

# Thyristor & Diode Modules

**IXYS UK's range of isolated base pressure contact thyristor and diode modules, designed to industry standard outlines is perfect for all your needs.**

Available in 9 standard configurations, all devices offer full pressure contact construction for maximum reliability and performance at rated current.

These products have a  $V_{RRM}/V_{DRM}$  between 1200V to 3600V and are available as dual thyristor, dual diode or thyristor/diode options. Single diode/single thyristor options are also available.

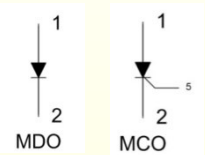
## Features and benefits

- $V_{RRM}/V_{DRM}$  up to 3600V
- Electrically isolated baseplate
- Industry standard package
- UL recognition
- Simplifies mechanical design
- Rapid assembly
- Full pressure contact construction

## New for 2016

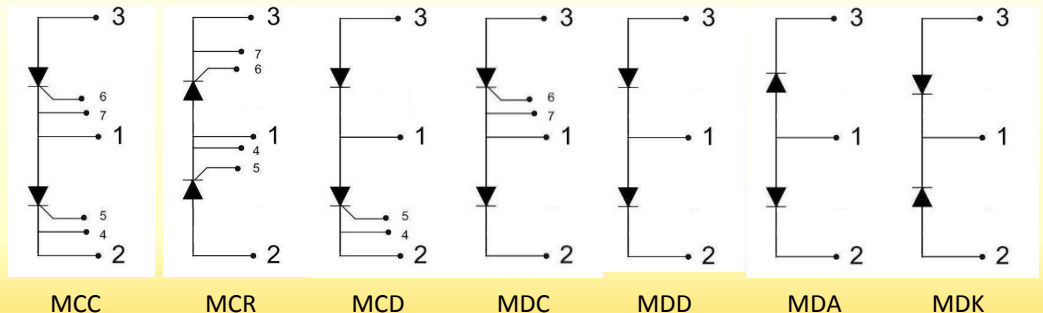
Continuing its long tradition of product improvement and innovation, IXYS UK is proud to introduce additions to its standard range of power modules, including a new 327A, 3600V io2 pressure contact module and a new range of smaller io3/N3 modules with current ratings from 160A-544A and voltage ratings from 1400V-3600V

2 configuration of single diode/thyristor available



## Applications

- Soft Starts
- Industrial Drives
- Wind Power Converters
- Welding
- Front End Rectifiers



## New io3/N3 range of pressure contact module

IXYS UK presents the newest addition to our pressure contact module range. This product is a smaller version of our highly successful io2/N2 range and benefits from the same high reliability construction

These modules will be available in MCC (dual thyristor), MCD (thyristor/diode and MDC (diode/thyristor) configurations as well as MDD/MDA/MDK dual diode configurations



### Dual Thyristor Modules

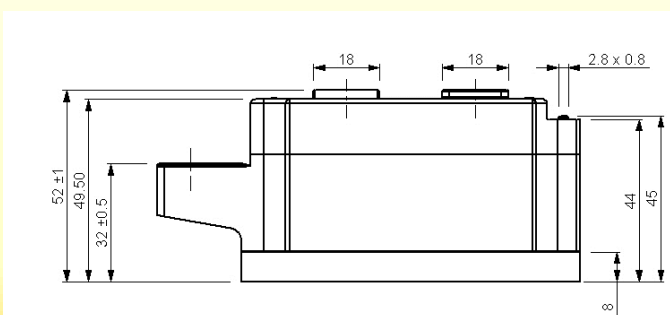
Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCC160-xxio3	3000-3600	169	85	265	3600	1.200	2.300	125	0.110	0.0400	W102
MCC220-28io3	2800	237	85	370	4950	0.900	1.100	125	0.110	0.0400	W102
MCC265-24io3	2400	283	85	443	6840	0.800	0.700	125	0.110	0.0400	W102
MCC325-xxio3	1400-1800	327	85	765	5000	1.150	0.800	125	0.062	0.0200	W102

