

High Power Semiconductors

Tried, tested, trusted

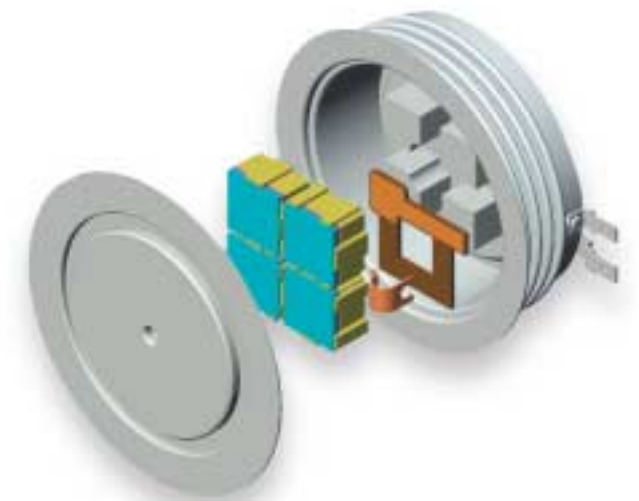


WESTCODE

Tried, tested, trusted

Since the early part of the 20th century, Westcode has been at the forefront of power semiconductor design. In the early 1920s we introduced the world's first commercial rectifier and have continued to push ahead bringing ever more advanced power management solutions to market. In almost every corner of the globe Westcode products are hard at work keeping industry moving forward.

Supporting a truly worldwide, and incredibly diverse market place, Westcode has evolved into one of the worlds leading manufacturers of high power semiconductors. A sincere commitment to our customers and a passion for technical excellence, will ensure that our future is every bit as bright as our past.



Setting the standards



BSEN ISO 9001
MOD Approvals
CECC 50000

Dedication to maintaining quality is evident in every aspect of our business. Westcode has achieved its global reputation based on its long pedigree of production and service excellence.

Westcode products are used in literally thousands of applications, but all of these share the need for total quality.

Internationally accredited, all of our products are subjected to rigorous testing and quality standards. ISO 9000 and IEC68 provide the standards against which all of our products and services are measured. All new developments follow a strict Product Introduction Procedure ensuring high quality devices are delivered rapidly to evolving markets.



Tried, tested, trusted

Total solutions

Solutions are not just about design and manufacture of a product, they are about service.

From individual products to complete assemblies, our customers can procure Westcode products in whatever form suits their needs on a global basis. Supply management is critical to every manufacturer and reducing costs without compromising quality is essential. Through enhanced assembly and design solutions, we are helping our customers keep pace with the demands of their business and the increasingly competitive industrial marketplace.

