DYNEX

Power through Innovation

Power Semiconductor Product Guide 2025

Dynex Semiconductor Ltd
www.dynexsemi.com

INTRODUCTION

TO DYNEX SEMICONDUCTOR LTD

Dynex Semiconductor Ltd has a rich history in the design, development and production of High Power Semiconductor modules and Power Assemblies. Throughout the years, Dynex products have been applied in projects that vary from transportation, power grid, renewables, industrial, custom equipment, hydrogen electrolyser and other specialist applications.

The Power Semiconductor and Power Assemblies operation is located in Lincoln, England, manufacturing a range of high power IGBT modules, Bipolar capsule devices and power assemblies.

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IGBT Modules

Power Cycling with the latest generation IGBT die

The Dynex manufacturing plant is a vertically integrated facility with device design, wafer fab, packaging, qualification and testing available on site.

The modules work with high reliability at temperature conditions from -40/-50°C up to +150°C.

Great emphasis is placed on low inductance power bus bar designs, enabling the modules to function under fast switching transients such as, those of next generation Trench Gate IGBT's and SiC MOSFET.

KEY FEATURES

- ✓ High DC stability via advanced edge termination design and passivation
- ✓ High short circuit capability-wide SCSOA
- ✓ Self-limiting short circuit current
- ✓ Low switching losses
- ✓ T(vj op) = 150°C
- ✓ AlSiC Baseplate for increased thermal cycling capability
- ✓ Package design with CTI > 600
- ✓ Isolated base plate
- ✓ 300A to 3600A at 750V to 6500V

APPLICATIONS

- ✓ High reliability inverters
- ✓ Motor controllers
- ✓ Traction drives
- ✓ Different circuit topologies (half bridge, single switch, chopper)

Scan this for a list of IGBT Modules to download data-sheets and application notes

IGBT Modules

1200V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at TC (°C)	VCE (sat) @ Tc=25°C (V)	Total Esw @ Tc=150 °C (mJ)	Rth(j-c) (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
M1 Module										
DIM900M1HS12-PG500 (Generation 7)	Half Bridge	New	900	80	1.5	327 Tc=175°C	52	152 x 62	3.4kV	STMOS
DIM600M1HS12-PC500	Half Bridge	MP	600	100	1.9	171	49	152 x 62	3.4kV	TMOS
DIM450M1HS12-PB500	Half Bridge	MP	450	100	1.7	133	52	152 x 62	2.5kV	TMOS
DIM300M1HS12-PA500	Half Bridge	New	300	100	1.7	86.5	78	152 x 62	3.4kV	TMOS
W1 Module										
DIM300WHS12-PA500	Half Bridge	MP	300	100	1.2	86	97	106 x 61	4kV	TMOS
DIM600WHS12-PC500	Half Bridge	New	600	100	1.2	209.5	48.5	106 x 61	4kV	TMOS
DIM800WHS12-PF500	Half Bridge	New	800	90	1.2	301.1	48.5	106 x 61	4kV	TMOS
H1 Module										
DIM1400H1HS12-PA500	Half Bridge	New	1400	100	1.8	486	20	250 x 89	4kV	TMOS
H2 Module										
DIM900H2HS12-PA500	Half Bridge	MP	900	90	1.8	300	29.5	172 x 89	4kV	TMOS
Module Auomotive										
DIM820S3FP08-PG500	Six Pack	New	820	80	1.1	39.8 Tc=175°C	110	154.5 x 126.5	4.2kV	STMOS

1700V IGBT Modules

Part Number	Configuration	Production Status	IC (A)	at TC (°C)	VCE (sat) @ Tc=25°C (V)	Total Esw @ Tc=150°C (mJ)	Rth(j-c) (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
M1 Module										
DIM600M1HS17-PA500	Half Bridge	New	600	100	1.7	537	46	152 x 62	3.4kV	TMOS
DIM450M1HS17-PA500	Half Bridge	MP	450	95	1.8	381	55	152 x 62	3.4kV	TMOS
DIM800M1HS17-PG500 (Generation 7)	Half Bridge	New	800	80	1.7	738 Tc=175°C	37	152 x 62	3.4kV	STMOS
H1 Module										
DIM1000H1HS17-PA500	Half Bridge	MP	1000	104	1.85	980	20	250 x 89	4kV	TMOS
DIM1800H1S17-PH500	Half Bridge	New	1800	85	1.7	1790	16	250 x 89	4kV	STMOS
H2 Module										
DIM650H2HS17-PA500	Half Bridge	MP	650	105	1.85	610	30	172 x 89	4kV	TMOS

Scan this for a list of 1200V IGBT Modules to download datasheets and application notes

Scan this for a list of 1700V IGBT Modules to download datasheets and application notes

1700V IGBT Modules

Part Number	Configuration	Production Status	I_C (A)	at T_C (°C)	$V_{CE(sat)}$ @ T_c=25°C (V)	Total E_{sw} @ T_c=150°C (mJ)	$R_{th(j-c)}$ (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
AlSiC Baseplate										
DIM3600ESM17-PT500	Single	New	3600	95	1.95	3680	7.5	190 x 140	5kV	TMOS
DIM2400ESM17-PT500	Single	MP	2400	118	1.75	2840	6	190 x 140	4kV	TMOS
DIM1600FSM17-PS500	Single	New	1600	80	2.3	1800	9	140 x 130	4kV	DMOS
DIM1200NSM17-RT500	Single	MP	1200	95	1.8	1615	24	140 x 130	4kV	DMOS+
DIM800DDM17-PS500	Dual	MP	800	80	2.3	800	18	140 x 130	4kV	DMOS+

3300V IGBT Modules

Part Number	Configuration	Production Status	I_C (A)	at T_C (°C)	$V_{CE(sat)}$ @ T_c=25°C (V)	Total E_{sw} @ T_c=150°C (mJ)	$R_{th(j-c)}$ (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
Standard Range										
DIM1600NSM33-RT500	Single	New	1600	100	2.0	8025	10	140 x 130	6kV	TMOS
DIM1500ESM33-PS500	Single	MP	1500	110	2.1	9300	8	190 x 140	6kV	DMOS+
DIM1500ESM33-RR500	Single	MP	1500	95	2.6	7800	8	190 x 140	10.2kV	DMOS+
DIM1000NSM33-PS500	Single	MP	1000	112	2.4	5770	12	190 x 140	6kV	DMOS+
DIM1000ECM33-PS500	Chopper	MP	1000	115	2.1	6500	12	190 X 140	6kV	DMOS+
DIM500GDM33-PS500	Dual	MP	500	110	2.4	2850	24	160 X 130	6kV	DMOS+
DIM450VHM33-PT500	Half Bridge	MP	450	95	2.5	1695	31	144 X 100	6kV	TMOS
DIM250PHM33-PS500	Half Bridge	MP	250	100	2.5	1375	48	140 X 73	6kV	DMOS+

Scan this for a list of 3300V IGBT Modules to download datasheets and application notes

IGBT Modules

4500V IGBT Modules

Part Number	Configuration	Production Status	I_C (A)	at T_C (°C)	V_{CE} (sat) @ T_C=25°C (V)	Total E_{sw} @ T_C=150°C (mJ)	$R_{th(j-c)}$ (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
Standard Range										
DIM1500ASM45-RT501	Single	New	1500	80	2.5	15290	8	190 x 140	10.2kV	TMOS
DIM1200ASM45-PS500	Single	MP	1200	85	2.3	14060	8	190 x 140	10.2kV	DMOS+
DIM1200ASM45-PR501	Single	MP	1200	80	2.7	13400	8	190 x 140	10.2kV	DMOS+
DIM1200ESM45-PS500	Single	MP	1200	85	2.3	14060	8	190 x 140	6.0kV	DMOS+
DIM800XSM45-PS501	Single	MP	800	85	2.3	9425	13	140 x 130	10.2kV	DMOS+

6500V IGBT Modules

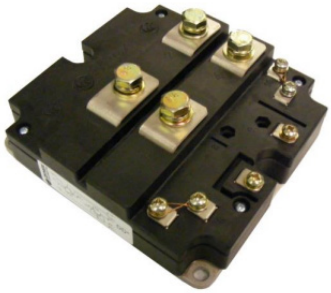
Part Number	Configuration	Production Status	I_C (A)	at T_C (°C)	V_{CE} (sat) @ T_C=25°C (V)	Total E_{sw} @ T_C=150°C (mJ)	$R_{th(j-c)}$ (per switch) (°C/kW)	Baseplate Dims (mm)	Isolation Voltage	Tech
Standard Range										
DIM750ASM65-TS	Single	MP	750	100	2.8	11600	9	190 x 140	10.2kV	DSPT
DIM500XSM65-TS	Single	MP	500	90	3.0	7700	13.5	140 x 130	10.2kV	DSPT
DIM500ACM65-TS	Chopper	MP	500	90	3.0	7700	13.5	190 x 140	10.2kV	DSPT
DIM250XCM65-TS	Chopper	MP	250	90	3.0	3350	30	140 x 130	10.2kV	DSPT

Scan this for a list of 4500V IGBT Modules to download datasheets and application notes

Scan this for a list of 6500V IGBT Modules to download datasheets and application notes

* $V_{ce(sat)}$ is measured across both arms of the bi-directional switch.
MP: Mass Production NEW: New Products

IGBT A PACKAGE



IGBT D PACKAGE

IGBT E PACKAGE

IGBT D PACKAGE

IGBT G PACKAGE

IGBT H1 PACKAGE

IGBT H2 PACKAGE

IGBT M1 PACKAGE

IGBT P PACKAGE

IGBT N PACKAGE

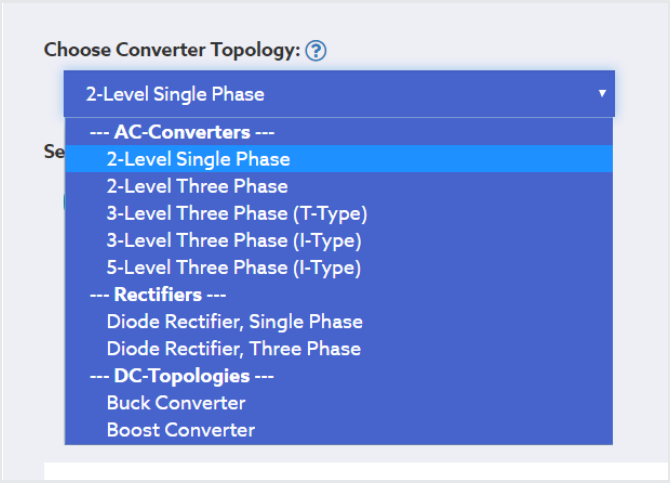
IGBT W1 PACKAGE

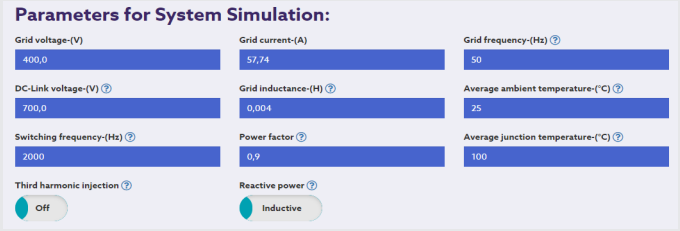
IGBT H2 PACKAGE

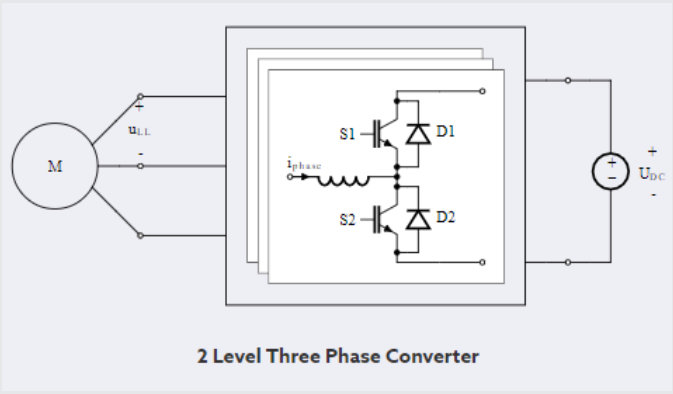
DESIGN TOOL

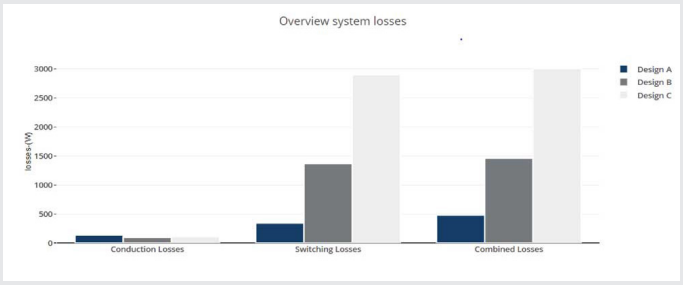
Easy selection of the Dynex device most applicable to your application