### Dual Diode Modules

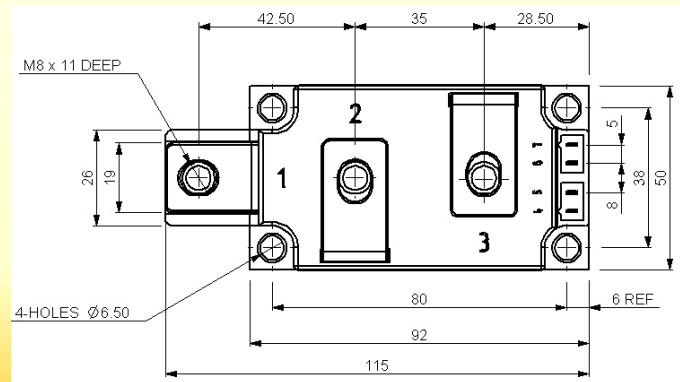
Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MDD275-xxN3	3000-3600	291	85	457	4500	0.900	1.570	150	0.1100	0.0400	W102
MDA275-xxN3											
MDK275-xxN3											
MDD410-xxN3	2400-2800	441	85	692	7650	0.850	0.450	150	0.1100	0.0400	W102
MDA410-xxN3											
MDK410-xxN3											
MDD510-xxN3	1400-1800	544	85	854	10800	0.750	0.250	150	0.1100	0.0400	W102
MDA510-xxN3											
MDK510-xxN3											

### Thyristor/Diode Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCD160-xxio3	3000-3600	169	85	265	3600	1.200	2.300	125	0.110	0.0400	W102
MDC160-xxio3											
MCD220-28io3	2800	237	85	370	4950	0.900	1.100	125	0.110	0.0400	W102
MDC220-28io3											
MCD265-24io3	2400	283	85	443	6840	0.800	0.700	125	0.110	0.0400	W102
MDC265-24io3											
MCD325-xxio3	1400-1800	327	85	765	5000	1.150	0.800	125	0.062	0.0200	W102
MDC325-xxio3											



W102 - 150A125



## High Power Module Range

Our new range of high power thyristor and diode modules expands on our current selection, with improved thermal and surge ratings. The dual thyristor and diode modules are also available in an MCR reverse configuration for ease of mounting two modules as an AC switch



### Dual Thyristor Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{FSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCC500-xxio7	3000-3600	500	85	1181	18000	1.079	0.422	125	0.05	0.016	W88
MCR500-xxio7	3000-3600	500	85	1181	18000	1.079	0.422	125	0.0500	0.0160	W88
MCC580-28io7	2800	581	85	1372	21000	0.926	0.313	125	0.0500	0.0160	W88
MCR580-28io7	2800	581	85	1372	21000	0.926	0.313	125	0.0500	0.0160	W88
MCC650-24io7	2400	646	85	1542	24500	0.874	0.227	125	0.0500	0.0160	W88
MCR650-24io7	2400	646	85	1542	24500	0.874	0.227	125	0.0500	0.0160	W88
MCC720-xxio7	1400-1800	719	85	1633	28000	0.823	0.241	125	0.0500	0.0160	W88
MCR720-xxio7	1400-1800	719	85	1633	28000	0.823	0.241	125	0.0500	0.0160	W88

