whenever the output falls out of regulation. Flagged states include low input voltage (dropout), output current limit, over-temperature shutdown, and extremely high voltage spikes on the input.

On the MIC29xx1 and MIC29xx2, the ENABLE pin may be tied to V_{IN} if it is not required for ON/OFF control. The MIC29150/29300/29500 are available in 3-pin and 5-pin TO-220 and surface mount TO-263 (D²Pak) packages. The MIC29750 7.5A regulators are available in 3-pin and 5-pin TO-247 packages. The 1.5A, adjustable output MIC29152 is available in a 5-pin power D-Pak (TO-252) package.

Features

- High current capability
 - MIC29150/29151/29152/29153.....1.5A
 - MIC29300/29301/29302/29303.....3A
 - MIC29500/29501/29502/29503.....5A
 - MIC29750/29751/29752.....7.5A
- Low dropout voltage
- Low ground current
- Accurate 1% guaranteed tolerance
- Extremely fast transient response
- Reverse-battery and "Load Dump" protection
- Zero-current shutdown mode (5-pin versions)
- Error flag signals output out-of-regulation (5-pin versions)
- Also characterized for smaller loads with industry-leading performance specifications
- Fixed voltage and adjustable versions

Applications

- Battery powered equipment
- High-efficiency "Green" computer systems
- Automotive electronics
- High-efficiency linear power supplies
- High-efficiency low-regulator for switching supply

MIC35152 and MIC35302 — 1.5A and 3A, Low Voltage μ Cap LDO Regulators

The MIC35152 and MIC35302 are 1.5A and 3A, respectively, low-dropout linear voltage regulators that provide a low voltage, high current output with a minimum of external components. They offer high precision, ultra-low dropout (600mV over temperature), and low ground current.

Both devices operate from an input of 2.25V to 6V. They are designed to drive digital circuits requiring low voltage at high currents (i.e., PLDs, DSPs, micro-controllers, etc.), providing an adjustable output voltage from 1.24V to 5.4V.

Features of the MIC35152 and MIC35302 LDOs include current limiting and thermal protection, and reverse current and reverse battery protection. A logic (active-HIGH) enable pin is also included.

Features

- 600mV maximum dropout voltage over temperature
 - Ideal for 3V to 2.5V conversion
 - Ideal for 2.5V to 1.8V, 1.65V, or 1.5V conversion
- Stable with ceramic or tantalum capacitor
- Wide input voltage range
 - V_{IN} : 2.25V to 6V
- $\pm 1.0\%$ initial output tolerance
- Excellent line and load regulation specifications
- Logic controlled shutdown
- Thermal shutdown and current-limit protection
- Reverse-leakage protection
- Available in a 5-pin (TO-252) power D-Pak package
- -40°C to $+125^{\circ}\text{C}$ junction temperature range

Applications

- LDO linear regulator for low-voltage digital IC
- PC add-in cards
- High efficiency linear power supplies
- SMPS post regulator
- Battery charger

MIC3915x and MIC3930x Families — 1.5 and 3A, Low-Voltage Low-Dropout Regulators

The MIC3915x (1.5A) and the MIC3930x (3A) are voltage regulators that provide a low voltage, high current output with a minimum of external components. Utilizing Micrel's proprietary Super β PNP[®] pass element, the MIC39150/1/2 offer extremely low dropout (typically 375mV at 1.5A) and low ground current (typically 17mA at 1.5A) for the MIC39300/1/2 the dropout is (typically 385mV at 3A) and low ground current (typically 36mA at 3A).

Both families are ideal for PC add-in cards that need to convert from 3.3V to 2.5V or 2.5V to 1.8V with a guaranteed maximum dropout voltage of 500mV over all operating conditions. All devices exhibit fast transient response for heavy switching applications. The MIC39150/1/2 require only 10 μ F and the MIC39300/1/2 47 μ F of output capacitance to maintain stability and achieve fast transient response.

All devices are fully protected with current limiting, thermal shutdown, reversed-battery protection/lead insertion, and reverse-leakage protection. The MIC39151 and MIC39301 offer a TTL-logic compatible enable pin and an error flag that indicates undervoltage and overcurrent conditions. Offered in fixed voltages, the MIC39150/1 and MIC39300/1 come in the TO-220 and TO-263 (D²Pak) packages. The MIC39152 and MIC39302 adjustable options allow programming the output voltage anywhere between 1.24V and 15.5V and come in 5-Pin TO-263 (D²Pak) packages. The MIC39302 also comes in a 5-pin TO-252 (D-Pak) package.

