

# Company Overview



# About Vishay Intertechnology



## GROWTH THROUGH INNOVATIONS AND ACQUISITIONS

Vishay Intertechnology was founded in 1962 by Dr. Felix Zandman, with the financial support of Alfred P. Slaner. The Company was named after the village in Lithuania where relatives of Dr. Zandman and Mr. Slaner had perished during the Holocaust. The Company began operations with one technology that had two product lines: foil resistors and foil resistance strain gages. In 1985, having grown from a start-up into the world's leading manufacturer of these original products, the Company began an ongoing series of strategic acquisitions to become a broad-line manufacturer of electronic components. Today, Vishay Intertechnology is one of the world's largest manufacturers of discrete semiconductors and passive electronic components.

As Vishay Intertechnology grew through innovations and acquisitions, its resistive foil technology products (mostly strain gage transducers) became non-core businesses in terms of R&D, marketing, and sales. In July 2010, Vishay Intertechnology completed the spin-off of these non-core businesses into an independent company listed on the New York Stock Exchange: Vishay Precision Group. Vishay Intertechnology is now a "pure-play" electronic components Company.

Vishay Intertechnology's acquisitions include such top names as Siliconix, Telefunken, the infrared components business of Infineon, General Semiconductor, Dale, Draloric, Sprague, Vitramon, and BCcomponents (former passive components businesses of Philips Electronics and Beyschlag). In 2007, Vishay Intertechnology acquired selected discrete semiconductor and module product lines from International Rectifier®. Subsequent acquisitions include a specialty tantalum capacitor product line from KEMET.

Vishay Intertechnology components are used in virtually all types of electronic devices and equipment, in the industrial, computer, automotive, consumer, telecommunications, military, aerospace, power supplies, and medical markets. Vishay Intertechnology's global footprint includes manufacturing facilities in China and four other Asian countries, Israel, Europe, and the Americas, as well as sales offices around the world.

## Strategic Acquisitions

<b>2008</b>	KEMET: Wet tantalum capacitor business	<b>2000</b>	Cera-Mite Electro-Films Spectrol
<b>2007</b>	International Rectifier®: PCS business	<b>1998</b>	Siliconix Telefunken
<b>2002</b>	BCcomponents Beyschlag	<b>1994</b>	Vitramon
<b>2001</b>	General Semiconductor Infineon: Infrared components business Mallory (NACC) Tansitor	<b>1993</b>	Roederstein
		<b>1992</b>	Sprague
		<b>1988</b>	Sfernice
		<b>1987</b>	Draloric
		<b>1985</b>	Dale

## DRIVE FOR CUSTOMER SATISFACTION

Vishay Intertechnology has a diverse portfolio of semiconductors and passive components, including diodes, MOSFETs (metal-oxide semiconductor field-effect transistors), optoelectronic products, selected integrated circuits (ICs), resistors, inductors, and capacitors. This enables Vishay Intertechnology to provide "one-stop shop" service and offer many different parts for each customer design.

R&D programs throughout all Company divisions generate a steady stream of new components to help designers create innovative end products — from lightweight tablet PCs and e-book devices to hybrid and fully electric vehicles to wind and solar power systems. A number of Vishay Intertechnology components are patented and protected by trademarks. Components less than five years old provide a significant percentage of the Company's total revenue.

Vishay Intertechnology manufactures components in lead (Pb)-free, RoHS-compliant, and halogen-free categories, as well as components that meet its own definition of "green." Its innovations in technology, successful acquisition strategy, superior product quality, and "one-stop shop" service to customers have made the Company a global industry leader.

## Market and Technology Leader

### Semiconductors

- Power rectifiers
- Low-voltage power MOSFETs
- Infrared components

### Passive Components

- Wirewound and other power resistors
- Leaded film resistors
- Thin film SMD resistors
- Wet and conformal-coated tantalum capacitors
- Capacitors for power electronics

# Vishay Intertechnology Products

## SEMICONDUCTORS

Vishay Intertechnology manufactures several kinds of discrete semiconductors. These typically perform a single function, such as switching, amplifying, rectifying, or transmitting electrical signals. Vishay Intertechnology also manufactures selected ICs, which combine the functions of multiple components on a single chip, as well as modules, which include multiple components in a single package.

Vishay Intertechnology's semiconductors portfolio includes MOSFETs (both low-voltage and high-voltage), ICs (both power and analog), a wide range of diodes and rectifiers, and many different types of optoelectronic products. It is a market and technology leader in power rectifiers, low-voltage power MOSFETs, and infrared components.

### Semiconductor Brands

[Vishay General Semiconductor](#)  
[Vishay Semiconductors](#)  
[Vishay Siliconix](#)

### MOSFETs

Vishay Siliconix low-voltage power MOSFETs are used to manage, switch, and convert power in computers, mobile phones, consumer systems, communications infrastructure, computer disk drives, and automotive systems. Vishay Intertechnology is a market and technology leader in low-voltage power MOSFETs. Its MOSFETs portfolio has been expanded to include models with high voltages (up to 1000 V) that meet new efficiency requirements in industrial, telecommunications, and consumer applications.