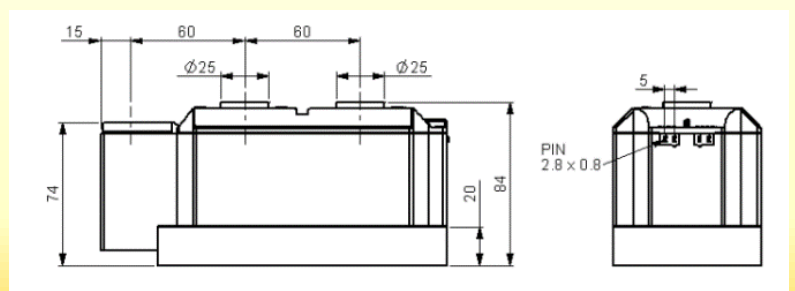
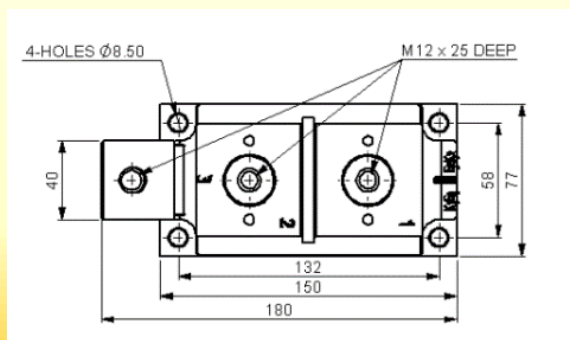
### Dual Diode Modules

Part No.	$V_{RRM}$	$I_{FAV}$	@ $T_C$	$I_{FRMS}$	$I_{FSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MDD1080-xxN7	1800-2800	1080	85	2235	32000	0.782	0.157	150	0.0500	0.0160	W88
MDA1080-xxN7	1800-2800	1080	85	2235	32000	0.782	0.157	150	0.0500	0.0160	W88
MDK1080-xxN7	1800-2800	1080	85	2235	32000	0.782	0.157	150	0.0500	0.0160	W88

### Dual Thyristor Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{FSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCD500-xxio7	3000-3600	500	85	1181	18000	1.079	0.422	125	0.05	0.0160	W88
MDC500-xxio7	3000-3600	500	85	1181	18000	1.079	0.422	125	0.05	0.0160	W88
MCD580-28io7	2800	581	85	1372	21000	0.926	0.313	125	0.05	0.0160	W88
MDC580-28io7	2800	581	85	1372	21000	0.926	0.313	125	0.05	0.0160	W88
MCD650-24io7	2400	646	85	1542	24500	0.874	0.227	125	0.05	0.0160	W88
MDC650-24io7	2400	646	85	1542	24500	0.874	0.227	125	0.05	0.0160	W88
MCD720-xxio7	1400-1800	719	85	1633	28000	0.823	0.241	125	0.05	0.0160	W88
MDC720-xxio7	1400-1800	719	85	1633	28000	0.823	0.241	125	0.05	0.0160	W88

xx in part number indicates voltage grade –  $V_{RRM}/V_{DRM} \div 100$



# Thyristor/Diode Modules – Standard Range

## Dual/Single Thyristor Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCC320-xxio2	3000-3600	327	85	765	5000	1.150	0.800	125	0.0650	0.2000	W74
MCC431-xxio2	2000-2400	429	85	1020	10900	1.000	0.410	125	0.0620	0.0200	W74
MCC501-xxio2	1200-1800	503	85	1195	14500	0.850	0.300	125	0.0620	0.0200	W74
MCC552-xxio2	1200-1600	550	85	1300	15800	0.770	0.259	125	0.0620	0.0200	W74
MCO741-22io1	2200	765	85	2315	29000	0.850	0.210	125	0.042	0.0100	W73
MCO801-xxio1	1400-1800	830	85	2530	30000	0.800	0.170	125	0.042	0.0100	W73

