

Diodes Incorporated's Discrete, Analog, Mixed-Signal and Logic products provide our customers with leading edge solutions for next generation systems.

Discrete products include Bipolar Transistors, MOSFETs, Diodes and Rectifiers, Protection products and Functional Specific Arrays.

Analog and Mixed-signal products cover these main areas: Power Management ICs, Standard Linear, LED Drivers, Sensors and Motor control, Switching, Signal Integrity, Connectivity and Timing products.

Diodes Incorporated's Logic products includes single gate, dual gate and standard logic gates as well as level translators, analog switches, registers and multiplexers.

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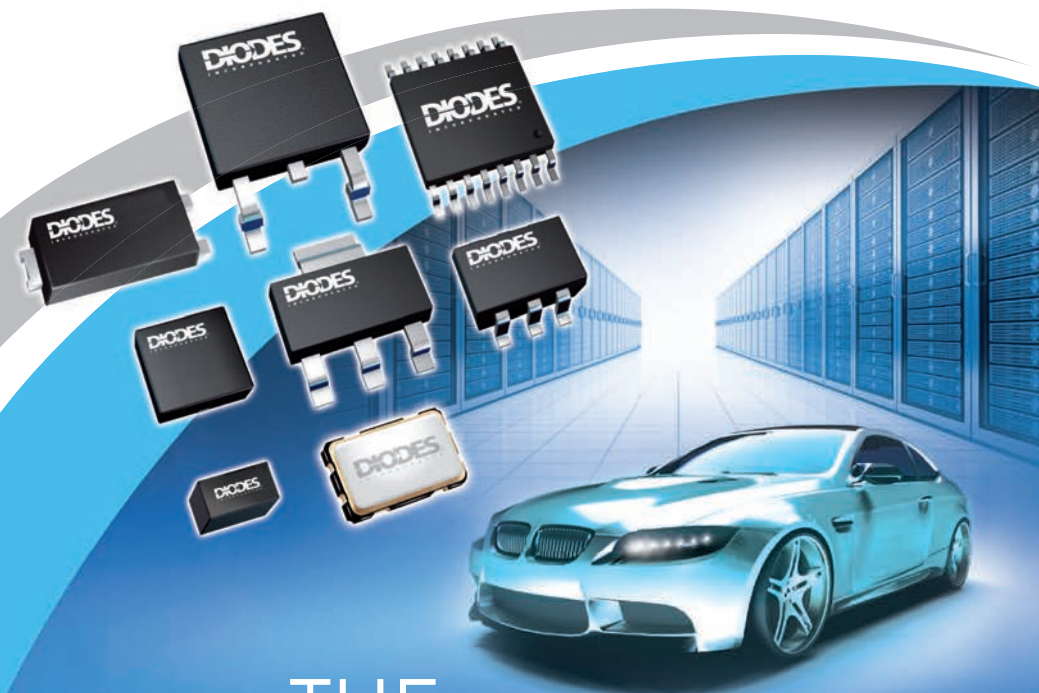
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THE LEADING EDGE...

ANALOG | DISCRETE | LOGIC | MIXED-SIGNAL



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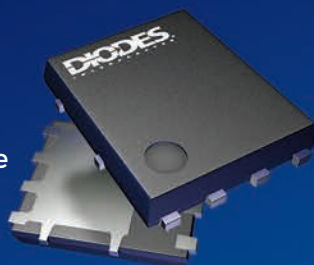
DIODES INCORPORATED'S PRODUCTS
ARE DESIGNED FOR HIGH PERFORMANCE...

INTRODUCTION

Diodes Incorporated is a leading global provider of Discrete, Analog and Mixed-signal, and Logic semiconductors.

Its global footprint includes sales offices worldwide and manufacturing locations in China, Taiwan, Europe and the USA.

A focus on product innovation, cost reduction and customer service has made Diodes Incorporated an industry leader.



DISCRETE

Diodes Incorporated provides product designers with a broad range of discrete semiconductor components that are renowned for their quality and high performance.

Combining leading edge silicon and packaging technologies, Diodes provides a broad portfolio of benchmark performing discrete semiconductors.