Milestones include the first power MOSFETs built on a Trench silicon process (TrenchFET®). Trench technology, invented by Siliconix, has been licensed to a number of other major companies and has become an industry standard. Other milestones include the first power MOSFETs offered in small-outline, surface-mount packages (LITTLE FOOT®), new package options for better thermal performance (PowerPAK® and PolarPAK®) and smaller footprints (ChipFET® and MICRO FOOT®), the PowerPAIR™ package, which combines a low-side and high-side MOSFET, the SkyFET® package, which combines a MOSFET and Schottky diode, and TrenchFET Gen III p-channel technology, which packs one billion transistor cells into each square inch of silicon.

### Power and Analog ICs

Vishay Siliconix products also include power ICs, as well as analog switches and multiplexers. Products that integrate a power IC and optimized MOSFETs in a single package meet demands for energy efficiency in computing and communications applications. Analog switching ICs support emerging applications in the consumer market, as well as high-precision applications in the industrial, instrumentation, and medical markets.

## Diodes and Rectifiers

Rectifier diodes convert alternating current (ac) into direct current (dc). Power rectifiers are used in the power supplies of practically all electronic systems. Vishay Intertechnology industry-first TMBS® rectifiers reduce power losses and improve efficiency in computer, consumer, industrial, telecommunications, and other applications. FRED Pt® ultrafast recovery rectifiers improve efficiency in switch mode power supply (SMPS) applications. eSMP® components provide industry-leading high-current-density performance. Vishay Intertechnology's product portfolio also includes switching diodes, small-signal Schottky diodes, voltage regulating and Zener diodes, transient voltage suppressors (TVS), and silicon-controlled rectifiers (SCRs). Vishay Intertechnology is a market and technology leader in power rectifiers.

## Optoelectronics

Vishay Intertechnology's optoelectronics portfolio includes infrared (IR) receivers used in consumer electronics for remote control and in industrial applications for long-range sensing of objects; optocouplers and solid-state relays to transmit data, to control valves, motors, and solenoids, and to drive high-voltage IGBTs and MOSFETs; and infrared emitters and detectors for TV remote controls, 3D TV synchronization, smoke detectors, and a host of industrial applications. Vishay Intertechnology's product portfolio also include phototransistors and PIN photodiodes to detect visible and infrared light; optical sensors, which determine the presence or proximity of objects; LEDs for a variety of automotive and industrial lighting applications; and infrared data communications devices for short-range, wireless data transfer. Vishay Intertechnology is a market and technology leader in infrared components.

## PASSIVE COMPONENTS

Vishay Intertechnology is a market and technology leader in several categories of the passive components used in virtually all electronic systems. Passive components from Vishay Intertechnology are used to store electrical charges, to limit or resist electrical current, and to help in filtering, surge suppression, measurement, timing, and tuning applications.

### Passive Component Brands

[Vishay BCcomponents](#)  
[Vishay Beyschlag](#)  
[Vishay Cera-Mite](#)  
[Vishay Dale](#)  
[Vishay Draloric](#)  
[Vishay Electro-Films](#)  
[Vishay ESTA](#)  
[Vishay Roederstein](#)

[Vishay Sfernice](#)  
[Vishay Spectrol](#)  
[Vishay Sprague](#)  
[Vishay Thin Film](#)  
[Vishay Vitramon](#)  
and others...





## Resistors

Resistors are used in all electronic circuits to restrict current flow. Vishay Intertechnology is a market and technology leader in many types of resistors. Resistive products manufactured by Vishay Intertechnology include single (discrete) resistors based on thin film, thick film, metal electrode leadless face (MELF), metal oxide film, plastic film, carbon film, and wirewound technologies, as well as resistor networks and arrays, in which multiple resistors are combined in a single package. Vishay Intertechnology also manufactures non-linear resistors, which suppress voltage increases due to temperature and voltage changes, as well as potentiometers, trimmers, sensors, and resistive transducers.

Vishay Intertechnology innovations include industry-first Power Metal Strip® resistors for precision current monitoring of sensitive circuits, such as those in electric power meters, industrial systems, and automotive electronic controls for engines, transmissions, and pollution reduction systems. Patented WSL® and WSR® Power Metal Strip resistors are ideal for all types of current sensing, voltage division, and pulse applications.

Other innovations include industry-first precision thin film surface-mount resistor networks with custom circuit capabilities, thick film power resistors with compact footprints that are ideal for use in wind power systems, and chip fuses for overcurrent protection in mobile devices.