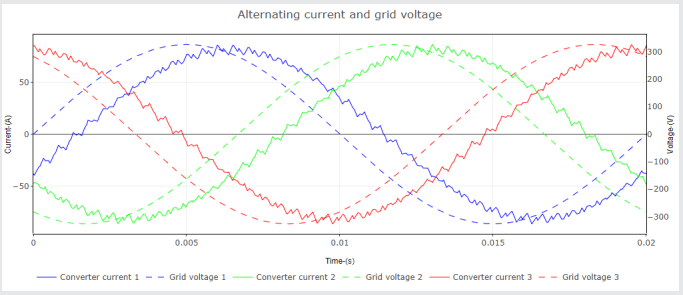
Our Design Tool contains a topology simulator, that provides an analysis of the behavior of our components in your specific application. All typical power electronic typologies are available with system losses, current ripple, and a maximum thermal resistance as a starting point for your thermal design. The Design Tool offers the comparison of different component configurations in each topology within a few clicks.



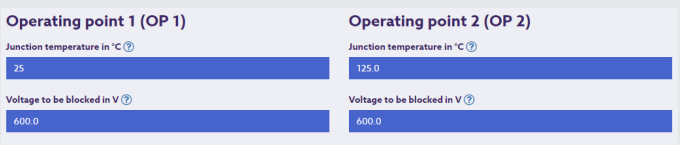








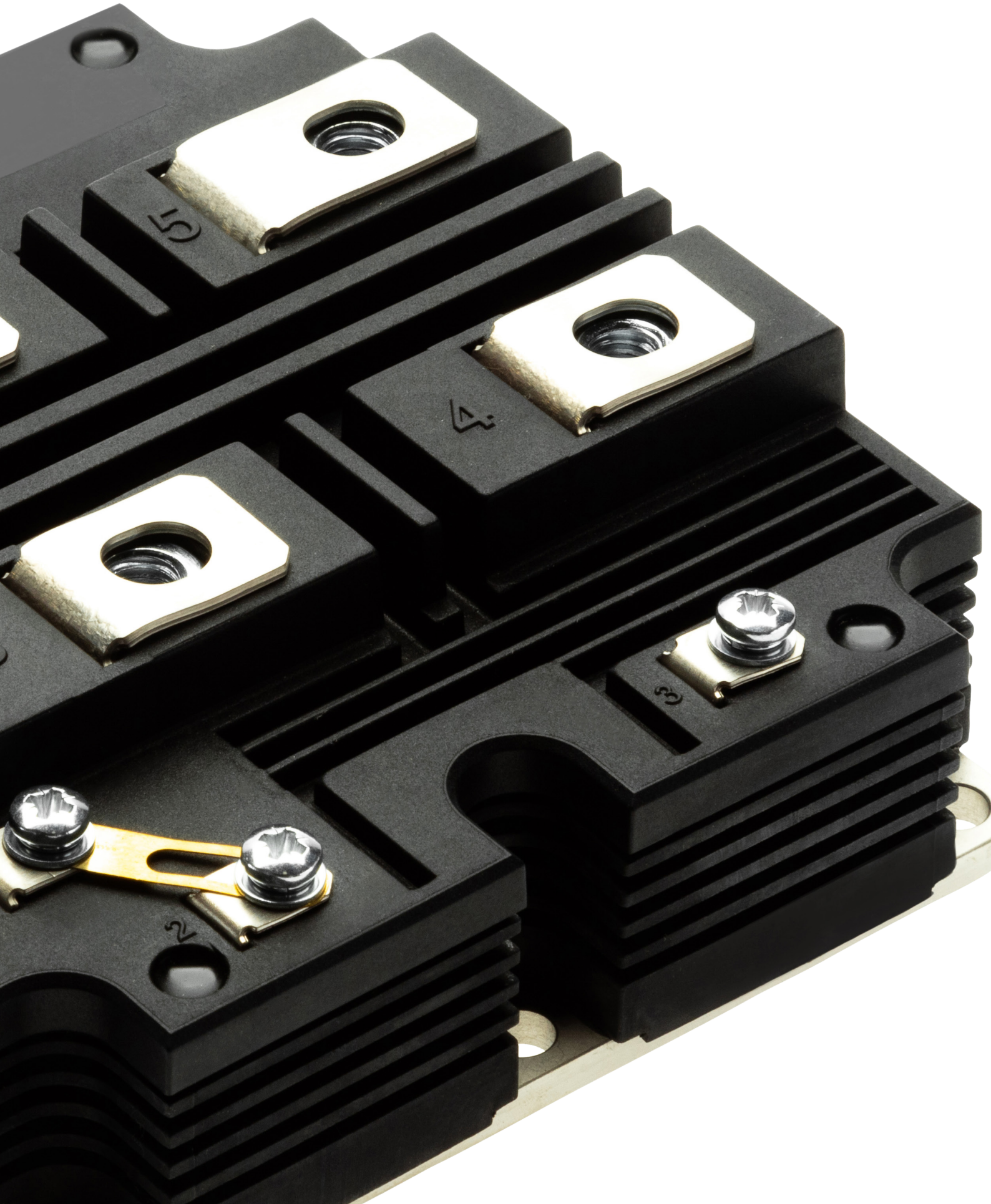
Our Design Tool is designed to assist you in selecting the right Dynex products, using an integrated interactive datasheet, which allows you to analyse our component's properties and performance at a specific operation point considering current, voltage and junction temperature.



The instantaneous and average power losses in each semiconductor component of the circuit are displayed for each topology, selected alongside other outputs shown below.

- Converter output (pulsed and fundamental) & grid voltage
- Alternating current & grid voltage
- Current separated into actual conducting devices
- Conduction losses
- Switching energies

Access the tool via **www.dynexsemi.com** or directly through **https://dynex.pe-finder.de/**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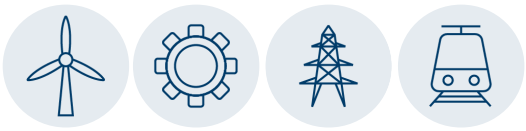


FRD Modules

Regulate electricity flow to ensure higher reliability and increased efficiency

Dynex FRD modules regulate electricity flow to ensure high reliability and increased efficiency in motor drives and other variable speed processes.

The family of high-voltage Fast Recovery Diode modules have been designed for use in rail traction, industrial motor drives, induction heating and power generation.

The FRD modules are designed to match and work as the input rectifiers for the existing Dynex range of IGBT modules.

Fast switching times and low reverse recovery losses allow high frequency operation, making the device suitable for the latest drive designs, employing PWM and high frequency switching.

KEY FEATURES

- ✓ Low reverse recovery charge
- ✓ High switching speed
- ✓ Low forward volt drop
- ✓ Isolated AlSiC base with AlN substrates
- ✓ Single, double and triple diode configurations available with current ratings up to 1500A

APPLICATIONS

- ✓ Chopper diodes
- ✓ Boost and buck circuits
- ✓ Free-wheel circuits
- ✓ Multi-level switch inverters
- ✓ Rail traction
- ✓ Industrial motor drives
- ✓ Induction heating
- ✓ Power generation

FRD Modules

4500V FRD Modules

Part Number	Configuration	Production Status	I_F (A per arm)	at T_C (°C)	Baseplate Dims (mm)	Isolation Voltage	I_F (A as single diode with external connection)	V_f@ T_{vj} =25 °C	I^2t (kA^2s)	Q_{rr}@ T_{vj}	E_{rec}@ T_{vj}	$R_{th(j-c)}$ (per arm) (°C/kW)
TS Range												
DFM1500XXM45-PS501	Dual Diode	MP	1500	65	140 x 130	10.2kV	3000	2.6	720	1400	2300	16
DFM1200XXM45-PS501	Dual Diode	MP	1200	65	140 x 130	10.2kV	2400	2.7	530	2200	1750	16

6500V FRD Modules

Part Number	Configuration	Production Status	I_F (A per arm)	at T_C (°C)	Baseplate Dims (mm)	Isolation Voltage	I_F (A as single diode with external connection)	V_f@ T_{vj} =25 °C	I^2t (kA^2s)	Q_{rr}@ T_{vj}	E_{rec}@ T_{vj}	$R_{th(j-c)}$ (per arm) (°C/kW)
TS Range												
DFM750XXM65-PS500	Dual Diode	New	750	65	140 x 130	10.2 kV	750	2.7	460	1200	2450	18

Scan this for Fast Recovery Diode Module datasheets and link to Dynex Design Tool

Notes:
* Refer to datasheets for Tvj max values www.dynexsemi.com/products/semiconductors/frd-modules

* $V_{ce(sat)}$ is measured across both arms of the bi-directional switch.
MP: Mass Production NEW: New Products, Samples

Bipolar Devices

Reliable and efficient transfer of energy for a range of applications

The Bipolar range of products are produced in both Lincoln, England and Zhuzhou, China. Dynex continue to design and manufacture devices tailored for particular applications with lower losses, higher blocking voltages and higher current capability.

The range consists of Phase Control, Gate Turn Off, Pulse Power, Asymmetric Thyristors, Rectifier fast Recovery and Flat Base Rectifier Diodes.

KEY FEATURES

- ✓ Thinner silicon, lower conduction losses
- ✓ Unique bevel maximises current and surge ratings
- ✓ Advanced implanted aluminium diffusion techniques
- ✓ Current ratings from 370A to 7610A
- ✓ Voltage ratings from 1300V to 8500V with custom designs
- ✓ Full blocking voltage capability at line frequencies from -40°C to 125°C

APPLICATIONS

- ✓ High power drives
- ✓ High voltage power supplies
- ✓ Static switches
- ✓ Industrial AC and DC drives
- ✓ Wind energy systems
- ✓ Soft starters, STATS

Scan this for a list of Bipolar Device part numbers and links to datasheets.

