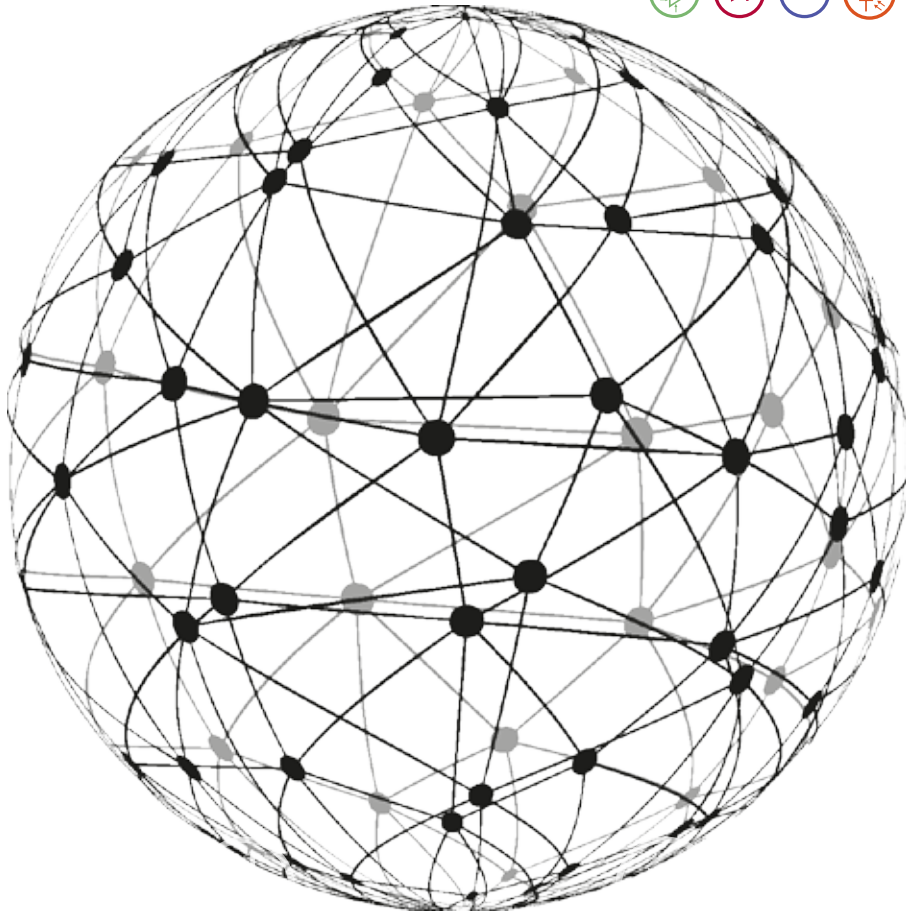




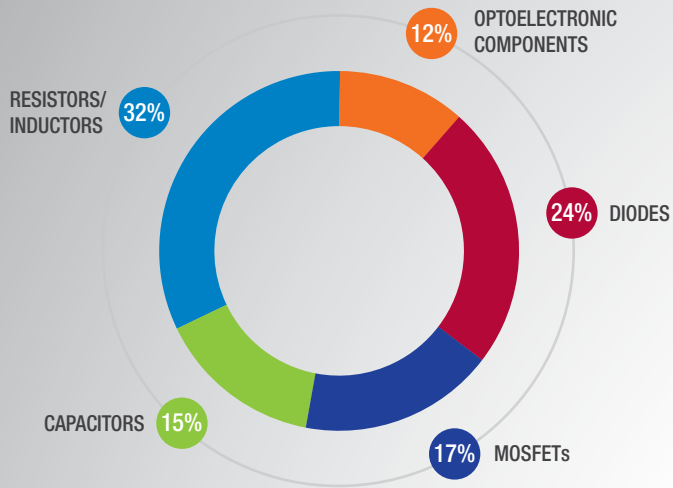
VISHAY INTERTECHNOLOGY, INC.

