



VISHAY INTERTECHNOLOGY, INC.

HEAVY-CURRENT CAPACITORS

Vishay ESTA



CAPACITORS

MARKET SOLUTIONS

SEMICONDUCTORS

RECTIFIERS

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

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

Power MOSFETs
 JFETs

RF TRANSISTORS

Bipolar Transistors (AF and RF)
 Dual Gate MOSFETs
 MOSMICs®

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
 DC/DC Converters
 RF Transceivers
 ICs for Optoelectronics

PASSIVE COMPONENTS

RESISTIVE PRODUCTS

Foil Resistors
 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
 Silicon RF Capacitors

STRAIN GAGE TRANSDUCERS AND STRESS ANALYSIS SYSTEMS

PhotoStress®
 Strain Gages
 Load Cells
 Force Transducers
 Instruments
 Weighing Systems
 Specialized Strain Gage Systems

Heavy-Current Capacitors

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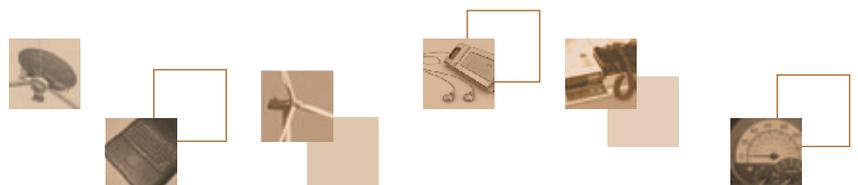
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Introduction

About Vishay Intertechnology



Vishay was founded in 1962 to manufacture and market foil resistors, an invention of physicist Dr. Felix Zandman, Chairman of the Board and founder. The Company began operations with foil resistors and strain gages as its initial product offerings. In 1985, having grown from a start-up into the world's leading manufacturer of these original products, Vishay began an ongoing series of strategic acquisitions to broaden its product portfolio.

Broad-Line Manufacturer, Global Presence

Today, Vishay is a broad-line manufacturer with a global presence. It is one of the world's largest manufacturers of discrete semiconductors and passive electronic components. Vishay's acquisitions include the infrared component business of Infineon and such top names as Siliconix, Dale, Draloric, Sprague, Vitramon, and BCcomponents (the former passive components business of Philips Electronics and Beyschlag).

Innovations in Technology

Over the years, Vishay's R&D efforts have led to a steady stream of technological breakthroughs and innovative products. These include packageless power MOSFETs, the industry's first silicon-based RF capacitors, dc-to-dc converter modules with all the active and passive components required for a complete power conversion solution, high-current IHLP inductors, Power Metal Strip® resistors, and many more.

Leading Industry Rankings

Vishay's global footprint includes manufacturing facilities in China and other Asian countries, Israel, Europe, and the Americas, as well as sales offices around the world. Vishay has market shares ranging from substantial to number-one for each of its products.

Discrete Semiconductors

Number 1 worldwide in low-voltage power MOSFETs
Number 1 worldwide in rectifiers
Number 1 worldwide in glass diodes
Number 1 worldwide in infrared components
...and others

Passive Components

Number 1 worldwide in wirewound and other power resistors
Number 1 worldwide in foil, MELF, thin film, and current sense resistors
Number 1 worldwide in wet tantalum capacitors
Number 1 worldwide in strain gage sensors and load cells
...and others

“One-Stop Shop” Service

With Vishay's “one-stop shop” service, customers can send their bills of materials (BOMs) to Vishay and ask the Company to cross-reference Vishay products in all categories. This enables customers to order multiple components from one source—Vishay. In addition, Vishay's product sample service for design engineers provides free product samples worldwide. Quick turnaround time and a complete range of Vishay samples enable customers to rely on Vishay for discrete electronic component solutions. For more information about Vishay samples, please visit us on the Web at www.vishay.com or contact a local Vishay sales representative or office.

Components for every application

Vishay ESTA manufactures a wide range of heavy-current capacitors for harmonic control, energy savings, and voltage stabilization. They are economically viable solutions, highly reliable, environmentally safe, and can be used in the most varied and rugged working conditions. Vishay ESTA capacitors are manufactured with the highest quality standards and come complete and ready to connect for all applications.

Vishay ESTA Heavy Current Capacitors

Mains and Medium Frequencies - Furnace Capacitors



Application

Static power capacitors for inductive heating plant compensation.

Standards

EN 60110/1 and 2

IEC 60110/1

Ranges

Mains frequency: 230 to 3,000 V, 50/60 Hz up to 800 kvar per unit

Medium frequency: 250 to 4,000 V, 150 to 100,000 Hz, up to 10,000 kvar per unit

Benefits

Compact construction

Each product designed to customer specifications

Can operate in extreme environmental conditions

Easy to integrate into overall system concepts

Low inductivity

Types of Cooling

Natural cooling

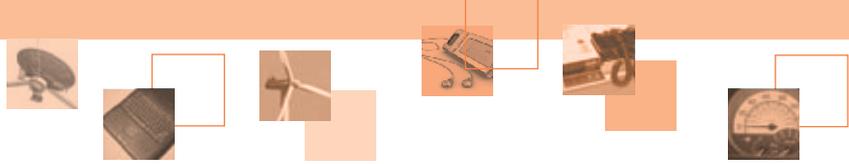
Forced cooling

Water cooling





Vishay ESTA Power Factor Controllers



Application

Manual and automatic control of central power factor correction equipment in low-voltage plants and special types for medium-voltage applications.