ANALOG & MIXED-SIGNAL

The best Analog and Mixed-Signal ICs provide circuit designers with the most advantageous combination of efficiency, functionality and package size.

SERIAL CONNECTIVITY & TIMING

We are the leading supplier of essential solutions for the timing, switching, bridging and conditioning of high-speed signals required by today's ever-increasing speed-and-bandwidth demanding applications. Our serial connectivity solutions cover broad range of protocols including PCIe 2.0/3.0, SATA 2.0/3.0, SAS 2.0/3.0, HDMI, DisplayPort, USB 2.0/3.0/3.1, USB Type-C™, Thunderbolt™, and 10GbE. Diodes timing portfolio includes crystals, crystal oscillators and clock ICs that cover frequencies ranging from kHz to GHz with jitter in the low femtoseconds.



LOGIC

Diodes Logic portfolio covers eight technology families in single and dual gate logic, as well as the ubiquitous standard logic and octal families offering the right operating voltages and driving capabilities for today's applications.

With its expertise in packaging, Diodes' logic portfolio is available in the tiniest DFN (0.8 x 0.8mm) to the industry-standard TSSOP-20.



USB Type-C is trademark of USB Implementers Forum. Thunderbolt is a trademark of Intel Corporation or its subsidiaries in the U.S. and/or other countries.

... ACROSS A WIDE RANGE OF EXISTING
AND EMERGING APPLICATIONS

MARKETS

As part of its global footprint Diodes Incorporated is focussed on these high growth, high volume markets:



AUTOMOTIVE

For applications from infotainment through to pumps and into lighting and body control, Diodes offers a wide portfolio of Automotive compliant products. Identified by 'Q' at the end of the part numbering nomenclature.

Qualified to AEC-Q100/101/200 and manufactured in facilities that have been audited to TS16949/VDA6.3 manufacturing routes, these Q-parts are fully supported by a Production Part Approval Process (PPAP) document.

COMMUNICATIONS

Diodes offers highly effective products to enhance the solution in areas such as modems, access points and smartphones. A broad portfolio of MOSFETs, rectifiers, protection devices, high speed signal switches and multiplexers provides for highly efficient and cost effective solutions to be developed.



COMPUTER

By addressing the key requirements of the computing industry - Speed, cost effectiveness and reliability; Diodes provides many Discrete, Mixed-Signal and Analog, and Logic products which are used in all areas of notebooks, motherboards, printers, servers, storage, adaptors and peripherals - with leading edge solutions for Type-C connectivity.

CONSUMER

Cost effective solutions and a high volume logistic capability, positions Diodes to effectively deliver Discrete, Analog and Mixed-Signal, and Logic solutions to this fast moving market sector.



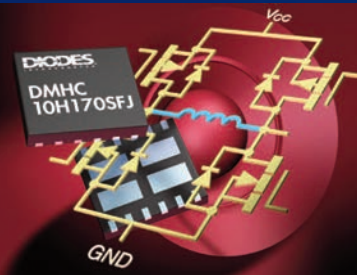
INDUSTRIAL

The Diodes portfolio of bipolar and MOSFET transistors, diodes, references, regulators and power management products ensure that in harsh industrial environments, the management of power is at its most reliable and effective for the required long term usage requirements.

Diodes offers a wide variety of products for embedded applications, ranging from specialized Timing products like processor specific XO and clocks, to Bridges that can connect the latest PCIe-based embedded processor families to legacy protocols such as PCI-X, PCI, USB, UART, and more.