Features

- 1.5A (MIC3915x) and 3A (MIC3930x) minimum guaranteed output current
- 500mV (MIC3915x) and 550mV (MIC3930x) maximum dropout voltage over temperature
 - Ideal for 3V to 2.5V conversion
 - Ideal for 2.5 to 1.8V or 1.65V conversion
- 1% initial accuracy
- Low ground current
- Current-limiting and thermal shutdown
- Reversed-battery protection
- Reversed-leakage protection
- Fast transient response
- TTL/CMOS compatible enable pin (MIC39151/2 and MIC39301/2)
- Error flag output (MIC39151 and MIC39301)
- Adjustable output (MIC39152 and MIC39302)
- Power D-Pak package (TO-252) adjustable MIC39302 only
- Power D²Pak package (TO-263)

Applications

- LDO linear regulator for PC add-in cards
- High-efficiency linear power supplies
- SMPS post regulator
- Low-voltage microcontrollers
- StrongARM[™] processor supply

MIC47150 and MIC47300 — 1.5A and 3A, Low Voltage, Adjustable, High-Bandwidth LDO Regulators with Dual Input Supply

The MIC47150 (1.5A) and MIC47300 (3A) are high-bandwidth, low-dropout, voltage regulators ideal for powering core voltages of low-power microprocessors. These devices implement a dual supply configuration allowing for very low output impedance and very fast transient response.

They both require a bias input supply between 3V and 6.5V for proper operation. The main input supply rail operates from 1.4V to 6.5V that allows for adjustable output voltages down to 0.9V.

The devices require a minimum of 1 μ F output capacitance for stability, and optimal operation is achieved with small ceramic capacitors.

Features

- Input Voltage Range:
 - V_{IN} : 1.4V to 6.5V
 - V_{BIAS} : 3V to 6.5V
- Stable with 1 μ F ceramic capacitor
- $\pm 1\%$ initial tolerance
- Maximum dropout voltage ($V_{IN} - V_{OUT}$) of 500mV (MIC47150) and 400mV (MIC47300) over temperature
- Adjustable output voltage down to 0.9V
- Ultra-fast transient response (up to 10MHz bandwidth)
- Excellent line and load regulation specifications
- Power D-Pak package (TO-252)
- Thermal shutdown and current-limit protection
- -40°C to $+125^{\circ}\text{C}$ junction temperature range

Applications

- Graphics processors
- PC add-in cards
- Microprocessor core voltage supply
- Low voltage digital ICs
- High-efficiency linear power supplies
- SMPS post regulators

SY84402L — 4.25Gbps VCSEL Driver

The SY84402L is a 3.3V VCSEL driver for applications up to 4.25Gbps. The driver comes in a 10-pin (2mm x 2mm) MLF® package which makes it less than half the size of any other driver operating at that rate. The variable output swing on the SY84402L makes it ideal for use as a VCSEL driver as well as a backplane driver/receiver.

The operational range of the SY84402L control input is from $V_{CC}-1.42V$ (for maximum output swing) to V_{CC} (for minimum output swing). VCTRL can also be driven by a DAC such as those contained in the MIC300x, Micrel's FOM controller family.

The SY84402L provides a VT output for use as a DC bias for AC-coupling to the device. The input termination network can easily be modified to handle a DC-coupled PECL output to save board space by simply tying the VT terminal-to-ground through a 50Ω resistor. The VT pin should be used only as a bias for this device as its current sink/source capability is limited.

SY88022L and SY88024L — 11.3Gbps Laser Diode and VCSEL Drivers

The SY88022L is a single 3.3V supply, small form factor driver for use in telecom/datacom applications using FP/DFB lasers at data rates up to 11.3125Gbps. The driver can deliver modulation current up to 60mA and a bias current up to 80mA. The SY88022L is available in a 10-pin (3mm x 3mm) MLF® package.

The SY88024L is a single 3.3V supply, small form factor VCSEL driver for datacom applications at data rates up to 11.3125Gbps. The driver can deliver modulation current up to 20mA and a bias current up to 20mA. The SY88024L is available in a 16-pin (3mm x 3mm) MLF® package.

SY898530U — 500MHz 1:16 3.3V-to-2.5V LVPECL Fanout Buffer

The SY898530U is a 1:16 Fanout buffer that can accept most standard differential logic levels and outputs the signal as a differential 2.5V LVPECL signal. The part can amplify input signals as small as 150mVpp to the full LVPECL output swing. The SY898530U is well suited for clock distribution applications which demand versatility and low-skew performance. It is pin-to-pin compatible with IDT's ICS8530 fanout buffer.