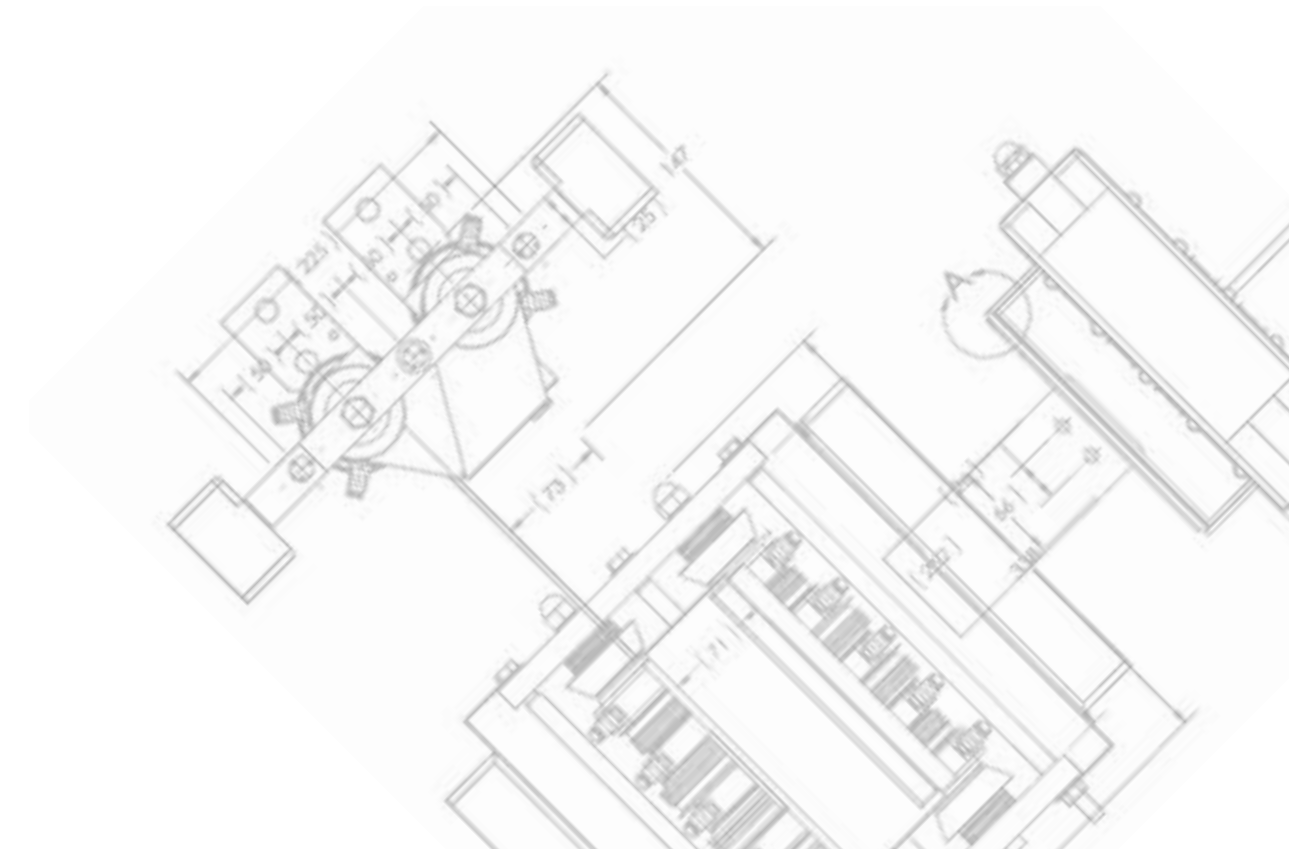
To complete the package we strive to provide a customer service infrastructure which brings together the results of the Total Solution concept. Our aim is to always deliver power semiconductors in exactly the required form and always at the right time.

Tried, tested, and trusted is as relevant to our people as it is to our products. Our dedicated multi-national team demonstrate these qualities time after time, bringing together technical excellence with unsurpassed customer care.

Our highly experienced technical team are on hand to provide Westcode customers with support for everything from straight forward devices and applications through to extremely complex, custom designed assemblies, utilising our varied product range to its full potential.



Putting the needs of our customers first



Portfolio

With a reputation for quality and innovation it is not surprising that our product portfolio is one of the strongest in the business. Precision manufacturing facilities combine with a total commitment to quality, allowing us to deliver unsurpassed service and world-class products.

Rectifier Devices

For use in a multitude of environments Westcode devices are designed to survive even the most arduous of applications.

Phase Control Thyristors

Westcode provides one of the most comprehensive ranges of standard Phase Control Thyristors in the industry. We are a leading supplier into such key markets as:

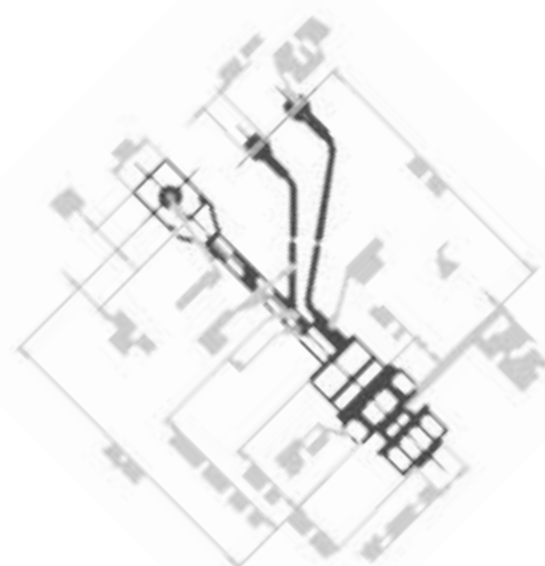
- Fully controlled rectifiers
- DC drives
- Induction melting power supplies
- Electrochemical power supplies
- Marine drives
- Cycloconverters

Voltage ratings to 6.5kV and current ratings to 6kA.
19-100mm diameter silicon slices.

Diodes

These highly reliable components are suitable for all rectifier applications, including traction, industrial drives and substations.

Voltages to 6kV and currents to 8kA.
19-100mm diameter silicon slices.



Medium Voltage Thyristors

Power Switches

Medium voltage demands are met by our comprehensive range of thyristors. Westcode's patented distributed gate structure ensures high di/dt capability meeting the needs of medium voltage and power conditioning applications.