Phase Control Thyristors

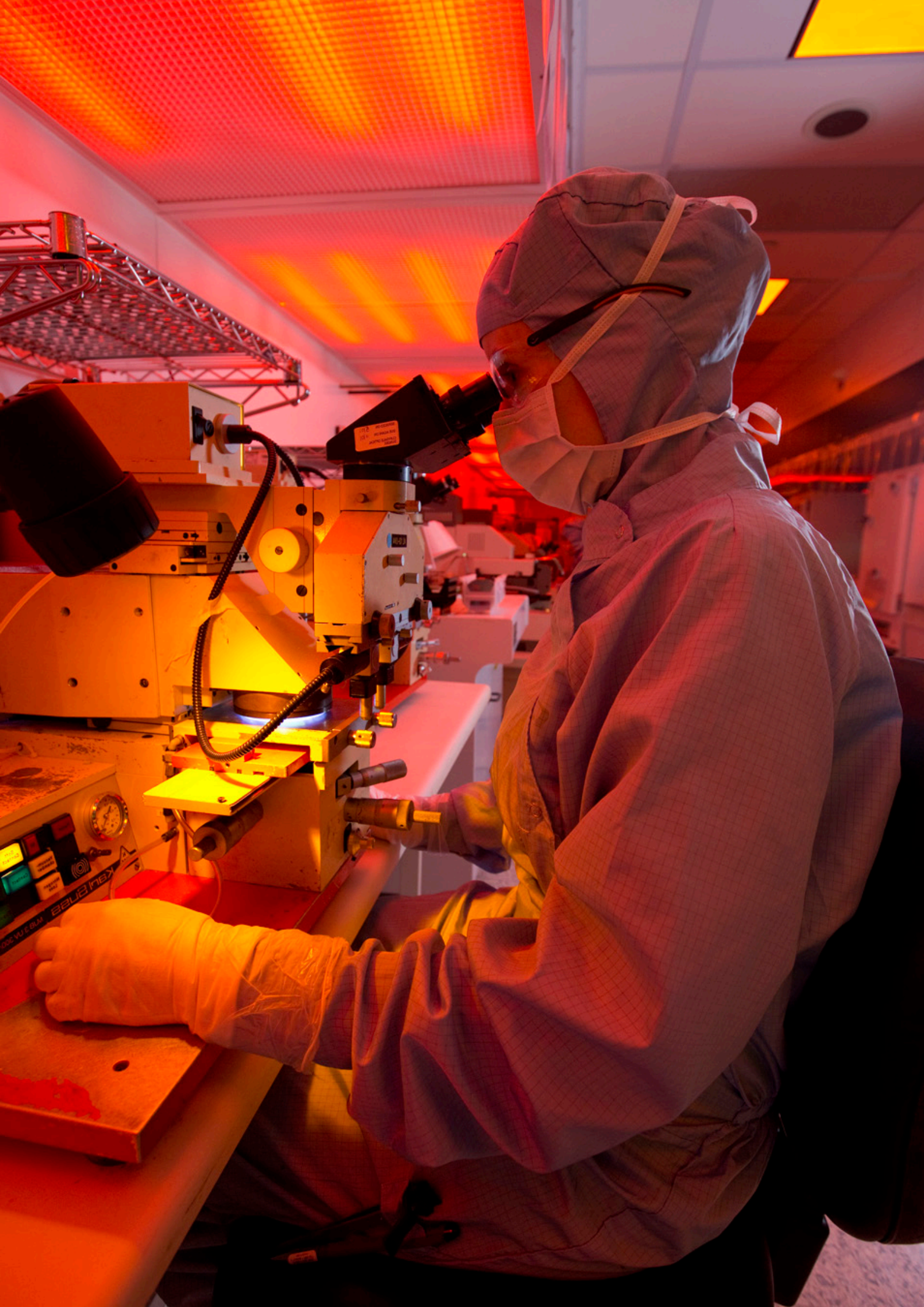
Part Number	VDRM (V)	VRRM (V)	IT (AV) at TC= 60°C (A)	ITSM at Tvj VR = 0 (kA)	dV/dt (V/µs)	Non Rep. dI/dt (A/µs)	Rth(j-c) (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 1400V										
DCR470T	1400	1400	470	6.3	1000	1000	80	T	42/19/13.5	4 - 6
DCR780E14	1400	1400	780	9.1	1000	1000	41	E	42/25/14.5	4 - 6
DCR950D14	1400	1400	950	12.8	1000	1000	35	D	47/29/14.5	8 - 12
DCR1010G14	1400	1400	1010	15	1000	1000	35	G	58/35/26.5	12 - 18
DCR1910F14	1400	1400	1910	26	1000	1000	20	F	75/47/26.5	18 - 26
DCR2150X14	1400	1400	2150	29	1000	1000	18	X	85/53/26.5	26 - 34
DCR2980C14	1400	1400	2980	47	1000	1000	13	C	100/63/26.5	40 - 50
DCR3710V14	1400	1400	3710	60	1000	1000	10	V	110/73/26.5	50 - 62
Up to 1800V										
DCR370T18	1800	1800	370	5	1000	1000	80	T	42/19/13.5	4 - 6
DCR720E18	1800	1800	720	8.3	1000	1000	41	E	42/25/14.5	4 - 6
DCR860D18	1800	1800	860	11.5	1000	1000	35	D	47/29/14.5	8 - 12
DCR960G18	1800	1800	960	14	1000	1000	35	G	58/35/26.5	12 - 18
DCR1710F18	1800	1800	1710	25	1000	1000	20	F	75/47/26.5	18 - 26
DCR1800F18	1800	1800	1800	32	1000	1000	20	F	75/47/26.5	18 - 26
DCR1970X18	1800	1800	1970	28	1000	1000	18	X	85/53/26.5	26 - 34
DCR2830C18	1800	1800	2830	45	1000	1000	13	C	100/63/26.5	40 - 50
DCR3370C18	1800	1800	3360	43	1500	300	10	C	98.9/63/26.3	33 - 41
DCR3400V18	1800	1800	3400	60	1000	1000	10	V	110/73/26.5	50 - 62
DCR4740Y18	1800	1800	4740	63.1	2000	300	8	Y	112.5/73/35.7	48 - 59
DCR4940V18	1800	1800	4920	63.1	2000	300	7	V	110/73/27.2	48 - 59
Up to 2400V										
DCR1080G22	2200	2200	1083	14.4	1500	500	27	G	57/34/26.5	10 - 13
DCR2860C22	2200	2200	2860	38	1500	400	10.1	C	98.9/62.85/26.4	33 - 41
DCR3910Y22	2200	2200	3890	54	1500	300	8	Y	112.5/73/35	48 - 59
DCR4060V22	2200	2200	4040	54	1500	300	8	V	110/73/27.3	48 - 59
DCR4440W22	2200	2200	4440	64.5	1000	1000	7	W	120/84/26.5	62 - 78
DCR5050B22	2200	2200	5050	72.5	2000	500	7	B	120/84.6/34.6	68 - 84
DCR5450W22	2200	2200	5250	72.5	2000	500	6	W	120/84.6/27.3	68 - 84
DCR5900A22	2200	2200	5900	80	1000	1000	6	A	150/100/35	74 - 91
DCR6430M22	2200	2200	6430	80	1000	1000	5	M	150/100/26.5	80 - 100
DCR590E24	2400	2400	590	7.8	1000	1000	41	E	42/25/14.5	4 - 6
DCR750D24	2400	2400	750	10	1000	1000	35	D	47/29/14.5	8 - 12
DCR1700X24	2400	2400	1700	23	1000	1000	18	X	85/53/26.5	26 - 34
DCR2360C24	2400	2400	2360	35	1000	1000	13	C	100/63/26.5	40 - 50
DCR3060V24	2400	2400	3060	45	1000	1000	10	V	110/73/26.5	50 - 62
Up to 3000V										
DCR850G26	2600	2600	850	11	1000	1000	35	G	58/35/26.5	12 - 18
DCR1560F26	2600	2600	1560	24	1000	1000	20	F	75/47/26.5	18 - 26
DCR960G28	2800	2800	960	13	1500	500	27	G	57/34/26.5	10 - 13
DCR1610F28	2800	2800	1610	21.5	1500	1000	18	F	73/47/26.5	22 - 25
DCR2060C28	2800	2800	2060	30	1000	1000	13	C	100/63/26.5	40 - 50
DCR2480L28	2800	2800	2480	35.2	1500	300	1	L	98.9/62.8/34.6	33 - 41
DCR2630C28	2800	2800	2630	35.2	1500	300	1	C	98.9/62.8/34.6	33 - 41
DCR2760V28	2800	2800	2760	43	1000	1000	10	V	110/73/26.5	50 - 62
DCR3650Y28	2800	2800	3620	50.2	1500	300	8	Y	112.5/73/35.1	48 - 59
DCR3780V28	2800	2800	3760	50.2	1500	300	8	V	110/73/27.4	68 - 84
DCR4590B28	2800	2800	4590	63	2000	500	7	B	120/84.6/34.7	68 - 84
DCR4910W28	2800	2800	4910	63	2000	500	6	W	120/84/27.4	68 - 84
DCR5900A28	2800	2800	5900	79	2000	500	6	A	150/100/35	80 - 100
DCR5790M28	2800	2800	5790	75	1000	1000	5	M	150/100/26.5	80 - 100
DCR7610H28	2800	2800	7610	105	1000	1000	4	H	172/110/35	110 - 130
DCR780G30	3000	3000	780	10.5	1000	1000	35	G	58/35/26.5	12 - 18
DCR1460F30	3000	3000	1460	23	1000	1000	20	F	75/47/26.5	18 - 26
Low Conduction Loss										
DCR5480A28	2800	2800	5480	73.1	2000	500	6	A	148/100/35.3	74 - 91
DCR5960M28	2800	2800	5960	73.1	2000	500	5	M	148/100/25.9	74 - 91

Part Number	VDRM (V)	VRRM (V)	IT (AV) at TC= 60°C (A)	ITSM at Tvj VR = 0 (kA)	dV/dt (V/µs)	Non Rep. dI/dt (A/µs)	Rth(j-c) (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 3400V										
DCR470E34	3400	3400	470	6.3	1000	1000	41	E	42/25/14.5	4-6
DCR610D34	3400	3400	610	8	1000	1000	35	D	47/29/14.5	8-12
DCR650G34	3400	3400	650	8.4	1000	1000	35	G	58/35/26.5	12-18
DCR1120F34	3400	3400	1120	17	1000	1000	20	F	75/47/26.5	18-26
DCR1430X34	3400	3400	1430	19.2	1000	1000	18	X	85/53/26.5	26-34
DCR1970C34	3400	3400	1970	30	1000	1000	13	C	100/63/26.5	40-50
DCR2440V34	3400	3400	2440	33	1000	1000	10	V	110/73/26.5	50-62
DCR3640W34	3400	3400	3640	54	1000	1000	7	W	120/84/26.5	62-78
DCR4720A34	3400	3400	4720	69	1000	1000	57	A	150/100/35	80-100
DCR5110M34	3400	3400	5110	69	1000	1000	50	M	150/100/26.5	80-100
Up to 4200V										
DCR780G42	4200	4200	780	10.5	1500	400	27	G	58.5/34/26.72	10-13
DCR1150N42	4200	4200	1150	16.8	1500	1000	22	N	73/47/34.89	20-25
DCR1260F42	4200	4200	1260	16.8	1500	1000	18	F	73/47/26.72	20-25
DCR2040L42	4200	4200	2040	29	1500	400	12	L	98.9/62.85/34.82	33-41
DCR2150C42	4200	4200	2160	29	1500	400	10	C	98.9/62.85/26.76	33-41
DCR2930Y42	4200	4200	2910	40.6	1500	400	8	Y	112.5/73/35.4	48 - 59
DCR3030V42	4200	4200	3020	40.6	1500	400	7	V	110/73/27.6	48 - 59
DCR3790B42	4200	4200	3740	53.5	1500	400	7	B	120/84.6/34.9	68 - 84
DCR4100W42	4200	4200	3880	53.5	1500	400	6	W	120/84.6/27.6	68 - 84
Low Conduction Loss										
DCR4500A42	4200	4200	4450	60	2000	500	6	A	148/100/35.5	74 - 91
DCR4880M42	4200	4200	4810	60	2000	500	5	M	148/100/26.1	74 - 91
DCR6650H42	4200	4200	6610	98	2000	500	4	H	170/115/35.0	120 - 155
Low Switching Loss										
DCR4160A42	4200	4200	4160	56.1	2000	500	6	A	148/100/35.5	74 - 91
DCR4510M42	4200	4200	4500	56.1	2000	500	5	M	148/100/26.1	74 - 91
DCR6140H42	4200	4200	6070	90.0	2000	500	4	H	170/115/35.0	120 - 155
Up to 5200V										
DCR690G52	5200	5200	690	9.45	1500	300	27	G	57/34/26.84	10 - 13
DCR1020N52	5200	5200	1018	14.8	1500	800	22	N	73/47/34.89	20 - 25
DCR1110F52	5200	5200	1107	14.8	1500	800	18	F	73/47/26.84	20 - 25
DCR1850L52	5200	5200	1845	26.25	1500	300	12	L	98.9/62.85/34.94	33 - 41
DCR1950C52	5200	5200	1950	26.25	1500	300	10	C	98.9/62.85/26.84	33 - 41
DCR2630Y52	5200	5200	2620	36.7	1500	300	8	Y	112.5/73/35.47	48 - 59
DCR2720V52	5200	5200	2710	36.7	1500	300	7	V	110/73/27.7	48 - 59
DCR3480B52	5200	5200	3440	49	1500	400	7	B	120/84.6/35.0	68 - 84
DCR3640W52	5200	5200	3560	49	1500	400	6	W	120/84.6/27.7	68 - 84
Low Conduction Loss										
DCR3990A52	5200	5200	3990	53.4	2000	1000	6	A	148/100/35.61	74 - 91
DCR4330M52	5200	5200	4325	53.4	2000	1000	5	M	148/100/26.26	74 - 91
DCR5890H52	5200	5200	5890	86.97	2000	500	4	H	170/115/35.27	120 - 155
Low Switching Loss										
DCR3700A52	5200	5200	3700	49.4	2000	1000	6	A	148/100/35.6	74 - 91
DCR4000M52	5200	5200	4000	49.4	2000	1000	5	M	148/100/26.3	74 - 91
DCR5240H52	5200	5200	5160	76.6	2000	500	4	H	170/115/35.1	120 - 155