# 2016 ANNUAL REPORT

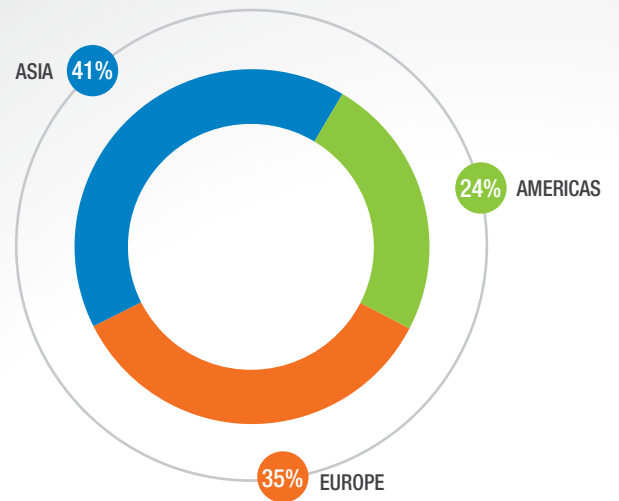
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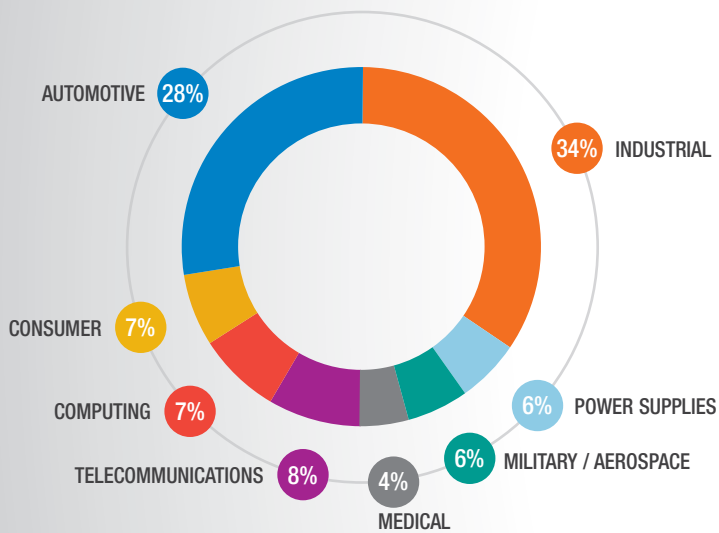
## 2016 SALES BY SEGMENT



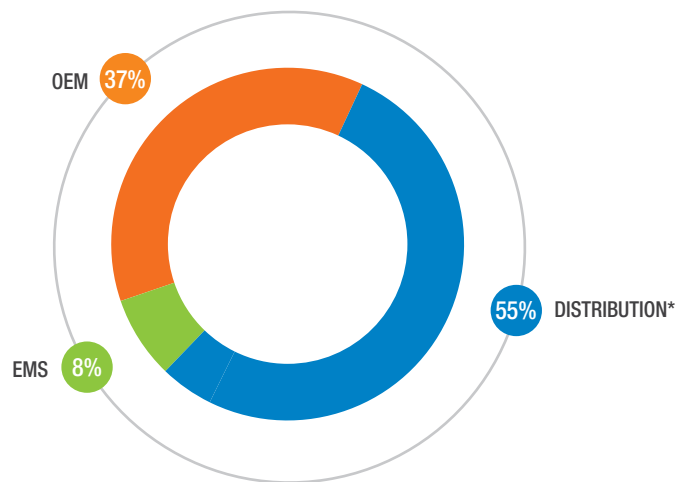
## 2016 SALES BY REGION



## 2016 SALES BY END MARKET



## 2016 SALES BY SALES CHANNEL



\*Distribution includes Logistics Service Providers with 5%

# EXECUTIVE CHAIRMAN

## MARC ZANDMAN

Vishay's performance in 2016 demonstrated that the Company is back on track after a less satisfactory year 2015. Our focus on stockholder value continued in 2016. Our generation of "free cash" (\$167 million in 2016 and over \$100 million per year for the past 11 years) enhanced our ability to pay dividends and repurchase stock. Vishay declared quarterly dividends in February, May, August, and November of 2016. The dividend declared in February reflected a 4% increase over the previous quarter's dividend.