The high current and voltage rating of these devices in combination with the improved switching performance and lower tq, make them ideal for lower frequency switching applications such as high power DC drives and induction heating melt furnaces. The high di/dt capability is ideally suited to some pulse power applications, where the higher individual device voltage reduces the number of components required in series.

Blocking voltages up to 6.5kV and current ratings to 2kA, with tq from 200µs.
38-100mm diameter silicon slices.

Fast Switching Devices

Distributed Gate Thyristors

Westcode is recognised worldwide as the leader in distributed gate thyristor technology. Devices with blocking voltages to 5.2kV and currents to 3kA, with tq from 10 to 300µs. The unique distributed gate design and lifetime control features give these devices both high di/dt capability and fast low recovery turn-off, while maintaining a low forward voltage drop.

Suited to applications including:

- Induction heating power supplies
- High frequency inverters/converters
- Uninterruptible power supplies and
- Pulse power

Voltage up to 5.2kV.
30-100mm diameter silicon slices.

Fast Turn-off thyristors

Voltage ratings to 1.2kV and 300A, tq from 12µs. For use with inverters/converters, DC choppers and uninterruptible power supplies.

Voltage 4.5kV (higher voltages in development)
19-50mm diameter silicon slices.



Fast Recovery Diodes

Fast recovery diodes are an essential partner to all fast switching devices. Westcode soft recovery diodes are available with a range of reverse recovery characteristics tailored to meet the requirements of both freewheeling and snubber applications:

- Traction drives and auxiliaries
- AC and DC industrial drives
- Uninterruptible power supplies
- Utilities applications

Extra low recovery – newly developed diodes offer exceptionally low recovery characteristics for use as series diodes with IGBTs in applications such as current fed resonant circuits and DC choppers. These diodes are also ideally suited to other applications, which require very fast turn-off such as snubbers, pulse power and naturally commutated resonant circuits.

These devices are available with blocking voltage up to 6kV 1800V.
38-100mm diameter silicon slices.

Stud types: ratings to 2.5kV and 150A.



Portfolio



IGBT Solutions

In order to maximise the benefits of the IGBT capsule, Westcode has developed a low inductance H bridge assembly. Its unique layout and bus bar system has ensured a low circuit inductance suitable for high frequency operation.

Water cooling ensures maximum performance. Available as standard 4 IGBTs in H Bridge configuration for voltage source systems or complete with series diodes for current source applications. This solution provides a means for immediate, low cost evaluation for final equipment designs.

Additionally, assembled stacks can also be supplied with suitable gate drive units and snubber designs/capacitors.

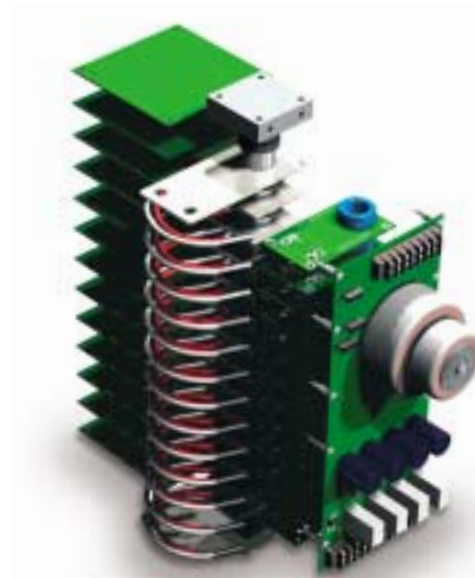
Gate Controlled Devices

IGBTs

These rugged pressure contact devices deliver ultra-high reliability, and are available with 1.8kV blocking and 400A and 1400A switching. We also supply a range of fast switching devices, suitable for all applications to 20kHz including:

- Induction heating power supplies
- AC drives for industrial and traction applications
- Pulse power
- Utilities
- MV drives

The explosion proof, pressure contact devices allow engineers to simplify designs for high voltage applications requiring the series connection of several devices, particularly for power conditioning and pulse power applications. Our unique package design allows for a rapid development of custom rated devices, from 1800V up to 5000V and other voltages. Pressure contact IGBTs are suited to both new build designs and refurbishment of equipment to replace obsolete technology device types, such as GTO's, whilst minimising design changes.



GTO Thyristors

A broad range of high specification devices from 2.5kV to 6kV and turn-off currents up to 4000A are available for use in traction drives and auxiliaries, AC industrial drives, pulse power and utilities applications.