The SY898530U operates from a 3.3V $\pm 5\%$ core power supply and a 2.5V $\pm 5\%$ output supply and is guaranteed over the full commercial temperature range (0°C to +70°C). It is available in a 48-pin TQFP lead-free package.

SY898531L — Precision Differential 3.3V Low Skew LVPECL 1:9 Fanout Buffer

The SY898531L is a 3.3V, low skew, 1:9 LVPECL fanout buffer with two selectable clock input pairs. Most standard differential input levels can be applied to the CLK, /CLK pair while LVPECL, CML, or SSTL input levels can be applied to the PCLK, /PCLK pair. To eliminate runt pulses on the outputs during asynchronous assertion/de-assertion of the clock enable pin, the clock enable is synchronized with the input signal.

The SY898531L operates from a 3.3V $\pm 5\%$ supply and is guaranteed over the full industrial temperature range of 0°C to +70°C. The SY898531L is part of Micrel's high-speed, Precision Edge® product line. It is available in a 32-pin TQFP package.

Features

- 3.3V power supply
- Operates from 100Mbps up to 4.25Gbps
- 100k-compatible PECL/ECL I/O
- Fully controllable with Micrel's MIC300x controller
- Guaranteed operation over -40°C to +85°C temperature range

Applications

- Multirate LAN, SAN applications up to 4.25Gbps: Ethernet, GbE, FC
- SFF, SFP modules
- Backplane receiver

Features

- Operates from a single 3.3V supply
- Operation up to 11.3125Gbps
- Modulation current up to 60mA (SY88022L) and 20mA (SY88024L)
- Bias current up to 80mA (SY88022L) and 20mA (SY88024L)

Applications

- Multi-rate LAN, MAN applications up to 11.3Gbps: 8xFC, 10G GbE for both and SONET OC-192 and SDH STM-64 (SY88022L only)
- SFP+, XFP, XPAK, XENPAK, X2, MSA 300 optical modules

Features

- 3.3V Core, 2.5V output operating supply
- 16 Differential 2.5V LVPECL outputs
- Differential CLK inputs. Accepts LVDS, LVPECL, LVHSTL, SSTL, HCSL logic levels
- Translates any single-ended input signal to 2.5V LVPECL levels with a resistor bias on /CLK input
- 500MHz max output frequency

Applications

- Data distribution
- High performance PCs
- Parallel processor-based systems

Features

- 3.3V supply voltage
- Provides nine differential 3.3V LVPECL copies
- Selects between differential CLK, /CLK or LVPECL clock inputs
- CLK, /CLK pair accepts LVDS, LVPECL, LVHSTL, SSTL, HCSL input levels
- PCLK, /PCLK pair accepts LVPECL, CML, SSTL input levels

Applications

- SONET clock distribution
- Backplane distribution

KSZ8863MLL/FLL/RLL — Integrated 3-Port 10/100 Managed Switch with PHYs

The KSZ8863MLL/FLL/RLL are highly integrated 3-port switch on a chip ICs in the industry's smallest footprint. They are designed to enable a new generation of low port count, cost-sensitive and power efficient 10/100Mbps switch systems. Low power consumption, advanced power management and sophisticated QoS features (e.g., IPv6 priority classification support) make these devices ideal for IPTV, IP-STB, VoIP, automotive and industrial applications.

The KSZ8863 family is designed to support the GREEN requirement in today's switch systems. Advanced power management schemes include hardware power down, software power down, per port power down and the energy detect mode that shuts down the transceiver when a port is idle.

KSZ8863MLL/FLL/RLL also offer a by-pass mode, which enables system-level power saving. In this mode, the processor connected to the switch through the MII interface can be shut down without impacting the normal switch operation.

The configurations provided by the KSZ8863 family enables the flexibility to meet requirements of different applications:

- KSZ8863MLL: Two 10/100BASE-T/TX transceivers and one MII interface.
- KSZ8863RLL: Two 10/100BASE-T/TX transceivers and one RMII interface.
- KSZ8863FLL: One 100BASE-FX, one 10/100BASE-T/TX transceivers and one MII interface.

The device is available in RoHS-compliant 48-pin LQFP package. Industrial-grade and Automotive-grade are also available.

The KSZ9021GN is available in a 64-pin, lead-free QFN package.