Part Number	V_{DRM} (V)	V_{RRM} (V)	I_T (AV) at TC= 60°C (A)	I_{TSM} at Tvj VR = 0 (kA)	dV/dt (V/µs)	Non Rep. dI/dt (A/µs)	$R_{th(j-c)}$ (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 6500V										
DCR490J65	6500	6500	490	6.6	1500	200	38	J	57/33.95/35.15	10 - 13
DCR590G65	6500	6500	595	6.6	1500	200	27	G	58.5/34/27.1	10 - 13
DCR820N65	6500	6500	820	12	1500	200	22	N	73/47/35.15	20 - 25
DCR890F65	6500	6500	894	12	1500	200	18	F	73/47/27.1	20 - 25
DCR1570L65	6500	6500	1570	22	1500	300	12	L	98.9/62.85/35.2	33 - 41
DCR1650C65	6500	6500	1650	22	1500	300	10	C	98.9/62.9/27.1	33 - 41
DCR2220Y65	6500	6500	2220	30	1500	300	8	Y	112.5/73/35.7	48 - 59
DCR2290V65	6500	6500	2280	30	1500	500	8	V	110/73/28	48 - 59
DCR2880B65	6500	6500	2840	38.9	1500	300	7	B	120/84.6/35.3	68 - 84
DCR2950W65	6500	6500	2940	38.9	1500	300	6	W	120/84.6/28	68 - 84
DCR3220A65	6500	6500	3220	43	2000	500	6	A	148/100/35.9	74 - 91
DCR3480M65	6500	6500	3480	43	2000	500	5	M	148/100/26.5	74 - 91
Low Conduction Loss										
DCR3360A65	6500	6500	3360	44.7	2000	500	6.0	A	148 /100 / 35.9	74 - 91
DCR3620M65	6500	6500	3620	44.7	2000	500	5.2	M	148 /100 / 26.5	74 - 91
DCR4660H65	6500	6500	4650	69.1	2000	500	4.3	H	170 / 115 / 35.4	120 - 155
Low Switching Loss										
DCR3120A65	6500	6500	3120	41.5	2000	500	6.0	A	148 /100 / 35.9	74 - 91
DCR3370M65	6500	6500	3370	41.5	2000	500	5.2	M	148 /100 / 26.5	74 - 91
DCR4420H65	6500	6500	4350	64.6	2000	500	4.3	H	170 / 115 / 35.4	120 - 155
8500V										
DCR390J85	8500	8500	387	5.25	1500	200	38	J	57 / 33.95 / 35.51	10 - 13
DCR470G85	8500	8500	467	5.25	1500	200	27	G	58.5 / 34 / 27.4	10 - 13
DCR680N85	8500	8500	677	9.8	1500	200	22	N	73 / 47 / 35.51	20 - 25
DCR750F85	8500	8500	740	9.8	1500	200	18	F	73 / 47 / 27.4	20 - 25
DCR1300L85	8500	8500	1300	17.6	1500	400	12	L	98.9/62.85/35.56	33 - 41
DCR1370C85	8500	8500	1370	17.6	1500	400	10	C	98.9/ 62.85/ 27.4	33 - 41
DCR1840Y85	8500	8500	1830	25	1500	300	8	Y	112.5 / 73 / 35.1	48 - 59
DCR1910V85	8500	8500	1900	25	1500	300	8	V	110 / 73 / 28.3	48 - 59
DCR2400B85	8500	8500	2370	33.5	1500	300	7	B	120 / 84.6 / 35.6	68 - 84
DCR2450W85	8500	8500	2450	33.5	1500	300	6	W	120 / 84.6 / 28.3	68 - 84
Low Conduction Loss										
DCR2770A85	8500	8500	2770	36.6	1500	200	6	A	148 / 100 / 36.2	74 - 91
DCR2990M85	8500	8500	2990	36.6	1500	500	5	M	148 / 100 / 26.8	74 - 91
DCR3980H85	8500	8500	3910	58.1	2000	500	4	H	170 / 115 / 35.7	120 - 155
Low Switching Loss										
DCR2560A85	8500	8500	2610	34.5	1500	200	6	A	148 / 100 / 36.2	74 - 91
DCR2760M85	8500	8500	2810	34.5	1500	200	5	M	148 / 100 / 26.8	74 - 91
DCR3640H85	8500	8500	3620	53.7	2000	500	4	H	170 / 115 / 35.7	120 - 155

Scan this for a list of 6500V Phase Control Thyristors to download datasheets and application notes

Scan this for a list of 8500V Phase Control Thyristors to download datasheets and application notes



Gate Turn Off Thyristors

Part Number	VDRM (V)	VRRM (V)	IT (AV) at TC= 80°C (A)	ITSM (kA)	dV/dt (V/µs)	dI/dt (A/µs)	Rth(j-c) (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	Snubber Diode	Anti-parallel and Freewheel Diode	Clamping Force (kN) min - max
Asymmetric Types												
Up to 1300V												
DGT304SE	1300	16	250	700	500	500	75	E	41.9/25/15	-	DF451	5-6
Up to 1800V												
DGT305SE	1800	16	240	700	500	500	75	E	41.9/25/15	-	DF451	5-6
Up to 2500V												
DG306AE	2500	16	225	600	1000	300	75	E	41.9/25/15	-	DFS454	5-6
DG406BP	2500	16	500	1200	1000	300	41	P	56/38/27	DSF8025SE	DSF8025SE	11-15
DG646BH	2500	16	867	2500	1000	300	18	H	100/63/26.5	DSF8025SE	DF051	18-22
Up to 4500V												
DG408BP	4500	16	320	1000	1000	300	41	P	56/38/27	DSF8045SK	DSF8045SK	11-15
DG648BH	4500	16	745	2000	1000	300	18	H	100/63/26.5	DSF8045SK	DSF20545SF	18-22
DG758BX	4500	16	870	3000	1000	300	15	X	112/66/27	DSF8045SK	DSF21545SV	33-37
DG808BC	4500	16	780	3000	1000	400	14	C	108/77.2/27	DSF8045SK	DSF21545SV	28-44
DG858BW	4500	16	1180	4000	1000	300	11	W	120/84/27	DSF8045SK	DSF21545SV	36-44
DG858DW	4500	16	1100	3000	750	300	11	W	120/84/27	DSF8045SK	DSF21545SV	36-44
Reverse Blocking												
Up to 1300V												
DGT304RE	1300	1300	250	700	500	500	75	E	41.9/25/15	-	DF451	5-6
Up to 1800V												
DGT305RE	1800	1800	240	700	500	500	75	E	41.9/25/15	-	DF451	5-6

Asymmetric Bypass Thyristors

Part Number	VDRM (V)	VRRM (V	IT (AV) at TC= 80°C (A)	ITSM (kA)	dV/dt (V/µs)	Non Rep. dI/dt (A/µs)	Rth(j-c) (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	DC Cosmic Ray Failure Rate @ 50% VRRM (FITs)	Clamping Force (kN) min - max
ACR3200VR33	1000	3300	3200	43	10	1500	8	V	110/73/27.57	9	48-59
ACR2900VR45	1000	4500	2900	39	10	1300	8	V	110/73/27.69	8	48-59

The Bypass Thyristor range are specifically designed for protection of IGBT modules in VSC multi-level applications, where a reduced forward blocking voltage is required. In these applications, a thyristor must rapidly divert fault currents from an IGBT diode to protect it from damage. Dynex have designed devices with improved current and surge ratings to assist fault diversion.

Such protective thyristors are required to block in parallel with the IGBT diode, and as such experience waveforms that are non typical of thyristor applications. They are resistant to fast voltage transients, which can be exposed to due to the switching of the IGBT diode. The device structures also have greatly enhanced hardness to cosmic ray induced failures, which become significant at high DC voltage duty cycles.

Part Number	V_{DRM} (V)	V_{RRM} (V	I_T (AV) at T_C= 80°C (A)	I_{TSM} at T_{vj} V_R = 0 (kA)	dV/dt (V/µs)	dI/dt (A/µs)	to Ipk (kA)	Rth(j-c) (°C/kW)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Pulsed Power Thyristors (SCR)											
ACR300SG33	3300	20	493	6.5	3000	2000	0.125	42	G	58.5 / 34 / 27	6 - 8
PT40QPX45	4500	16	760	13	200	5000	20	33	P	56 / 38 / 26	10 - 13
PT60QHX45	4500	16	1000	22.5	175	10000	40	13	H	100 / 63 / 26.5	18 - 22
PT85QWX45	4500	16	1670	37	200	22000	90	10	W	120 / 84.6 / 27.7	36 - 44

Note: 1. Please contact customer services for the availability of clamps for these devices.

The PT family of Pulsed Power Thyristors (PPTs) are based on Dynex's GTO technology, designed for long term stability under DC voltages. The structures are resistant to cosmic ray induced failures at normal working voltages.

The Pulsed Power Thyristor range may be used to connect a source of stored energy such as a capacitor to a load, or to bypass and protect the load in the case of a crowbar circuit. In pulsed power applications where the rate of current is very fast, the pulsed power switch acts as a closing switch and standard phase control thyristors (SCRs) are likely to fail due to the high di/dt experienced.

