



Power Bipolar devices offer Proven Technology for a Range of Applications

Dynex design and manufacture current-controlled, high-power Bipolar discrete devices tailored for particular applications with lower losses, higher blocking voltages and increased current capability.

Our Bipolar range of products includes HVDC Thyristors, Phase Control Thyristors, Rectifier Diodes, Fast Recovery Diodes, Gate-Turnoff Thyristors and Bypass Thyristors.

Diode devices are all reliable and offer an efficient transfer of energy for a range of applications. Our Thyristors are free-floating, more uniform and have a thinner silicon layer with lower conduction losses.

All devices pass a rigorous test verification and engineering application assessment

Thyristor devices are slower switching relative to IGBT modules and MOSFET's however they are superior in power density.

Scan this for a list of Thyristor devices, to download data-sheets and application notes.



Scan this for a list of Diodes, to download datasheets and application notes.



Features

- ✓ Long heritage: 50+ years in bipolar device design and production
- ✓ Proven technology with decades of industrial use
- ✓ In-house wafer fab and assembly, enabling custom solutions
- ✓ Global reputation - installed base in rail, utilities, fusion labs
- ✓ High surge current handling
- ✓ Ruggedness and reliability

Applications

- ✓ Renewables - high-power rectification and control
- ✓ HVDC & Grid - converter stations, grid stability
- ✓ Traction - mainline locomotives, metros, light rail
- ✓ Mining & Industrial Drives - motor control in harsh conditions
- ✓ Pulse Power / Fusion Research - large di/dt and peak current capability

Asymmetric Bypass Thyristors

Designed for the protection of IGBT modules in VSC multi-level applications, where a reduced forward blocking voltage is required.

- ✓ Low dynamic on-state voltage for high-performance fault protection
- ✓ Double side cooling
- ✓ Enhanced surge rating
- ✓ High dV/dt capability $>10kV/\mu s$
- ✓ High di/dt capability
- ✓ Device can be switched from low anode-cathode voltage



Pulse Power Thyristors

Extremely high di/dt switching and fast turn-on in combination with a high current capability and high voltages, they can also include special driver units.

- ✓ Single or repetitive pulse applications
- ✓ Very highly interdigitated gate structure
- ✓ High di/dt capability
- ✓ Fully floating silicon technology
- ✓ High "short life"
- ✓ High reliability / life compared to vacuum tubes
- ✓ Designed as a closing switch



Phase Control Thyristors

Tailored for particular applications with lower losses, higher blocking voltages and higher current capability.

- ✓ Current ratings from 370A to 7610A
- ✓ Full blocking voltage capability at line frequencies from $-40^{\circ}C$ to $+125^{\circ}C$
- ✓ High surge current capability
- ✓ High di/dt turn-on capability
- ✓ High DC blocking stability
- ✓ Low conduction losses
- ✓ Low thermal resistance
- ✓ Excellent pick up performance for parallel operation



Gate Turn Off Thyristors

Primarily for use in railway traction, light rail propulsion drives and auxiliary converters.

- ✓ Double side cooling
- ✓ High reliability in service
- ✓ High voltage capability
- ✓ Fault protection without fuses
- ✓ High surge current capability
- ✓ Turn-off capability



Diode Discrete Devices

Diode Rectifier

Suitable for welding applications, industrial rectifiers, industrial drives and converters, metal smelting applications and traction converters.

- ✓ 1400V to 9000V at 410A to 8880A
- ✓ High overload capability
- ✓ Low thermal resistance
- ✓ reduced maintenance and reduced outage time
- ✓ High surge capability
- ✓ Double side cooling



Flat Base Rectifier Diodes

Rugged converters of AC to DC, suitable for the refurbishment of industrial and chemical rectifiers and aluminium pot lines.

- ✓ 3000V to 6000V at 412A to 860A
- ✓ Low losses for high efficiency
- ✓ Hermetically sealed for long operational life
- ✓ Easily mounted down with M8 bolts on 46mm centres
- ✓ Available anode to base & cathode to base
- ✓ Selections available for parallel operation
- ✓ Available with flying lead, full and half bar connections on request



Fast Recovery Diodes

Designed to be used as snubber and anti-parallel diodes for use with its GTO.

- ✓ 1600V to 6000V at 295A to 3230A
- ✓ Lifetime controlled for fast recovery, low recovery charge for low losses
- ✓ Low transient turn-on voltage
- ✓ High surge capability
- ✓ Double side cooling