KSZ9021RL/RN and KSZ9021GN — Gigabit Ethernet Transceivers with RGMII and GMII/MII Support

The KSZ9021RL and KSZ9021GN are completely integrated triple speed (10Base-T/100Base-TX/1000Base-T) Ethernet physical layer transceivers for transmission and reception of data over standard CAT-5 unshielded twisted pair (UTP) cable.

The KSZ9021RL provides the RGMII (Reduced Gigabit Media Independent Interface) and the KSZ9021GN provides the industry standard GMII/MII (Gigabit Media Independent Interface / Media Independent Interface) for direct connection to RGMII MACs in Gigabit Ethernet Processors and Switches for data transfer at 10/100/1000Mbps speed.

Both devices reduce board cost and simplifies board layout by using on-chip termination resistors for the four differential pairs and by integrating a LDO controller to drive a low cost MOSFET to supply the 1.2V core.

They also provide diagnostic features to facilitate system bring-up and debugging in production testing and in product deployment. Parametric NAND tree support enables fault detection between KSZ9021 I/Os and board. Micrel LinkMD® TDR-based cable diagnostics permit identification of faulty copper cabling. Remote and local loopback functions provide verification of analog and digital data paths.

The KSZ9021RL is available in a 64-pin, lead-free E-LQFP package, and is offered as the KSZ9021RN in the smaller 48-pin QFN package. The KSZ9021GN is available in a 64-pin, lead-free QFN package.

Features

- Advanced Switch Features
 - IEEE 802.1q VLAN support for up to 16 groups (full-range of VLAN IDs)
- Comprehensive Configuration Register Access
 - Serial management interface (SMI) to all internal registers
- QoS/CoS Packet Prioritization Support
 - Per port, 802.1p and DiffServ-based
- Proven Integrated 3-Port 10/100 Ethernet Switch
 - 3rd generation switch with three MACs and two PHYs fully compliant with IEEE 802.3u standard
- Switch Monitoring Features
 - Port mirroring/monitoring/sniffing: ingress and/or egress traffic to any port or MII
- Low Power Dissipation
 - Full-chip hardware power-down (register configuration not saved)
- Industrial Temperature Range: -40°C to +85°C

Applications

- VoIP phone
- Set-top/game box
- Automotive
- IPTV POF
- SOHO residential gateway
- Broadband gateway / firewall / VPN
- Integrated DSL/cable modem
- Wireless LAN access point + gateway

Features

- Single-chip 10/100/1000Mbps IEEE 802.3 compliant Ethernet Transceiver
- Auto-negotiation to automatically select the highest link up speed (10/100/1000Mbps) and duplex (half/full)
- On-chip termination resistors for the differential pairs
- On-chip LDO controller to support single 3.3V supply operation – requires only external FET to generate 1.2V for the core
- 125MHz reference clock output
- Programmable LED outputs for link, activity and speed
- LinkMD® TDR-based cable diagnostics for identification of faulty copper cabling
- Parametric NAND Tree support for fault detection between chip I/Os and board.
- Automatic MDI/MDI-X crossover for detection and correction of pair swap at all speeds of operation
- Automatic detection and correction of pair swap, pair skew and pair polarity
- MDC/MDIO Management Interface for PHY register configuration

Applications

- Network attached storage (NAS), network server
- Gigabit LAN on motherboard (GLOM)
- Broadband gateway
- Gigabit SOHO/SMB router
- IPTV, IP set-top box, game console
- Triple-play (data, voice, video) media center, media converter