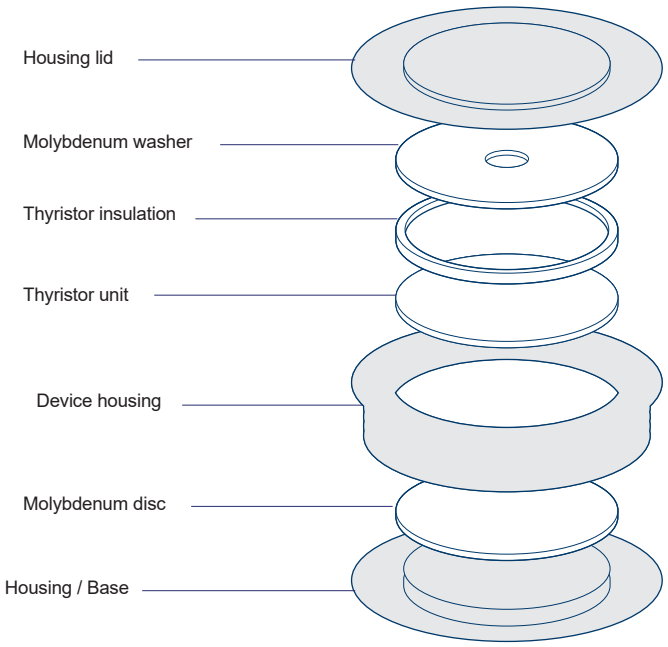
Pulsed Power Thyristors may also be required to act in the opening switch mode. Such applications may include; those where voltage is reapplied to the pulsed power switch shortly after closing, and the switch needs to have recovered blocking capability, or the transferred energy needs to be controlled. In these applications, the switch needs to have turn-off capability to reduce the natural turn-off time (tq) of the device. The device is operated in GTO mode with the appropriate commutating gate drive. Dynex has been supplying thyristors used as crowbars to protect other high power circuitry in railway propulsion units for many years.

In the field of ignitron replacements and weld switches, Dynex has been a leader in the application of solid state devices. Dynex has been involved in the design and manufacture of assemblies for the pulsed power academic communities on the West Coast of America and at CERN, Switzerland.

For more information on how Dynex can help with your pulsed power needs, please e-mail us at powersolutions@dynexsemi.com

Thyristor Components

Take a look at the components that make up our encapsulated device. The devices are fully floating and therefore are not bonded together and are clamped together to achieve electrical and thermal contact instead. This allows our products to have an excellent temperature cycling life expectancy.



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B6
B7
B8

Part Number	V_{RRM} (V)	I_F (AV) at T_C = 100° (A)	I_{FSM} at T_{vj} V_R=0	I^2t at T_{vj} V_R = 0 (MA^2s)	$R_{th(j-c)}$ (°C/kW)	I_{FM} (A)	V_{FM}@ I_{FM} & T_c= 25°C (V)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 1400V										
DRD520T14	1400	520	5.9	0.17	80	800	1.45	T	42/19/13.5	4-6
DRD710T14	1400	866	8.0	0.3	70	600	1.20	T	42/19/15	3.5-5
DRD1360D14	1400	1360	15.2	1.16	35	1500	1.3	D	47/29/14.5	8-12
DRD1510G14	1400	1510	16.8	1.41	35	1500	1.2	G	58/34/26.5	12-18
DRD2770F14	1400	2770	31	4.81	20	1500	1.05	F	75/47/26.5	18-26
DRD3220X14	1400	3220	35.8	6.41	18	3000	1.15	X	85/53/26.5	26-34
DRD4650C14	1400	4650	45	10.13	13	3000	1.05	C	100/63/26.5	40-50
DRD6080V14	1400	6080	60	18.00	10	3000	1.05	V	110/73/26.5	50-62
Up to 2200V										
DRD4890L15	1500	5794	57.0	16.2	13	3000	1.05	L	102/63/32.9	40-48
DRD2460F18	1800	2996	41.3	8.5	22	3400	1.18	F	76/48/26.5	18-22
DRD5460Y20	2000	6654	100.0	50.0	10	3000	1.00	Y	112.5/73/36.7	38-47
DRD410T22	2200	410	4.9	0.12	80	800	1.85	T	42/19/13.5	4-6
DRD990D22	2200	990	12.5	0.78	35	1500	1.60	D	47/29/14.5	8-12
DRD1100G22	2200	1100	13.9	0.966	35	1500	1.45	G	58/34/26.5	12-18
DRD2030F22	2200	2030	25.7	3.30	20	1500	1.20	F	75/47/26.5	18-26
DRD2360X22	2200	2360	29.8	4.44	18	3000	1.35	X	85/53/26.5	26-34
DRD3430C22	2200	3430	42.2	8.9	13	3000	1.20	C	100/63/26.5	40-50
DRD4460V22	2200	4460	56.4	15.90	10	3000	1.15	V	110/73/26.5	50-62
DRD6380W22	2200	6380	78	30.42	7	6000	1.09	W	120/84/26.5	62-78
DRD6800A22	2200	6800	94	44.18	6	6000	1.03	A	150/100/35	80-100
DRD8880H22	2200	8880	125	78.13	4	6000	0.98	H	172/110/35	110-130
Up to 3000V										
DRD2880L25	2500	3438	32.0	5.12	13	1500	1.05	L	102/63/34.1	40-48
DRD4780Y26	2600	5788	81.0	33.0	10	3000	1.05	Y	112/73/37.7	38-47
DRD1960F28	2800	2372	31.3	4.9	22	3400	1.30	F	76/48/27	18-22
DRD6990M28	2800	8790	95.0	45.1	6	3000	0.97	M	148/100/26	75-91
DRD1320G30	3000	1850	20.0	2.0	32	1800	1.30	G	58.5/34/27	11.5-13.5
Up to 3400V										
DRD850D34	3400	850	10.8	0.583	35	1500	1.95	D	47/29/14.5	8-12
DRD960G34	3400	960	12	0.72	35	1500	1.7	G	58/34/26.5	12-18
DRD1830F34	3400	1830	23	2.65	20	1500	1.35	F	75/47/26.5	18-26
DRD2050X34	3400	2050	25.8	3.33	18	3000	1.55	X	85/53/26.5	26-34
DRD2980C34	3400	2980	36.5	6.66	13	3000	1.35	C	100/63/26.5	40-50
DRD3920V34	3400	3920	49.5	12.25	10	3000	1.25	V	110/73/26.5	50-62
DRD5240W34	3400	5240	64.2	20.61	7	6000	1.29	W	120/84/26.5	62-78
DRD6140A34	3400	6140	84.4	35.62	6	6000	1.1	A	150/100/35	80-100
DRD7810H34	3400	7810	118	69.62	4	6000	1.1	H	172/110/35	110-130
Up to 4000V										
DRD870G40	4000	870	15	1.13	32	1800	1.6	G	58.5/34/27	11.5-13.5
DRD1230F40	4000	1225	25	3.13	22	3400	1.6	F	76/48/27	18-22
DRD2960Y40	4000	2960	62.5	19.53	10	3000	1.25	Y	112.5/73/37.7	38-47
DRD3390V40	4000	3388	62.5	19.53	8	3000	1.25	V	112.5/73/27	38-47
DRD4350A40	4000	4350	83	34.50	7	3000	1.06	A	148/100/35	75-91

Rectifier Diodes

Part Number	V_{RRM} (V)	I_F (AV) at T_C = 100° (A)	I_{FSM} at T_{vj} VR=0	I^2t at T_{vj} VR = 0 (MA^2s)	$R_{th(j-c)}$ (°C/kW)	I_{FM} (A)	V_{FM}@ I_{FM} & T_c= 25ºC (V)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 5000V										
DRD2000L45	4500	2000	31	3.92	13	3000	1.4	L	102/63/32.9	40-48
DRD6290H45	4500	6290	99.4	49.4	4	6000	1.19	H	172/110/35	110-130
DRD1100F48	4800	1105	20.5	2.13	22	3400	1.8	F	76/48/27	18-22
DRD710G50	5000	710	11.5	0.66	32	1800	1.8	G	58.5/34/ 27	11.5-13.5
DRD2690Y50	5000	2691	55	15.12	10	3000	1.21	Y	112.5/73/37.7	38-47
DRD3080V50	5000	3083	55	15.12	8	3000	1.21	V	112.5/73/27	38-47
Up to 6000V										
DRD5940H55	5500	5940	93.60	43.8	4	6000	1.26	H	172/110/36	110-130
DRD3770A52	5200	3768	70	24.50	7	3000	1.17	A	148/100 /35.0	75-91
DRD3120B55	5500	3120	51.7	13.364	9	3000	1.31	B	120/78/35	62-78
DRD630G60	6000	630	10.5	0.555	32	1800	2.1	G	58.5/34/27	11.5-13.5
DRD1010F60	6000	1015	16.5	1.425	22	3400	2.1	F	76/48/27	18-22
Up to 7200V										
DRD5150H65	6500	5150	82.5	34	4	6000	1.65	H	172/110/36	110-130
DRD4950H72	7200	4950	79	31.2	4	6000	1.71	H	172/110/36	110-130
Up to 9000V										
DRD4690H85	8500	4690	74.5	27.75	4	6000	1.31	H	172/110/36	110-130
DRD560G90	9000	530	76.5	0.29	32	1200	2.95	G	58/34/26.5	11-13

Fast Recovery Diodes

Part Number	V_{RRM} (V)	I_T (AV) at T_C= 65°C (A)	I_{FSM} at T_{vj} VR=0 (kA)	I^2t at T_{vj} VR = 0 (MA^2s)	I_{FM} (A)	V_F (V)	Q_r (µC)	t_{rr} (µs)	Outline Type Code	Flange OD Contact OD Height (mm)	Clamping Force (kN) min - max
Up to 1400V											
DF451	1600	295	3.5	0.061	600	2.65	25	1.22	T	42/19/15	4.5-5.5
Up to 2500V											
DSF8025SE	2500	650	7.5	0.281	1000	2.3	540	5	E	42/25/15	7-9
DF051	2500	1490	14	0.98	1500	1.85	800	5	F	76/48/27	21-25
Up to 4500V											
DSF8045SK	4500	430	3.5	0.061	1000	4	440	3.07	K	42/25/27	7-9
DSF20545SF	4500	1250	16	1.28	1800	2.1	1250	7	F	76/48/27	17.5-21.5
DSF21545SV	4500	3200	20	2	3000	2	1800	7	V	112.5/73/27	34-48
Up to 6000V											
DSF11060SG	6000	400	4.2	0.09	600	3.8	700	6	G	58.5/34/27	10.8-13.2

Part Number	VRRM (V)	IF (AV) at T_C = 100° (A)	IFSM at Tvj VR=0 (kA)	I^2t at Tvj VR = 0 (MA^2s)	Rth(j-c) (°C/kW)	IFM (A)	VFM@ IFM & T_C= 25ºC (V)	Outline Type Code	Clamping Force (kN) min - max
Up to 4500V									
S1104SXU30	3000	860	16	1.28	650	1800	1.225	Z	0-22
S1107SXU40	4000	570	12	0.72	650	1800	1.55	Z	0-22
S1109SXU50	5000	470	9.2	0.441	650	1800	2.1	Z	0-22
S1112SXU60	6000	412	8.5	0.361	650	1800	2.6	Z	0-22

Rectifier Diodes

The Dynex range of Rectifier Diodes are suitable for DC motor control, power supplies, welding and battery charges.

KEY FEATURES

- ✓ Current ratings of 410A average to to 8800A average
- ✓ Voltage ratings of 1.4kV to 9kV
- ✓ Double side cooling
- ✓ High surge capability

Flat Base Rectifier Diodes

The Dynex range of Flat Base Rectifier Diodes convert AC to DC, for the refurbishment of industrial and chemical rectifiers and aluminium pot lines.