Pulse Power design

Advances in modern power semiconductor technology have made "solid state" solutions a viable alternative to thermionic devices, such as thyratrons and ignitrons. Westcode have been globally active in pulse power for many years and, in response to growing demand from our customers, have developed a comprehensive capability in this field. Both thyristor (inc. GTO) and transistor (inc. IGBT) technologies are available providing capability of up to 50kV (symmetrical), 120kA (pulsed) and 50kHz PRF.

Modular design solutions, integrating control and protection functions, provide the user with a flexible 'black box' approach to energy transfer problems. Drawing on our experience in this field and advancements in semiconductor technology, these solid state solutions provide unparalleled reliability, zero maintenance and extended service life which can offer tangible benefits and reduced costs over the equipment life.



Portfolio

Successful thermal management of power semiconductors is the key to equipment reliability and long life.

Assemblies

With a complete product portfolio of power semiconductor devices, modules, capsules, fuses, capacitors and gate control drives, a custom built assembly from Westcode is a cost effective, rapid solution to meeting the most demanding needs. Supported by continuous research and development, we can ensure that Westcode assemblies are founded on future technology, helping to build a competitive advantage, even in the most demanding of industry sectors.

Our pedigree in the power electronics industry enables us to deliver a wide scope of design experience - utilising the latest in 3D modelling techniques - ensuring new products reach the market place as rapidly as possible, helping to secure first to market position.

Our range of conventional and specialist extruded heatsinks meet the demands of today's semiconductor components; aiming for optimum performance and efficiency for forced air, air natural, oil and water cooled design.

Westcode rectifiers and inverters are associated with a variety of industries, from welding, through motor control and traction to HVDC. Utilising a range of cooling mediums with the control and protection circuitry embedded in the design to provide total solutions.

Applications

Welding

Motor Controls

AC & DC Drives

Rectifiers

Traction

Pulse Power

Electric Vehicles

HVDC

Components

Fans

Clamps

Single sided

Double sided

Box & Bar Clamps

Isolated Base Power Modules

Stud Devices

Capsules

IGBTs/ SCRs/Diodes



Complementary Products

Capacitors for Power Electronics

Westcode offer some of the worlds finest AC and DC capacitors for the power electronics industry. The capacitors are based on well proven foil and film/foil technologies; metallised polypropylene (MKP), metallised paper (MP) and metallised paper/polypropylene (MPP). Safety features such as segmented film, over pressure disconnectors and internal fusing are all available, together with a wide range of vacuum, oil and gas impregnation processes.

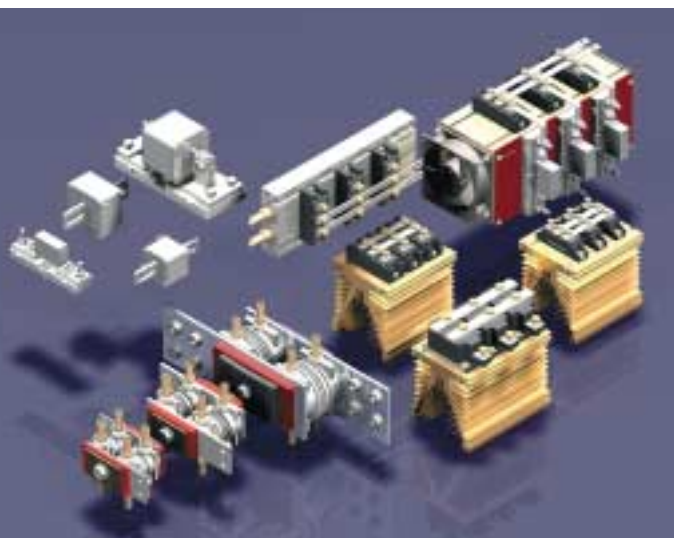
Used in a wide variety of applications, even where extremely non-sinusoidal voltages and pulsed currents are present. Whether using our capacitors for filtering, smoothing, supporting, snubbing/clamping, commutation, induction heating and general use, you can be sure that they will work reliably cycle after cycle.

Ultra Rapid Semiconductor Protection Fuses

Specifically designed to protect against external circuit faults and to isolate failed devices, these products are supplied to the highest standards and are recognised by OEMs around the world for their reliability and guaranteed quality. We offer fuses to all major international standards such as DIN, BSI and UL.

IGBT/MOS Gate Drivers

With Westcode drivers all necessary functions for safe IGBT control are embedded on a single board. Each parameter, depending on the application, can be adjusted to your particular specification. Featuring dual outputs and options for phase leg control from a single input (with on board dead time generation).





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