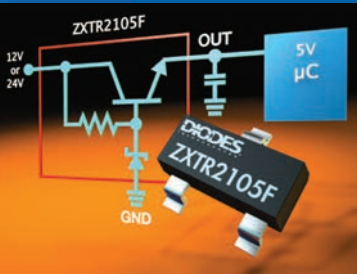
DISCRETE



- MOSFETs**
- Broad portfolio from Small-Signal to Power MOSFETs
 - 8V to 900V in Single, Dual, Complementary and H-Bridge (Quad) configurations
 - Packages from the tiny DFN0606 to the thru-hole TO220
 - Technologies: Shielded-Gate Trench (DMT), Lateral (LD-MOS), Integrated Schottky (DIOFET), UHD Trench, HV SuperJunction
 - Self-protected MOSFETs (IntelliFET) for LS and HS



- SBR® (SUPER BARRIER RECTIFIER)**
- Industry leading rectifier with ultra low Forward Voltage (V_F) and reverse leakage (I_R).
 - Low V_F for higher efficiency
 - Reduced high temperature I_R gives immunity to thermal runaway
 - Voltage ratings to 200V
 - Current ratings to 60A
 - Broad range of packages from DFN1006 to TO220



- BIPOLAR TRANSISTORS**
- Market leading technologies from 10V to 800V
 - NPN & PNP in single, duals, complementary, matched pairs, Darlingtons transistors, Pre-Bias (Digital)
 - Very low $V_{CE(SAT)}$ for improved efficiency in saturated switching applications
 - Excellent gain hold up at high peak currents for improved driving of MOSFETs



- APPLICATION-SPECIFIC DEVICES**
- High-Voltage Regulator Transistors (ZXTRxx)
 - Linear LED Drivers (BCR4xx and AL58xx)
 - Gate Driver Transistors (ZXGD30xx)
 - Relay Drivers (DRDxx)
 - Load Switches



- PROTECTION DEVICES**
- TVS for ESD protection up to 30kV on datalines inc. USB, HDMI, DVI, PCI
 - Low-capacitance TVS down to 0.2pF for high-speed
 - Available in footprints down to 0.6 x 0.3mm
 - General purpose Zener TVS from 18W to 3kW
 - Thyristor surge protection devices up to 100A



- DIODES**
- Switching diodes—single, dual, triple, quad, dual-dual
 - Zener diodes—tolerances down to $\pm 2.0\%$
 - Low leakage diodes— $I_R < 5nA$

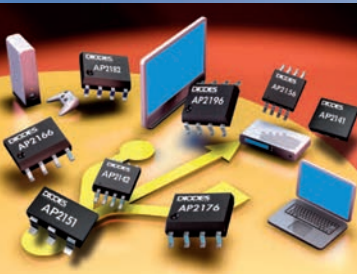
ANALOG



- AC-DC PRODUCTS FOR OFFLINE POWER SUPPLIES**
- Primary-side regulation (PSR) controllers and switches
 - High efficiency Green mode PWM controllers
 - CC and CV Controllers for secondary side regulation
 - Synchronous MOSFET Controllers and Rectifiers



- DC-DC SWITCHING REGULATORS**
- Step-down(buck), step-up(boost) and inverting devices
 - High voltage adaptive constant-on-time (COT) buck converter for improved performance
 - High efficiency, high power density switching regulators even at light loads
 - Controllers with external power FETs



- LOAD AND USB SWITCHES**
- USB and HDMI ports over-current protection
 - High-side power supply load switches for 2.7 to 5V rails
 - 0.2A to 3.0A output current range in single and dual channels
 - Active high and low enable with reverse-current, over-current and over-temperature protection
 - UL recognized and IEC 60950-1 CB Scheme certified



- DBS—LNB/SET-TOP BOX**
- Efficient STB LNB controller and power supply
 - Multiple channel bias IC for GaAs FET LNAs
 - Single chip power management and control IC for single output LNAs
 - LNB and satellite distribution controllers



- FAN AND MOTOR CONTROL**
- Highly integrated smart fan drivers —includes Hall effect sensors
 - Integrated drive switch capable of average current up to 500mA
 - Advance fan and motor pre-drivers for higher power applications
 - Solutions for input voltage from 1.8V to 28V



- LED DRIVERS**
- Simple, versatile, efficient DC-DC LED drivers
 - Offline LED drivers for retrofit lamps and other high-voltage LED lamps
 - Smart Connected Lighting solutions
 - Simple small footprint high power density Linear LED drivers
 - Small solution size LCD backlighting LED drivers