KEY FEATURES

- ✓ Current ratings of 412A average to 860A average
- ✓ Voltage ratings of 3kV to 6kV
- ✓ Low losses for high efficiency
- ✓ Hermetically sealed for long operational life
- ✓ Easily mounted down with M8 bolts on 46mm centres
- ✓ Available anode to base and cathode to base
- ✓ Selections available for parallel operation

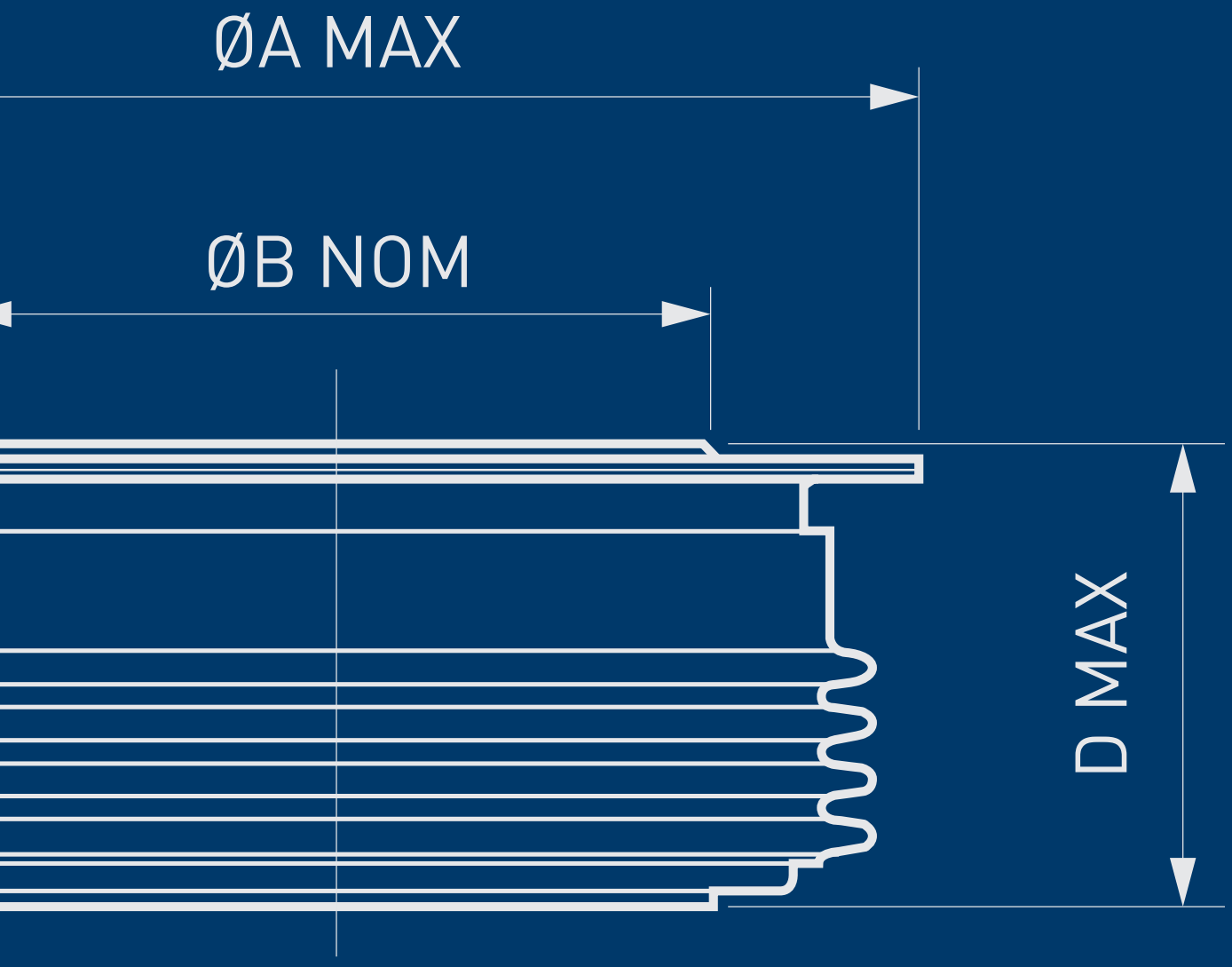
Fast Recovery Diodes

The Dynex range of Fast Recovery Diodes are designed to be used as snubber and anti-parallel diodes for use with its GTO.

KEY FEATURES

- ✓ Voltage ratings from 1.6KV to 6kV
- ✓ Lifetime controlled for fast recovery, low recovery charge
- ✓ Low transient turn-on voltage
- ✓ High surge capability
- ✓ Double side cooling

Explanation of Part Numbers



Explanation of Part Numbers

High Power IGBT & FRD Modules

Example Part Number: DFM800DDM18-A000

D	Dynex Semiconductor Identifier
I/F	I = IGBT / F = FRD
M	Module Generic Identifier
800	IC Current Rating
D/X/A/S/M	Package Outline/Power Terminal layout
D/S/C	Circuit configuration
S/M	Base plate technology S=Copper/M=Metal Matrix
18	Voltage rating divided by 100
(-)	
A/TS/TF/TL	Silicon Technology Identifier
US/UF/UL	
MS/MF/ML	
0	Special Selection Number (defaults to 000 for standard product)

***See page 29, 30, 31 for Package outlines**

Rectifier Diodes

Example Part Number: DRD2690Y50-1234

D	Dynex Semiconductor Identifier
RD	Rectifier Diode
2690	Average current rating at 100°C case temperature
Y	Case Outline
50	Vrrm/100
-1234	Special Selection Number

***See page 32 for Package outlines**

Gate Turn-off Thyristors

Example Part Number: DGT304SE13-123

D	Dynex Semiconductor Identifier
G	GTO
T	Optional indicates reverse blocking
30	Pellet size code
4	Factory code
S	Iteration A,B,C etc
E	Case Outline
13	Vdrm
-123	Special Selection Number

***See page 33 for Package outlines**

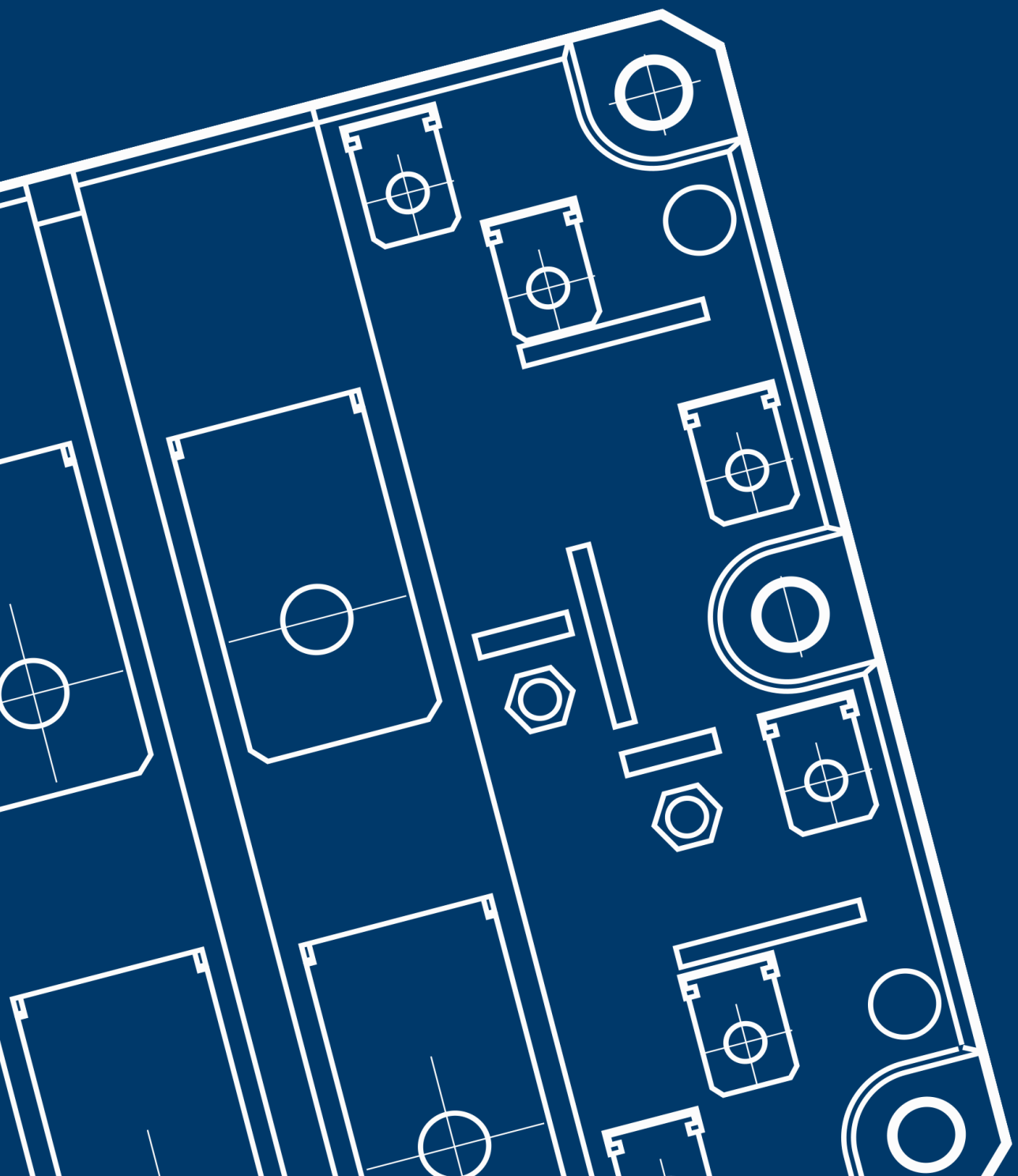
Asymmetric Thyristors

Example Part Number: ACR2900VR45-1234

A	Asymmetric
CR	Controlled Rectifier (Thyristor)
2900	Average current rating at 60°C case temperature
V	Case Outline
R/F	Reverse/Forward Blocking type
45	Vrrm /100 or Vdrm /100
-1234	Special Selection Number

***See page 32 for Package outlines**

Package Outlines

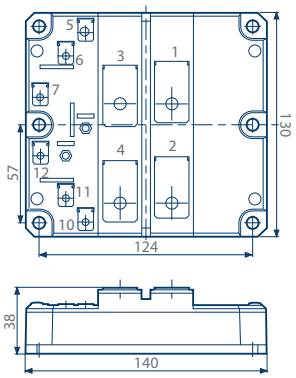


Module Outlines and Circuit Configurations

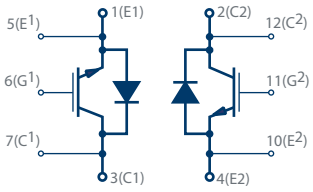
All dimensions shown in mm unless stated otherwise.

