



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

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)

FETs

Low-Voltage TrenchFET® Power MOSFETs
 High-Voltage TrenchFET® Power MOSFETs
 High-Voltage Planar 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
 RF Transceivers and Receiver Modules
 ICs for Optoelectronics

MODULES

Power Modules (contain power diodes,
 thyristors, MOSFETs, IGBTs)
 DC/DC Converters

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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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, SMD thin film, and leaded film 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.

Mains and Medium Frequencies

Application

- Static power capacitors for inductive heating plant compensation

Standards

- EN 60110/1 and 2
- IEC 60110/1

Ranges

- Mains frequency: 230 V to 3,000 V, 50/60 Hz up to 800 kvar per unit
- Medium frequency: 250 V to 4,000 V, 150 Hz 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 V or 120 V; 50 Hz or 60 Hz
- Maximum measuring voltage range: 58 V 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



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

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

Ranges

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

Benefits

- Low loss, self-healing MKP technology
- Compact design
- Excellent heat dissipation
- Biodegradable, vegetable-based, non-PCB, non-toxic filling agent in the oil-impregnated version, or
- Dry version available
- 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



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

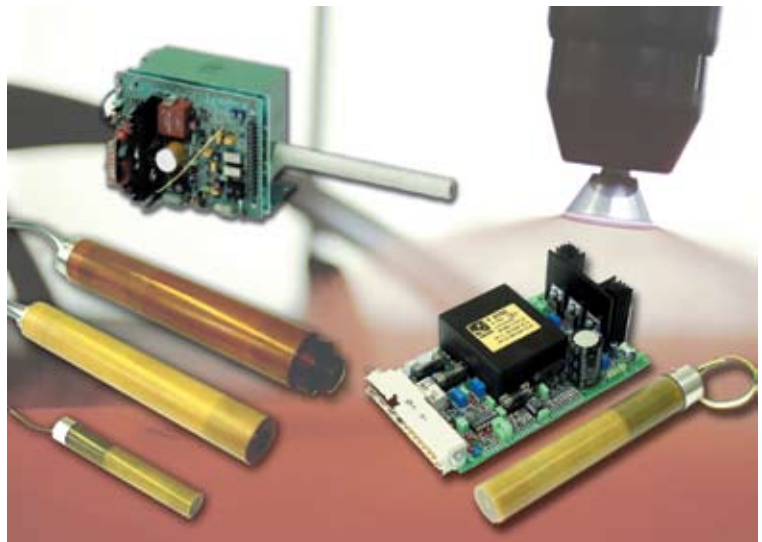
- EN 50176
- EN 50177
- EN 50223
- EN 50348

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 designs according to customer specification



NOTES



SEMICONDUCTORS:

Rectifiers • High-Power Diodes and Thyristors • Small-Signal Diodes • Zener and Suppressor Diodes
• FETs • RF Transistors • Optoelectronics • ICs • Modules

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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