Analog Products - Quarter Releases

Part Number	Description	Evaluation Board	Production	Package(s)	Comments
Switch-Mode Regulators					
MIC22950	10A Integrated Switch Synchronous Buck Regulator w/Frequency Programmable to 2MHz	Yes	Yes	32-Pin (5mm x 5mm) MLF®	Datasheet online
MIC4782	1.8MHz Dual 2A Integrated Switch Buck Regulator	Yes	Yes	16-Pin (3mm x 3mm) MLF®	Datasheet online
LDOs					
MIC29152	1.5A High-Current Low Dropout Regulator	Yes	Yes	5-Pin D-Pak TO-252 5-Pin D²Pak TO-263	Datasheet online
MIC35152	1.5A Low Voltage µCap LDO Regulator	Yes	Yes	5-Pin D-Pak TO-252	Datasheet online
MIC35302	3A Low Voltage µCap LDO Regulator	Yes	Yes	5-Pin D-Pak TO-252	Datasheet online
MIC39152	1.5A Low Voltage Low Dropout Regulator	Yes	Yes	5-Pin D-Pak TO-252 5-Pin D²Pak TO-263	Datasheet online
MIC39302	3A Low Voltage Low Dropout Regulator	Yes	Yes	5-Pin D²Pak TO-263	Datasheet online
MIC47150	1.5A Low Voltage, Adjustable, High-Bandwidth LDO Regulator w/Dual Input Supplies	Yes	Yes	5-Pin D-Pak TO-252	Datasheet online
MIC47300	3A Low Voltage, Adjustable, High-Bandwidth LDO Regulator w/Dual Input Supplies	Yes	Yes	5-Pin D-Pak TO-252	Datasheet online
Power Switches					
MIC2026A/2076A	Dual-Channel Power Distribution Switch	Yes	Yes	8-Pin SOIC	Datasheet online
LED Drivers					
MIC2282	Single-Cell Ultra-Low EMI Boost LED Driver	Yes	Yes	8-Pin MSOP	Datasheet online
MOSFET Drivers					
MIC5060	High- or Low-Side MOSFET Driver	Yes	Yes	3-Pin (3mm x 3mm) MLF®	Datasheet online

HBW Products - Quarter Releases

Part Number	Description	Evaluation Board	Production	Package(s)	Comments
Precision Edge®					
SY898530U	500MHz 1:16 3.3V to 2.5V LVPECL Fanout Buffer	Yes	Yes	48-Pin TQFP	Datasheet online
SY898531L	Precision Differential 3.3V Low-Skew LVPECL 1:9 Fanout Buffer	Yes	Yes	48-Pin TQFP	Datasheet online
Communications					
SY84402L	4.25Gbps VCSEL Driver	Yes	Yes	10-Pin (2mm x 2mm) MLF®	Datasheet online
SY88022L	11.3Gbps Laser Diode Driver	Yes	Yes	10-Pin (3mm x 3mm) MLF®	Datasheet online
SY88024L	11.3Gbps VCSEL Driver	Yes	Yes	16-Pin (3mm x 3mm) MLF®	Datasheet online
MIC88808L	10.3Gbps Transceiver w/Programmable Pre-Emphasis and Equalization	Yes	Yes	28-Pin (4mm x 4mm) MLF®	Datasheet online

Ethernet Products - Quarter Releases

Part Number	Description	Evaluation Board	Production	Package(s)	Comments
PHYs					
KSZ9021GN	Gigabit Ethernet Transceiver w/GMII and MII Support	Yes	Yes	64-Pin QFN	Datasheet online
KSZ9021RL/RN	Gigabit Ethernet Transceiver w/RGMII Support	Yes	Yes	64-Pin E-LQFP 48-Pin QFN	Datasheet online

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Central USA	2425 N. Central Express Way, Suite 351	Richardson, TX 75080 USA	+1 972 393 2533	+1 972 393 2370
Eastern USA	93 Branch Street	Medford, NJ 08055 USA	+1 609 654 0078	+1 609 654 0989
Latin America	2425 N. Central Express Way, Suite 351	Richardson, TX 75080 USA	+1 972 393 2533	+1 972 393 2370
China	Rm 601, Bldg B, Int'l Chamber of Commerce Mansion, Fuhua Rd 1 Futian Dist	Shenzhen, P.R. China 518048	+86 755 8302 7618	+86 755 8302 7637
Japan	Queens Tower 14F, 2-3-1, Minatomirai, Nishi-ku, Yokohama-shi	Kanagawa 220-6014, Japan	+81 45 224 6616	+81 45 224 6716
Korea	4F Manzo 2 Building, 198-47, Gungnae-dong, Bundang-ku, Seongnam-City	Kyungki-do, 463-470, Korea	+82 2 538 2380	+82 2 538 2381
Singapore/India	7500A Beach Road, #07-324 The Plaza	Singapore 199591	+65 6291 1318	+65 6291 1332
Taiwan	4F, No. 43 Lane 188, Rueiguang Road, Nei-Hu District	Taipei 11491 Taiwan, R.O.C	+886 2 8751 0600	+886 2 8751 0746
UK/EMEA	1st Floor, 3 Lockside Place, Mill Lane, Newbury, Berks	United Kingdom RG14 5QS	+44 1635 524455	+44 1635 524466
France/Southern Europe	Les Laurentides - Batiment Ontario, 3 Avenue du Quebec	91140 Villebon sur Yvette, France	+33 0 1 6092 4193	+33 0 1 6092 4189



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