In May 2016, Vishay announced a \$100 million stock repurchase authorization. Vishay bought back 1.75 million shares for \$23.2 million under the program in 2016. The stock buyback authorization, along with Vishay's decision to increase the quarterly dividend, was a further expression of the Company's commitment to enhance total stockholder return over the long term. It demonstrated our confidence in our long-term cash flows and strong balance sheet, as well as our ability to continue both to invest in the Company's Growth Plan and return capital to stockholders.

Vishay remains in a strong position to grow through acquisitions. While we did not make any new acquisitions in 2016, we have continued to review and assess acquisition targets.

Vishay is a financially strong company with industry-leading products and good prospects for the future. Since the Company's founding in 1962, it has been a technology leader. I am optimistic about 2017 and feel that, for Vishay, the best is yet to come.

I offer my sincere thanks to Vishay's employees for their continuous high standards and dedication to the Company, and to our customers, vendors, strategic business partners, and stockholders for believing in Vishay.

**MARC ZANDMAN**  
Executive Chairman  
of the Board



A handwritten signature in black ink that reads "Marc Zandman".

# CHIEF EXECUTIVE OFFICER

## DR. GERALD PAUL

Vishay had a relatively successful year in 2016. Supported by a generally friendly economic environment and through its own efforts, Vishay improved its financial performance year over year. Vishay generated "free cash" of \$167 million, which represents its best performance in five years. This has traditionally been a bright spot for Vishay, which has consistently generated in excess of \$100 million in "free cash" in each of the past 11 years.

In 2016, we were again able to offset the negative impact of inflation and price decline on the contributive margin through cost reduction and innovation. Also, the negative effect of inflation on our total fixed costs in COGS and SG&A was again compensated for by our general cost reduction programs and our specific restructuring activities. In 2016, we successfully completed our initial MOSFETs enhanced competitiveness program and then extended it.

In 2016, apart from proving our operational strength in pursuing and completing major operational targets such as tight control of fixed and variable costs, we also benefited from the revenue growth in the automotive and industrial

segments in Asia. This growth was the result of our design wins over the last years as part of our Asia growth plan. We are confident that we will continue to grow in Asia in these key market segments and reap the benefits of our technical sales activities.

Vishay is well positioned to face upcoming challenges and take advantage of opportunities. We will continue our successful cost reduction programs, continue to grow organically, and remain on the lookout for targeted acquisitions.

I thank all Vishay's employees, customers, vendors, strategic business partners, and stockholders for their support during 2016. I look forward to continued success in 2017.

**DR. GERALD PAUL**  
Chief Executive Officer



A handwritten signature in black ink that reads "G. Paul".

# COMPANY ROOTS

Dr. Felix Zandman, with a loan from his cousin Alfred P. Slaner, founded Vishay in 1962 to develop and manufacture Bulk Metal® foil resistors. The Company was named after Dr. Zandman's ancestral village in Lithuania, in memory of family members who perished in the Holocaust. When Dr. Zandman passed away in 2011, he left a lasting legacy. His high standards and values are embedded in Vishay's culture. They positively influence the ethical business practices implemented by Vishay personnel across the globe every day.

During the 1960s and 1970s, Vishay became known as the world's leading manufacturer of foil resistors, PhotoStress® products, and strain gages. These products later became part of Vishay Precision Group (NYSE: VPG), which was spun off as an independent, publicly traded company in 2010.



## THE COMPANY VISHAY INTERTECHNOLOGY

### GLOBAL INDUSTRY LEADER

Vishay discrete semiconductors and passive components are used today by virtually all major manufacturers of electronic products worldwide, in the industrial, automotive, consumer, telecommunications, military, aerospace, power supply, and medical markets. Vishay components are inside products and systems used every day, from automobiles to ultra-high-voltage transmission systems to smartphones to airplanes to pacemakers. In addition, Vishay has demonstrated an ability to customize components to meet specific customer needs.

Vishay is very well positioned to provide components for new macroeconomic growth drivers such as connectivity, mobility, and sustainability.

Vishay's global footprint includes manufacturing plants in the Americas, Asia, Europe, and Israel, as well as sales offices worldwide. Vishay's technology innovations, acquisition strategy, focus on cost control, "one-stop shop" service to customers, and custom design capabilities have made it a global industry leader.