ANALOG



- OP-AMPS AND COMPARATORS**
- Industry-standard general-purpose op-amps and comparators: AS3xx/LM290x series
 - Industry-standard low-voltage general-purpose op-amps and comparators: LMV3, AZV8 and AZV3 series
 - Single, dual and quad configurations
 - Automotive Compliant LM290xQ family



- VOLTAGE REFERENCES AND SHUNT REGULATORS**
- LM4040/1 equivalents with Automotive compliant versions
 - Extra low knee current 1.2V, 2.5, 3.3 and 5V shunt references
 - 2.5V, 1.24V TL/TLV431 equivalent Shunt Regulators
 - 0.6V Single and dual Shunt Regulators
 - Extra low knee current AP431i Shunt Regulator



- LINEAR AND LOW DROPOUT VOLTAGE REGULATORS**
- Wide selection of output voltages
 - Tight tolerance over commercial and industrial temperature ranges
 - Low quiescent current
 - Low dropout voltage
 - Industry standard packages and pin-outs



- SENSORS**
- Omnipolar, Unipolar & Latch Hall effect switches
 - Automotive Compliant Hall Switch family qualified to AEC-Q100 Grade 0
 - Linear Hall Effect sensor families with low noise or micropower versions
 - Wide range of products with input voltages from 1.6V to 28V



- AUDIO AMPLIFIER**
- Output powers from 1.5W to 30W/channel
 - Filterless design allows direct drive of speakers
 - Anti-saturation and power limit functionality improves audio quality
 - Small footprint and highly integrated devices
 - Automotive Compliant versions available and in development



- CURRENT MONITORS AND SPECIAL FUNCTIONS**
- ZXCT1xx high-side Current Monitors with Automotive compliant versions
 - ZXCT1xxx: operation up to 60V with current and voltage output versions
 - MOSFET and IGBT Gate Drivers (ZXGD/DGD)
 - Relay and peripheral drivers
 - Microprocessor supervisors/reset generators (APX8xx)

MIXED-SIGNAL & LOGIC



- SWITCHING**
- High speed switches (USB2/3/3.1/C signal, HDMI/DP Video switches, VGA & LAN switches)
 - High speed signal Multiplexers
 - LVDS Receivers/Transceivers



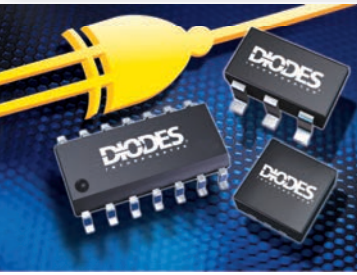
- SIGNAL INTEGRITY**
- PCIe Linear ReDrivers
 - 10Gb Ethernet Linear ReDrivers
 - USB 3.0/3.1 Linear ReDrivers
 - SATA 2.0/3.0 ReDrivers
 - SAS 2.0/3.0 Linear Combo ReDrivers
 - HDMI / Display Port ReDrivers



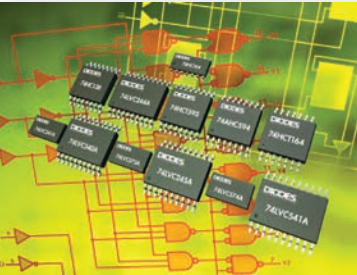
- CONNECTIVITY**
- PCIe Packet Switches
 - PCIe-PCI/PCIX Bridges
 - PCIe to UART
 - PCIe to USB/PCIe



- TIMING**
- Timing IC (Clock generators, Buffers, 555)
 - Real time clocks
 - Crystals and crystal oscillators (XO, VCXO, TCXO)



- GENERAL LOGIC**
- Single-gate, dual-gate, standard logic and shift registers
 - Eight technology families - LV, LVC/E, AHC/T, AUP, HC/T
 - DFN0808, DFN1010, DFN1410, QFN4525, SOT25/26/353/363/553, SO-14/-16, TSSOP-14/-16/-20



- SPECIAL LOGIC**
- Universal Level Shifter / Voltage Translators
 - Analog switches
 - Registers and multiplexers
 - Buffers, Transceivers and Line Drivers
 - I/O Expanders