Package Type: D

Nominal weight: 1000g/1600g

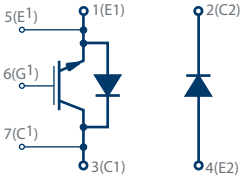


Dual Switch - DDM/S



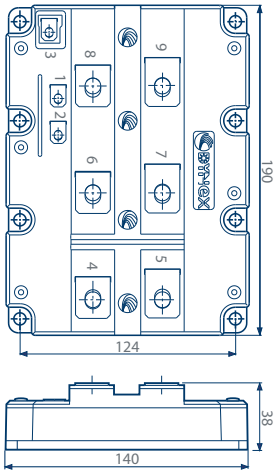
C^1 and C^2 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

Chopper switch - DCM/S

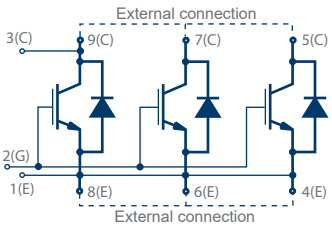


Package Type: E

Nominal weight: 1700g



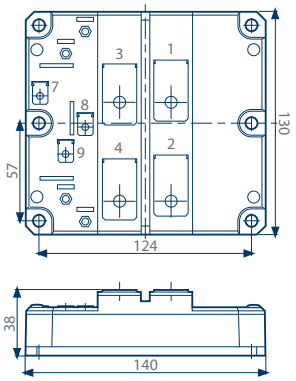
Single Switch - ESM



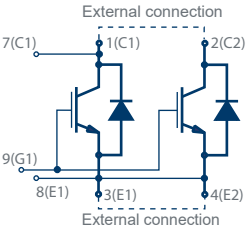
3 - Aux Collector
2 - Gate
1 - Aux Emitter

Package Type: F

Nominal weight: 1000g/1600g



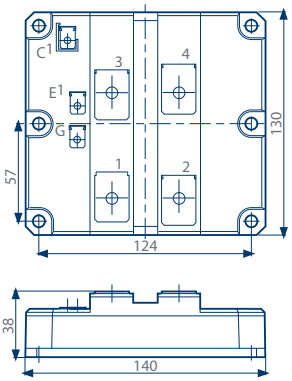
Single Switch - FSM/S



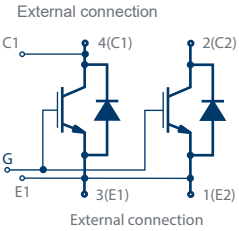
C^1 - Aux Collector
E^1 - Aux Emitter
G^1 - Gate

Package Type: N

Nominal weight: 1000g



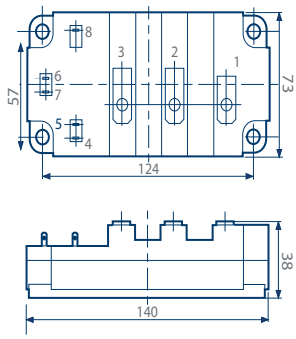
Single Switch - NSM



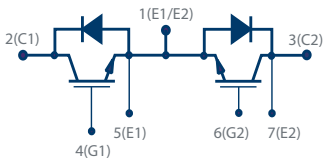
C^1 - Aux Collector
E^1 - Aux Emitter
G - Gate

Package Type: P

Nominal weight: 500/750g

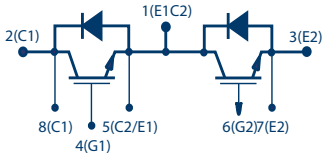


Bi-directional Switch - PBM



C^1 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

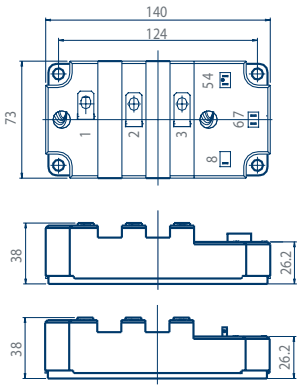
Half Bridge - PHM



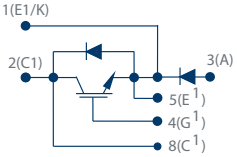
C^1 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

Package Type: P

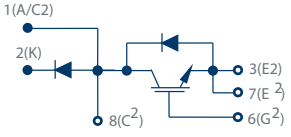
Nominal weight: 500g



Chopper High Side - PKM



Chopper Low Side - PLM



Notes:
1. Mounting recommendations are given in the application note AN4505 'Heatsink Issues For IGBT Modules' available from our website.

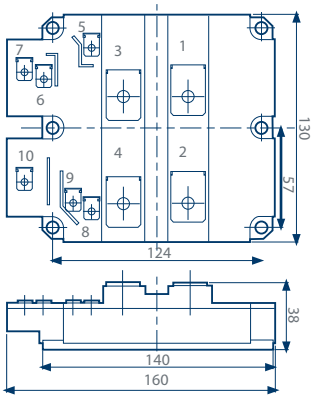
Package Outlines - IGBT Modules

Module Outlines and Circuit Configurations

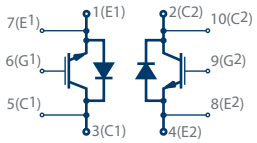
All dimensions shown in mm unless stated otherwise.

Package Type: G

Nominal weight: 1000g

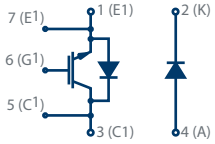


Dual Switch - GDM



C^1 and C^2 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

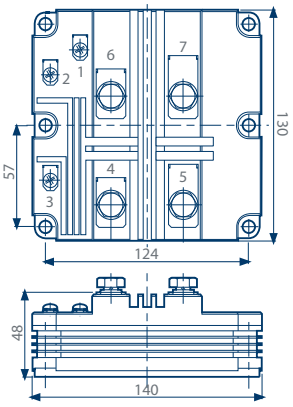
Chopper Switch - GCM



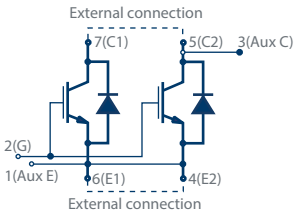
C^1 and C^2 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

Package Type: X

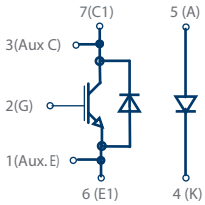
Nominal weight: 1100g



Single Switch - XSM

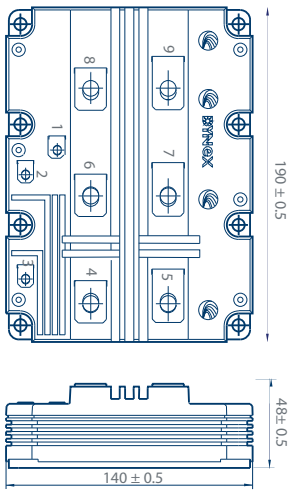


Chopper Switch - XCM

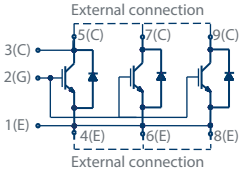


Package Type: A

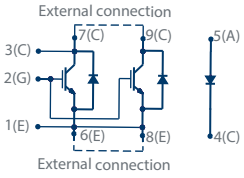
Nominal weight: 1700g



Single Switch - ASM



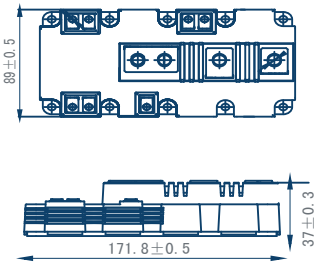
Chopper Switch - ACM



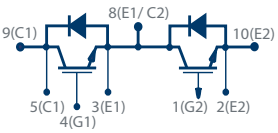
3 - Aux Collector
2 - Gate
1 - Aux Emitter

Package Type: H2

Nominal weight: 900g



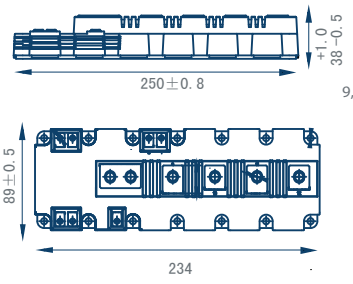
Half Bridge - H2HM



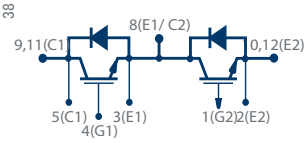
C^1 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

Package Type: H1

Nominal weight: 1700g



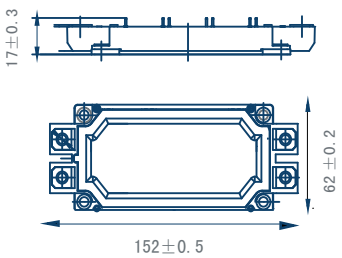
Half Bridge - H1HM



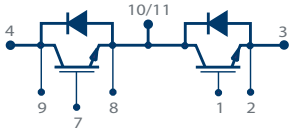
C^1 - Aux Collector
E^1 and E^2 - Aux Emitter
G^1 and G^2 - Gate

Package Type: M1

Nominal weight: 345g



Half Bridge - M1HM



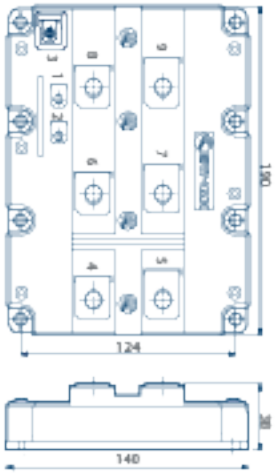
Notes:
1. Mounting recommendations are given in the application note AN4505 ‘Heatsink Issues For IGBT Modules’ available from our website.

Module Outlines and Circuit Configurations

All dimensions shown in mm unless stated otherwise.

Package Type: E

Nominal weight: 1700g

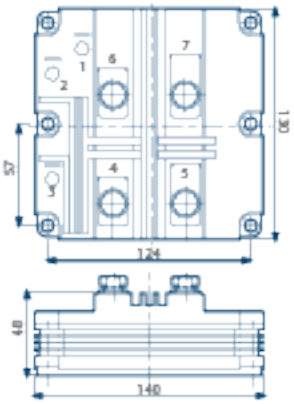


Triple Diode - EXM

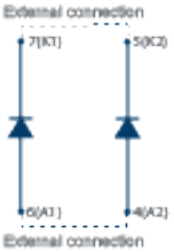
External connection for single diode application

Package Type: X

Nominal weight: 1100g



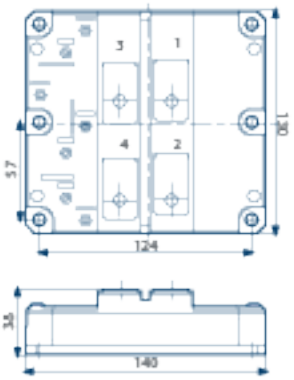
Dual Diode - XXM



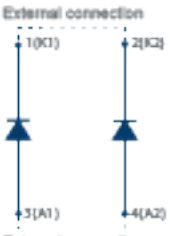
External connection for single diode application

Package Type: F

Nominal weight: 1000g/1600g



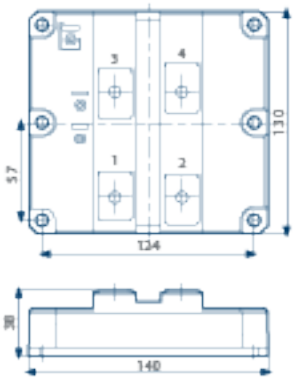
Dual Diode - FXM/S



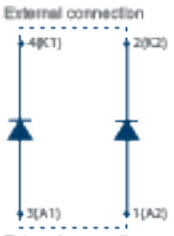
External connection for single diode application

Package Type: N

Nominal weight: 1000g



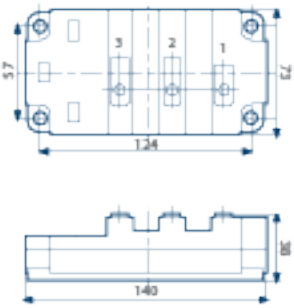
Dual Diode - NXM



External connection for single diode application

Package Type: P

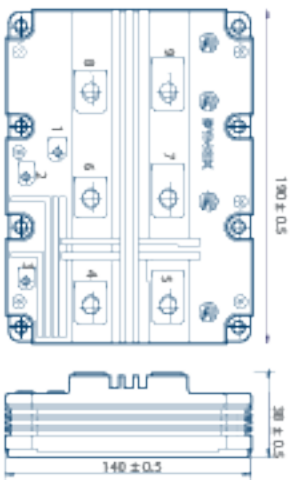
Nominal weight: 500g



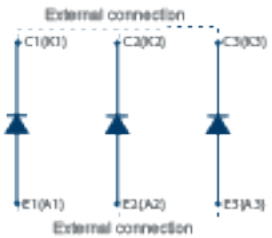
Series Diode - PXM

Package Type: A

Nominal weight: 1700g



Triple Diode - AXM



External connection for single diode application

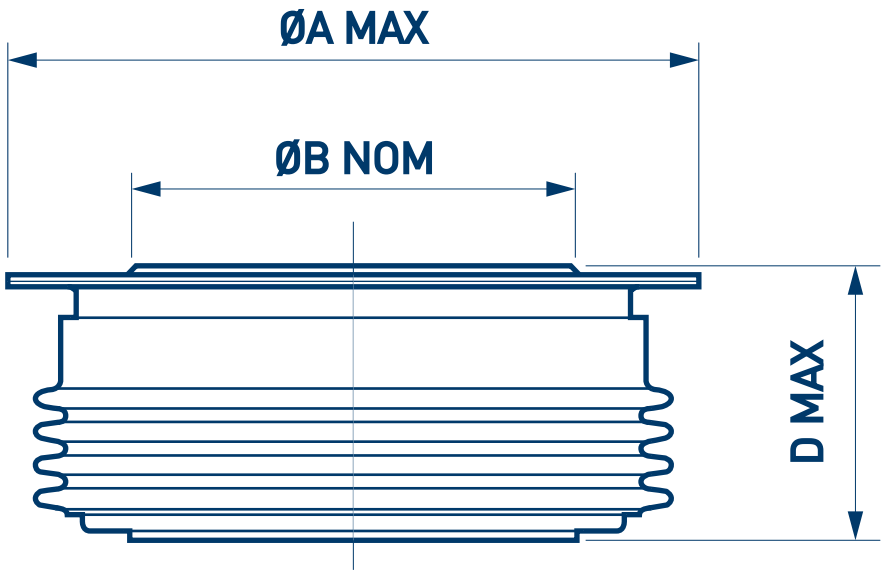
3 - Aux Collector
2 - Gate
1 - Aux Emitter

Notes:

1. Mounting recommendations are given in the application note AN4505 ‘Heatsink Issues For IGBT Modules’ available from our website.