### ACQUISITIONS

Vishay has a strong track record of strategic acquisitions. These include Dale® Electronics, Draloric® Electronic, Sfernice, Sprague® Electric, Roederstein®, Vitramon®, BCcomponents®, the Semiconductor Business Group of TEMIC® (Telefunken and Siliconix), the infrared component business of Infineon Technologies, General Semiconductor®, selected product lines from International Rectifier®, Huntington Electric, HiRel Systems, MCB Industrie, Holy Stone Polytech, and Capella Microsystems.

# PASSIVE COMPONENTS

Passive components do not require a power supply to handle the signals that pass through them. They are used to store electrical charges, limit or resist electrical current, and help in filtering, surge suppression, measurement, timing, and tuning applications.



## RESISTORS

Resistors limit current flow. Vishay manufactures many different types of resistive products, including single (discrete) resistors based on film, wirewound, Power Metal Strip®, and other technologies, as well as resistor networks and arrays, in which multiple resistors are combined in a single package. Vishay also manufactures battery management shunts, chip fuses, pyrotechnic initiators/igniters, variable resistors (including potentiometers), and non-linear resistors (including thermistors, used for current protection and temperature sensing).



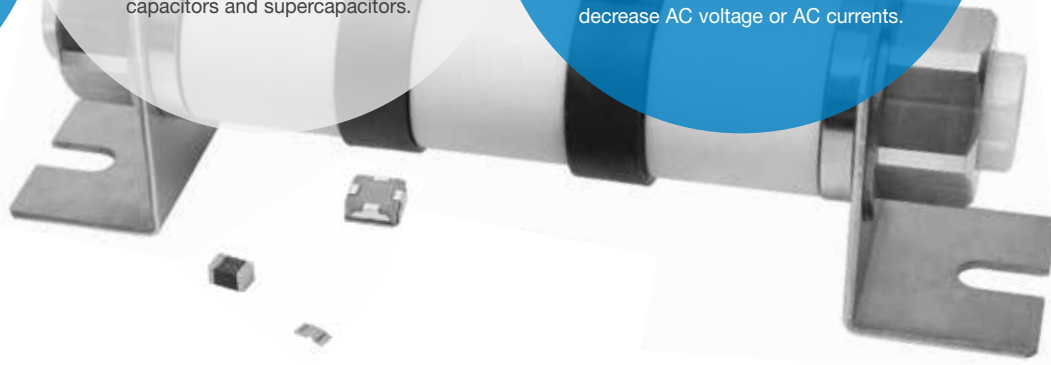
## CAPACITORS

Capacitors store energy and discharge it when needed. Applications include power conversion, DC-linking, frequency conversion, bypass, decoupling, and filtering, and serving as backup energy sources. Types of capacitors manufactured by Vishay include tantalum (solid, wet, and molded polymer), ceramic (both multilayer chip and disc), film, power, heavy-current, aluminum electrolytic, and, most recently, hybrid energy storage capacitors and supercapacitors.



## INDUCTORS AND TRANSFORMERS

Inductors use an internal magnetic field to change alternating current (AC) phase, resist AC current, and filter out unwanted electrical signals. Vishay innovations include IHLP® power inductors, which outperform competing devices. Transformers are made up of two or more inductors on a common core of magnetic material. Transformers increase or decrease AC voltage or AC currents.



# SEMICONDUCTORS

Semiconductors typically perform the function of switching, amplifying, rectifying, or transmitting electrical signals. Semiconductors are referred to as “active” components because they require power to function.



## DIODES AND RECTIFIERS

Diodes are used in a wide range of electronic systems to route, regulate, and block radio frequency (RF), analog, and power signals and also to protect systems from surges or electrostatic discharge (ESD) damage, as well as provide electromagnetic interference (EMI) filtering. Rectifiers are used to convert AC into direct current (DC), a unidirectional current required for operation of many power electronic systems. For example, a bridge rectifier is used in a phone charger to change the AC voltage from a wall outlet to a specific DC voltage.