## Inductors and Other Magnetics

Vishay Dale inductors and transformers are used in a wide variety of applications, from RF signal filtering to dc-to-dc power conversion. With an offering that ranges from miniature chip inductors to complex, multi-terminal devices, Vishay Intertechnology has one of the broadest standard product lines of any magnetics manufacturer. Vishay Intertechnology is recognized as a market leader in custom magnetics used in implantable medical devices, instrumentation equipment, avionics and aerospace controls, and other end products.

Vishay Intertechnology also provides crystals, oscillators, and specialized coaxial and edgeboard connectors.

Vishay Intertechnology innovations include patented IHLP® inductors, which feature higher frequency operation, higher current ratings, and smaller sizes than competing devices. These inductors are used primarily in power supplies, but also extensively in computing, telecommunications, and automotive applications.

## Capacitors

Capacitors are used in almost all electronic circuits to store energy and discharge it when needed. Applications include power conversion, dc-linking, frequency conversion, bypass, decoupling, and filtering. Vishay Intertechnology is a market and technology leader in wet tantalum and conformal-coated tantalum chip capacitors, as well as capacitors for power electronics. It is also one of the largest manufacturers of molded tantalum SMD capacitors.

Types of capacitors manufactured by Vishay Intertechnology include tantalum (both solid and wet), ceramic (both multilayer chip and disk), film, power, heavy-current, and electrolytic aluminum. Vishay Intertechnology capacitors range from tiny surface-mount devices for hearing aids and mobile phones to large heavy-current capacitors used in industrial applications.

Vishay Intertechnology innovations include metallized film power capacitors with the highest RMS current rating for their size in the industry, multilayer ceramic chip capacitors that prevent surface arc-over and component damage at high voltages, MICROTAN® tantalum capacitors with proprietary multi-array packaging (MAP) that provides a significant reduction in DC leakage and better stability, the industry's first wet tantalum capacitors in true surface-mountable molded packages for mission-critical applications, and more.



# Product Listing



## SEMICONDUCTORS

### Rectifiers

- Schottky (single, dual)
- Standard, Fast, and Ultra-Fast Recovery (single, dual)
- Bridge
- Superectifier®
- Sinterglass Avalanche Diodes

### High-Power Diodes and Thyristors

- High-Power Fast-Recovery Diodes
- Phase-Control Thyristors
- Fast Thyristors

### Small-Signal Diodes

- Schottky and Switching (single, dual)
- Tuner/Capacitance (single, dual)
- Bandswitching
- PIN

### Zener and Suppressor Diodes

- Zener (single, dual)
- TVS (TRANSZORB®, Automotive, ESD, Arrays)

### MOSFETs

- Low-Voltage TrenchFET® Power MOSFETs
- High-Voltage TrenchFET® Power MOSFETs
- High-Voltage Planar MOSFETs

### Optoelectronics

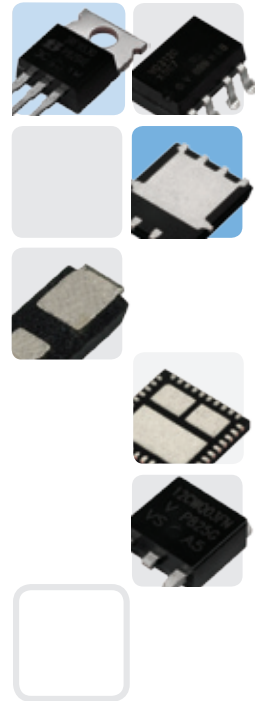
- IR Emitters and Detectors, and IR Receiver Modules
- Optocouplers and Solid-State Relays
- Optical Sensors
- LEDs and 7-Segment Displays
- Infrared Data Transceiver Modules
- Custom Products

### ICs

- Power ICs
- Analog Switches

### Modules

- Power Modules (contain power diodes, thyristors, MOSFETs, IGBTs)



## PASSIVE COMPONENTS

### Resistive Products

- Film Resistors
  - Metal Film Resistors
  - Thin Film Resistors
  - Thick Film Resistors
  - Metal Oxide Film Resistors
  - Carbon Film Resistors
- Wirewound Resistors
- Power Metal Strip® Resistors
- Chip Fuses
- Variable Resistors
  - Cermet Variable Resistors
  - Wirewound Variable Resistors
  - Conductive Plastic Variable Resistors
- Networks/Arrays
- Non-Linear Resistors
  - NTC Thermistors
  - PTC Thermistors
  - Varistors

### Magnetics

- Inductors
- Transformers

### Capacitors

- Tantalum Capacitors
  - Molded Chip Tantalum Capacitors
  - Coated Chip Tantalum Capacitors
  - Solid Through-Hole Tantalum Capacitors
  - Wet Tantalum Capacitors
- Ceramic Capacitors
- Multilayer Chip Capacitors
- Disc Capacitors
- Film Capacitors
- Power Capacitors
- Heavy-Current Capacitors
- Aluminum Capacitors





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