Thyristor and Diode Outlines

For detailed dimensions, see datasheet on www.dynexsemi.com

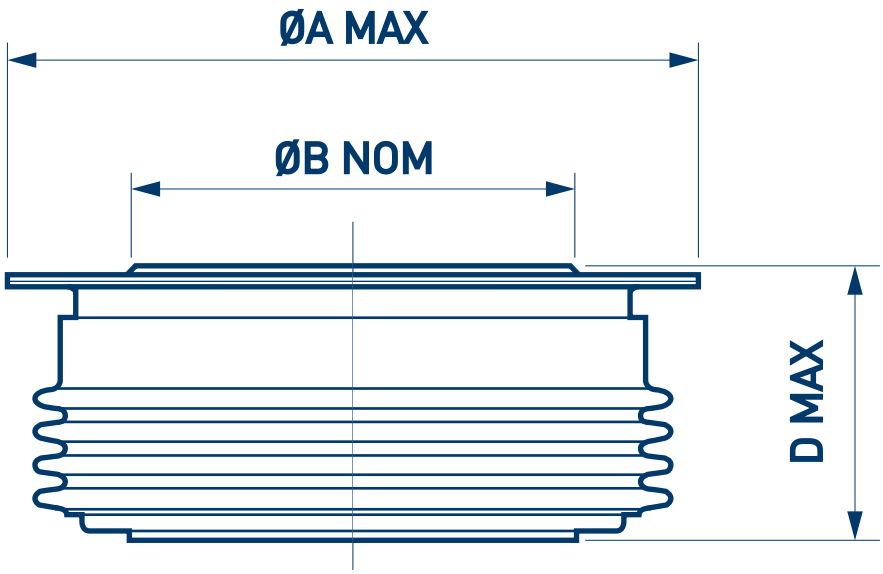


Outline	Flange (A) [mm] Max*	Pole (B) [mm] Nominal*	Depth (D) [mm] Maximium	Weight (kg)
A	148 & 150	100	37	2.6
B	120	85	36	1.5
C	99 & 102	63	28	0.8
D	47	29	15	0.24
E	42	25	15	0.082
F	73 & 75	47	28	0.433
G	57 & 58	35	28	0.25
H	172	110	36	3.5
J	57 & 58	34	36	0.322
K	42	25	27	0.16
L	99 & 100 & 102	63	36	1.05
M	148 & 150	100	27	1.95
N	73 & 75	47	36	0.48
T	42	19	15	0.055
V	110 & 112	73	29	1.1
W	120	84	29	1.55
X	85	53	27	0.6
Y	112 & 120	73 & 78	36	1.45

Notes:
*The character '&' denotes we manufacture products in a generic outline, some of which have one flange/contact diameter and others that have a slightly different flange/contact diameter. There is no choice of flange/contact diameter for a specific device.

GTO Outlines

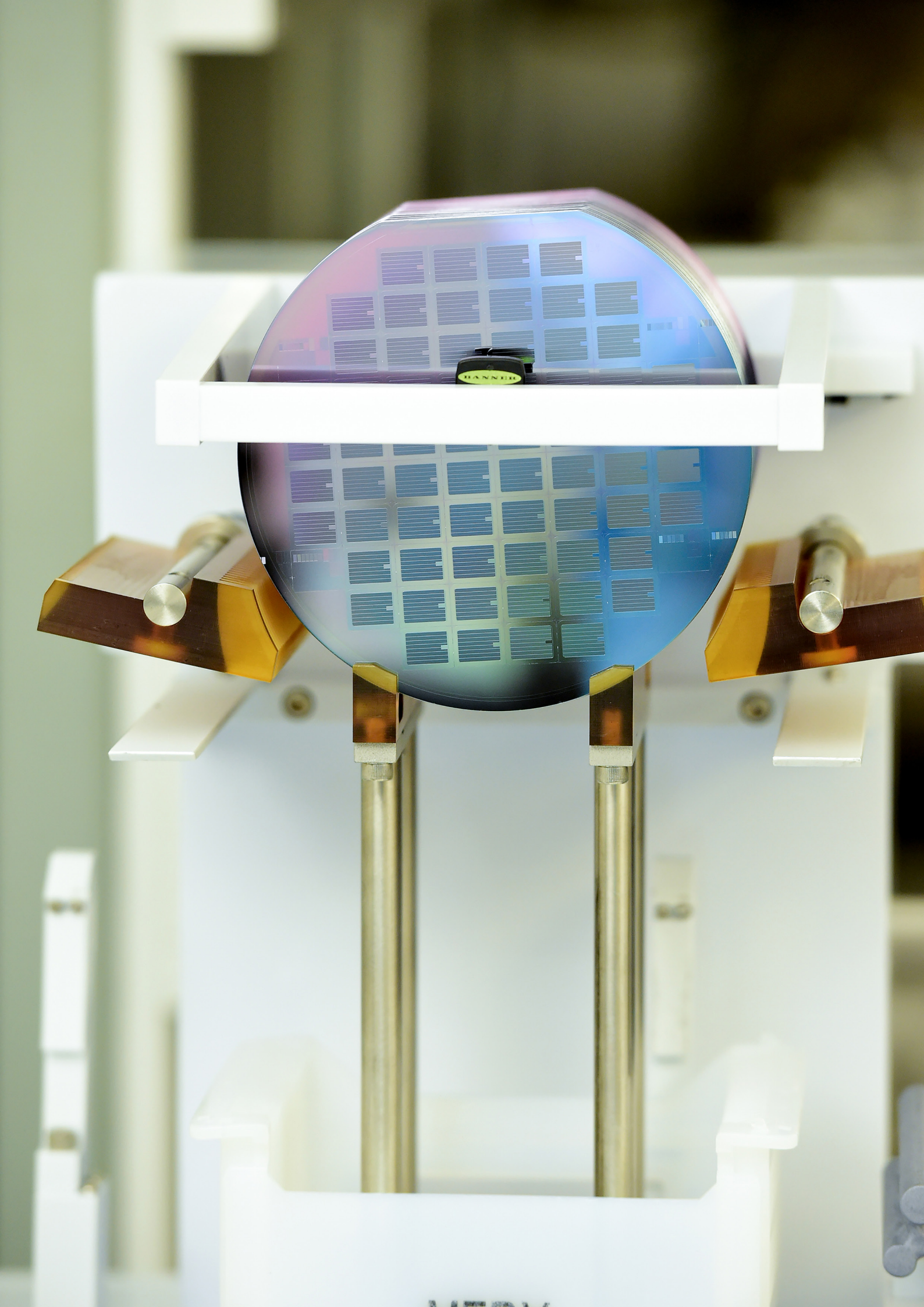
For detailed dimensions, see datasheet on www.dynexsemi.com



Outline	Flange/Max OD (A) [mm]	Pole (B) [mm]	Depth (D) [mm]	Weight (kg)
C	108	77	27	1.4
E	42	25	15	0.082
CA	56	38	36	0.46
H	100	63	27	0.82
P	56	38	27	0.35
W	120	85	27	1.7
v	85	53	27	1.2

Symbols and Definitions

C_S	Snubber capacitance
dI/dt	Critical rate of rise of on-state/forward current
dI_{FG}/dt	Rate of rise of positive gate current
dI_{GQ}/dt	Rate of rise of reverse gate current (GTO)
dIT/dt	Critical rate of rise of on-state current (GTO)
dsc	Double side cooled
dV/dt	Critical rate of rise of off-state voltage
dIV_D/dt	Rate of rise of off-state voltage (GTO)
E_{OFF}	Turn-off energy loss
E_{rec}	Reverse recovery energy
$E_{sw(TOT)}$	Total switching energy
F_m/F	Clamping force/mounting torque
I^2t	I^2t value
I_C	Collector current
$I_{C(PK)}$	Peak collector current
I_{DRM}	On-state leakage current (thyristor)
I_F	Forward current (diode)
$I_{F(AV)}$	Mean forward current (diode)
I_{FM}	Peak forward current (diode)
$I_{F(RMS)}$	RMS forward current (diode)
I_{FSM}	Single cycle surge current (diode), (10ms half sinewave)
$I_{G(ON)}$	Gate turn-on current (GTO)
I_{GT}	Gate trigger current
I_{RMS}	RMS line current
I_{PK}	Peak current
I_{RRM}	Peak reverse recovery current
$I_{T(RMS)}$	RMS on-state current (thyristor)
I_T/I_{TM}	On-state current
$I_{T(AV)}$	Mean on-state current (thyristor)
I_{TCM}	Maximum repetitive controllable current (GTO)
I_{TSM}	Single cycle surge current (thyristor), (10ms half sinewave)
P_G	Gate power dissipation
$P_{G(AV)}$	Mean gate power dissipation
P_{GM}	Peak gate power dissipation
Q_r	Recovered charge
Q_{rr}	Reverse recovery charge
r_T	On-state/forward slope resistance
$R_{th(c-hs)}$	Thermal resistance – case to heatsink
$R_{th(j-c)}$	Thermal resistance – junction to case
$R_{th(j-hs)}$	Thermal resistance – junction to heatsink
$R_{th(j-w)}$	Thermal resistance – junction to water
T_c	Case temperature
t_{gq}	Gate controlled turn-off time
t_q	Turn-off time
t_{rr}	Reverse recovery time
T_{HS}	Heatsink temperature
T_{vj}	Virtual junction temperature
T_{vjm}	Maximum virtual junction temperature
T_{water}	Water temperature
$V_{CE(sat)}$	Collector-emitter saturation voltage (IGBT)
V_{CES}	Collector-emitter voltage (IGBT)
V_{DRM}	Repetitive peak off-state voltage
V_{DSM}	Non-repetitive peak off-state voltage
V_F	Forward voltage (diode)
V_{FM}	Peak forward voltage (diode)
V_{isol}	Isolation voltage
V_{GT}	Gate trigger voltage
V_R	Reverse voltage
V_{RRM}	Repetitive peak reverse voltage
V_{RSM}	Non-repetitive peak reverse voltage
V_T	On-state voltage
V_{TM}	Peak on-state voltage
V_{TO}	Threshold voltage (diode)
$V_{T(TO)}$	Threshold voltage (thyristor)



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