## INFRARED OPTOELECTRONICS

Optoelectronic components emit light, detect light, or do both. Vishay's broad range of optoelectronic components includes infrared (IR) emitters and detectors; IR remote control receivers; optical sensors for detection; optocouplers and solid-state relays for circuit isolation; LEDs for light sources; 7-segment displays; IR data transceiver modules for wireless, two-way data transfer; and custom products.



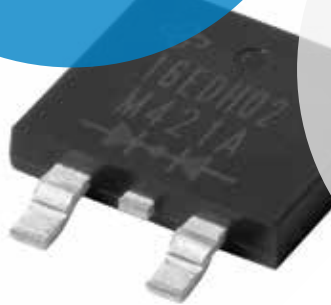
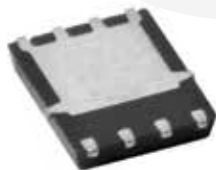
## MOSFETS

Metal oxide semiconductor field-effect transistors (MOSFETs) function as solid-state switches to control power. They enable power conversion into levels required by other components or act as load switches to turn off specific functions or power supplies in smartphones when they are not in use, thereby extending battery life. Vishay offers low-voltage TrenchFET® power MOSFETs, medium-voltage power MOSFETs, high-voltage planar MOSFETs, high-voltage superjunction MOSFETs, and automotive-grade MOSFETs.



## INTEGRATED CIRCUITS (ICs)

Integrated circuits (ICs) combine the functions of multiple semiconductors and passive components on a single chip. IC products from Vishay are focused on analog signal switching and routing, power conversion, power management, and integrated smart power solutions. They are used in end products such as tablets, notebooks, and desktop computers; game consoles; smartphones; fixed telecommunications systems; and other products and systems.



# DIVERSE MARKETS

Vishay Intertechnology supports customers in virtually every major market sector. Types of components manufactured by Vishay are found inside the electronic products and systems used every day, around the world. Vishay components are well suited for use in the Internet of Things (IoT), in which data is sent back and forth between devices, which can include everything from household appliances to large industrial equipment.

## AUTOMOTIVE

Vishay components are used in a wide variety of automotive systems including fuel pump control, engine control, exhaust emission control, heating/ventilation/air conditioning, steering, braking and active safety control, transmission, stop/start, lighting, airbag control, infotainment, advanced driver assistance, navigation, battery management, traction inverters and battery chargers for electric cars, and energy recuperation. Vishay manufactures many components that operate at high temperatures and are ideal for use in under-the-hood applications.

## INDUSTRIAL

Vishay components help to manage and convert power, drive and control motors, sense temperature, provide accurate current measurement, and perform other key tasks in factory automation, high-power furnaces, machine-to-machine communications, electric power grid and power distribution systems, wind and solar power systems, and smart meters. Vishay products are also utilized in smoke detectors, oil and gas exploration equipment, trains, heating and air conditioning systems, test and measurement equipment, escalators and elevators, lighting ballasts, power tools, welding equipment, 3D printers for rapid prototyping, and other industrial equipment and systems.

## POWER SUPPLIES

Adapters, converters, battery chargers, and uninterruptible power supplies (UPS) handle electric current from main power grids and batteries and adjust it for use by all types of devices — from small, portable products to large industrial equipment. Power supplies must meet various power quality, efficiency, energy saving, and safety regulations. Their capabilities range from very low (milliwatts) to very high (kilowatts). Vishay components are used in power factor correction, EMI suppression, inrush protection, and other applications.



54  
min



## MILITARY AND AEROSPACE

Vishay manufactures one of the industry's broadest lines of military-qualified resistors and capacitors, as well as a number of other components that meet the stringent needs of military and aerospace customers for high-reliability performance. Vishay components are used in applications in flight, cockpit, and cabin equipment in aircraft and helicopters; drones; navigation and weather satellites; radar and sonar units; radio and satellite communications; guidance systems; and more. For example, Vishay diodes, rectifiers, thermistors, LCD displays, and inductors are used in flight control computers.



## CONSUMER

Types of components manufactured by Vishay are used in home appliances and systems including air conditioners, washing machines and dryers, refrigerators and freezers, robotic vacuum cleaners and lawn mowers, and home automation systems. In addition, they are found in entertainment and lifestyle products including TVs, e-book readers, game consoles, virtual reality/augmented reality (VR/AR) devices, set-top boxes, smart watches, fitness bands, and more. For example, Vishay components are used in LCD TVs for power conversion, EMI filtering, rectification, power factor correction, analog/digital signal switching, audio amplification, interface protection, infrared receiving, and gesture recognition.