Standards

- EN 50178
- EN 61010-1
- EN 50081-2
- EN 61000-6-2
- CE-Certification

Ranges

- 6- or 12-step versions
- Operating voltage: 230 or 120 V; 50 or 60 Hz
- Maximum measuring voltage range: 58 to 690 V, stepless

Benefits

- Easy mounting with flat metal springs
- Large 4-digit LED display
- Constant display of actual power factor and energized steps
- User-friendly setting of parameters via push buttons on the front plate
- Possible locking of keyboard to prevent unauthorized operation
- Improved measurement by conducting measuring current and voltage across fundamental frequency filters
- No need to differentiate between X/1A or X/5A current transformer
- Trouble-free 4-quadrant operation
- Optimized switching performance
- Alarm relay
- Anti-interference bridging of relay contacts
- EMC-certified by independent laboratory



Vishay ESTA Power Electronic Capacitors



Applications

Static converters for:

- Heavy-haul locomotives
- Light local trains
- Trolley busses
- Trams/streetcars
- Industrial converters

DC supply equipment

High-voltage testing systems

Impulse discharge energy

Standards

IEC 61071

IEC 61881

Customer specifications

Ranges

AC up to 24 kV per unit

DC up to 125 kV and 15 kJ per unit

Rectangular and tubular designs for casings



Benefits

All appropriate capacitor technologies available to ensure optimum suitability to specific applications

Highest flexibility in mechanical designs, including designs for low quantities





Vishay ESTA Low-Voltage Power Capacitors

Plants with Power Factor Controllers



Applications

- Individual and group fixed compensation
- Controlled central compensation
- Filter circuits for mains systems with harmonics

Standards

Capacitors:

- VDE 0560/46 and 47
- EN 60831/1 and 2
- IEC 60831/1 and 2

Ranges

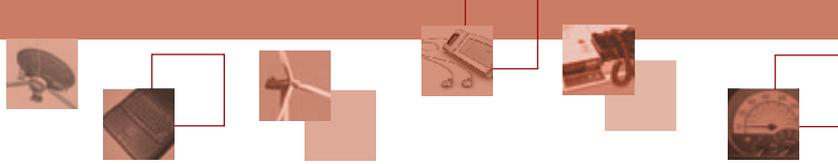
- 230 to 1000 V, 50/60 Hz
- 2.5 to 56.2 kvar in cylindrical/triangular aluminum casing up to 500 kvar in welded rectangular steel casing

Benefits

- Low loss, self-healing technology
- Compact design
- Excellent heat dissipation
- Biodegradable, vegetable-based, non-PCB, non-toxic filling agent in the oil-impregnated version, or
- Dry version
- Burst-proof as confirmed by independent international inspection centers such as UL/ULC
- Highest overcurrent and inrush current capabilities
- Life expectancy of >150,000 operating hours with highly consistent capacitance values
- Custom designs available



Vishay ESTA High-Voltage Capacitors



Applications

- Shunt capacitors
- Harmonic filters
- Series capacitors
- Capacitors for SVC (Static Var Compensator)
- AC-Capacitors for HVDC transmission
- DC-Capacitors for HVDC transmission
- Surge suppressors and RC circuits

Standards

- EN60871
- IEC 60871
- IEC 60143
- Other standards upon request

Ranges

- Individual capacitors from 660 V to 24 kV, up to 900 kvar
- Capacitor banks up to 800 kV, any output

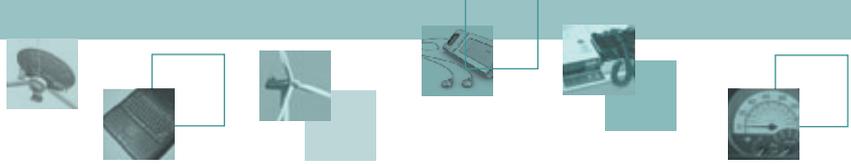
Benefits

- Voltage and output rating can be matched precisely to customer specifications
- Element fuses for high operating reliability
- Flexible plant design with specially designed racks
- Vishay ESTA unbalance protection





Vishay ESTA High Voltage Power Supplies



Applications

- Image intensifiers (medical)
- CRT Monitors
- Electrostatic surface coating (automotive)
- Electrostatic filters (industrial)

Standards

- EN 50176
- EN 50177
- EN 50223
- EN 50348

Ranges

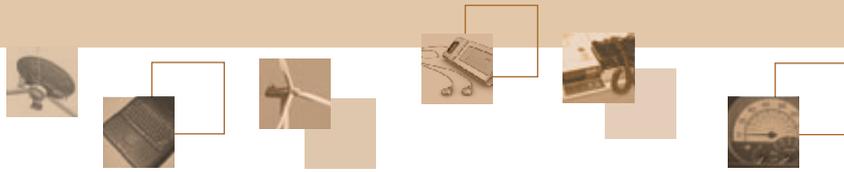
DC 1 kV up to 100 kV

Benefits

- High voltage power supplies for a multiple range of applications and industries
- Flexibility in designs
- Highest reliability
- Compact design
- Individual design according to customer specification



Notes



SEMICONDUCTORS:

Rectifiers • Small-Signal Diodes • Zener and Suppressor Diodes • MOSFETs
• RF Transistors • Optoelectronics • ICs

PASSIVE COMPONENTS:

Resistive Products • Magnetics • Capacitors • Strain Gage Transducers and
Stress Analysis Systems



One of the World's Largest
Manufacturers
of Discrete Semiconductors and Passive Components

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