## COMPUTING

Vishay components are found in notebooks, tablets, desktop computers, embedded systems, solid-state discs, switches and routers, and network servers. They manage power, filter out unwanted electrical signals, enable power backup, and perform other important circuit functions. In portable computing devices, they convert power; monitor power usage; extend battery life; enable short-range, two-way, wireless connectivity; and support other functions. They also are found in peripherals including printers, photocopiers, and wireless chargers. Vishay advantages include power efficiency, high power ratings, high surge current capabilities, and long life.





The image shows a close-up of a medical monitor displaying an ECG waveform. A purple circular graphic is overlaid on the left side of the monitor. The monitor's display includes the following data points: ECG, HEART RATE 81 bpm, SYSTOLIC 89 mmHg, DIASTOLIC 60 mmHg, MEAN 87 mmHg, AUG. 117 mmHg, and AUG. ALARM 100 mmHg. A small icon of a defibrillator is visible at the bottom of the screen.

## MEDICAL

High tech medical electronics play an important role in people's lives. From large equipment such as MRI systems and X-ray machines to smaller devices such as finger pulse rate monitors and hearing aids, medical products and systems use types of components manufactured by Vishay. They are used in nerve stimulators, pacemakers, defibrillators, patient monitoring systems, medical instrumentation equipment, blood pressure cuffs, blood glucose meters, and more. Vishay is a leading manufacturer of telemetry coils for pacemakers and defibrillators and transformers for defibrillators, as well as capacitors for implantable devices and hearing aids.



The image shows several telecommunications towers against a light blue sky. An orange circular graphic is overlaid on the left side of the towers. The towers are made of metal lattice and have various antennas and equipment mounted on them.

## TELECOMMUNICATIONS

Vishay components are used in both portable devices and telecommunications infrastructure. Vishay components for handheld telecommunications devices and wearables support a number of functions including radio frequency modulation, power amplification, transmission, receiving, charge control, DC/DC conversion, load control, sensing, and peripheral connectivity. To cite just one example, Vishay components improve efficiency and increase battery life in mobile phones. They also are used for EMI filtering, line card protection, and other applications in transmission systems, base stations, and access infrastructure.

# VISHAY'S BLUE CHIP CUSTOMERS AND DISTRIBUTORS

ABB®	General Electric®	Schneider™
Apple®	Gree®	Seagate®
Arrow®	Harman®	Siemens®
Avnet®	Hella®	Sony®
Benchmark™	Honeywell®	TTI®
Bosch®	HP®	Tomen
Boston Scientific®	Huawei™	Valeo®
Celestica®	Jabil®	Weikeng
Cisco®	Lenovo®	Wistron®
Continental®	LG Electronics®	WPG®
Delphi®	Lite-On®	Xiaomi®
Delta®	Medtronic®	Zenitron
Denso®	Philips®	ZF® Group
Digi-Key®	Plexus®	
Ericsson®	Quanta®	...and others
Flex®	Rutronik®	
Foxconn®	Samsung®	
Future®	Sanmina®	

## DRIVING STOCKHOLDER VALUE

Vishay is focused on driving stockholder value. It is doing this through organic growth, supplemented by targeted acquisitions, a regular cash dividend program, and opportunistic stock buybacks, while at the same time maintaining a prudent capital structure. Vishay continues to be a reliable generator of “free cash” (the amount of cash generated from operations in excess of capital expenditures and net of proceeds from the sale of assets). Vishay has consistently generated in excess of \$100 million in “free cash” in each of the past eleven years.

## RECENT INDUSTRY AWARDS

- *EDN* Hot 100 Product Award
- *Electronic Products* Product of the Year Award
- *Selezione di Elettronica* Innovation Award
- *OFweek* LED Award
- *Electronic Products China* Top-10 Power Product Award
- *EDN China* Innovation Award
- Delphi Automotive Pinnacle Awards for Supplier Excellence
- TTI Supplier Excellence Awards: The Americas, Europe, and Asia
- Flextronics Strategic Supplier Award
- *CEM* Editors' Choice Awards
- SPDEI (French Association of Distributors of Electronic Components) Award
- *Electronic Design* Top 101 Components
- *EEPW* Power Supply Products Award

# CORPORATE INFORMATION

## BOARD OF DIRECTORS

### Marc Zandman

Executive Chairman of the Board  
Chief Business Development Officer  
Vishay Intertechnology, Inc.

### Dr. Abraham Ludomirski

Founder and Managing Director of  
Vitalife Fund, a venture capital company  
specializing in high tech electronic  
medical devices

### Frank D. Maier

Retired Managing Director  
TEMIC GmbH

### Dr. Gerald Paul

President  
Chief Executive Officer  
Vishay Intertechnology, Inc.

### Ronald M. Ruzic

Retired Group President  
BorgWarner Automotive, Inc.

### Ziv Shoshani

President  
Chief Executive Officer  
Vishay Precision Group, Inc.

### Timothy V. Talbert

Senior Vice President  
Credit and Originations Lease Corporation  
of America ("LCA")  
President  
LCA Bank Corporation

### Thomas C. Wertheimer

Accounting Consultant,  
previously partner of  
PricewaterhouseCoopers LLP

### Ruta Zandman

Private Stockholder  
Vishay Intertechnology, Inc.

### Raanan Zilberman

President  
Chief Executive Officer  
Caesarstone Ltd.

## HONORARY EXECUTIVE CHAIRMAN OF THE BOARD

### Dr. Felix Zandman

(Deceased June 4, 2011)

## EXECUTIVE OFFICERS

### Marc Zandman

Executive Chairman of the Board  
Chief Business Development Officer

### Dr. Gerald Paul

President  
Chief Executive Officer

### Johan Vandoorn

Executive Vice President  
Chief Technical Officer  
Deputy to the CEO

### Lori Lipcaman

Executive Vice President  
Chief Financial Officer

### David Valletta

Executive Vice President  
Worldwide Sales

### Clarence Tse

Executive Vice President  
Business Head Semiconductors

### Joel Smejkal

Executive Vice President  
Business Head Passive Components

### Werner Gebhardt

Executive Vice President  
Human Resources

## CORPORATE OFFICE

Vishay Intertechnology, Inc.  
63 Lancaster Avenue  
Malvern, PA 19355-2120  
Phone: 610-644-1300  
Fax: 610-296-0657  
www.vishay.com

## ANNUAL MEETING

May 23, 2017 at 9:30 a.m.  
Vishay Intertechnology, Inc.  
Auditorium  
63 Lancaster Avenue  
Malvern, PA 19355-2120

## STOCKHOLDER ASSISTANCE

For information about stock transfers, dividend payments, address changes, account consolidation, registration changes, lost stock certificates, and Form 1099, please contact the Company's Transfer Agent and Registrar.

### Transfer Agent and Registrar

American Stock Transfer & Trust Company  
59 Maiden Lane  
New York, NY 10038  
Phone: 800-937-5449  
Fax: 718-921-8331  
Email: info@amstock.com

For other information or questions, please contact Investor Relations at (610) 644-1300.

### Common Stock

Ticker symbol: VSH  
The common stock is listed and principally traded on the New York Stock Exchange.



### Duplicate Mailings

If you receive more than one Annual Report and Proxy Statement and wish to help us reduce costs by discontinuing multiple mailings, please contact our Transfer Agent American Stock Transfer & Trust Company.

### Electronic Proxy Materials

You can receive Vishay Intertechnology's Annual Report and proxy materials electronically, which will give you immediate access to these materials, and will save the Company printing and mailing costs. If you are a registered holder (you own the stock in your name), and wish to receive your proxy materials electronically, please go to [www.icsdelivery.com/vsh](http://www.icsdelivery.com/vsh). If you are a street holder (you own this stock through a bank or broker), please contact your broker and ask for electronic delivery of Vishay Intertechnology's proxy materials.



VISHAY INTERTECHNOLOGY, INC.



## ***CORPORATE HEADQUARTERS***

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