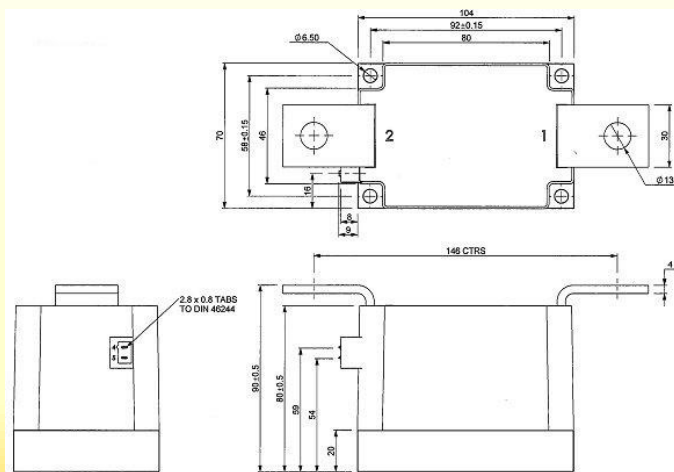
## Dual/Single Diode Modules

Part No.	$V_{RRM}$	$I_{FAV}$	@ $T_C$	$I_{FRMS}$	$I_{FSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	V				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MDD630-xxN2	3000-3600	632	85	1273	11800	0.800	0.500	150	0.0620	0.0200	W74
MDA630-xxN2	3000-3600	632	85	1273	11800	0.800	0.500	150	0.0620	0.0200	W74
MDK630-xxN2	3000-3600	632	85	1273	11800	0.800	0.500	150	0.0620	0.0200	W74
MDD 710-xxN2	2200-2600	708	85	1440	12750	0.800	0.350	150	0.0620	0.0200	W74
MDA 710-xxN2	2200-2600	708	85	1440	12750	0.800	0.350	150	0.0620	0.0200	W74
MDK 710-xxN2	2200-2600	708	85	1440	12750	0.800	0.350	150	0.0620	0.0200	W74
MDD 810-xxN2	1200-1800	807	85	1661	17250	0.780	0.230	150	0.0620	0.0200	W74
MDA 810-xxN2	1200-1800	807	85	1661	17250	0.780	0.230	150	0.0620	0.0200	W74
MDK 810-xxN2	1200-1800	807	85	1661	17250	0.780	0.230	150	0.0620	0.0200	W74
MDO1201-xxN1	1400-2200	1520	85	3665	36000	0.800	0.100	160	0.0420	0.0100	W73

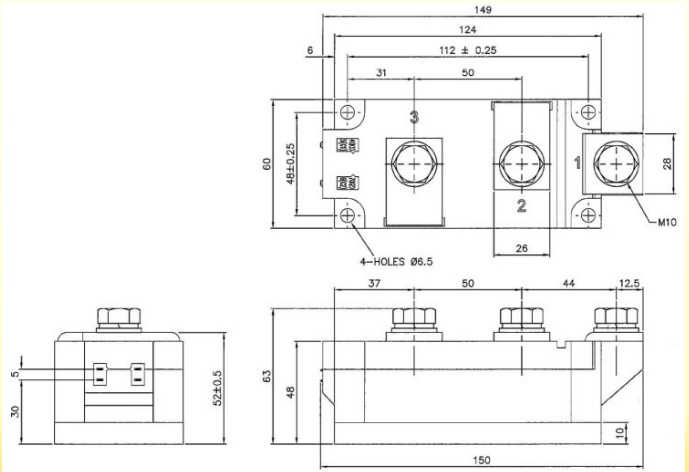
## Thyristor/Diode Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJC}$	$R_{thCH}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	Per die	
	V				A				°C	A	
MCD320-xxio2	3000-3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
MDC320-xxio2	3000-3600	327	85	765	5000	1.150	0.800	125	0.065	0.0200	W74
MCD431-xxio2	2000-2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
MDC431-xxio2	2000-2400	429	85	1020	10900	1.000	0.410	125	0.062	0.0200	W74
MCD501-xxio2	1200-1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MDC501-xxio2	1200-1800	503	85	1195	14500	0.850	0.300	125	0.062	0.0200	W74
MCD552-xxio2	1200-1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74
MDC552-xxio2	1200-1600	550	85	1300	15800	0.770	0.259	125	0.062	0.0200	W74

xx in part number indicates voltage grade –  $V_{RRM}/V_{DRM} \div 100$



W73 – 150A123



W74 – 150A123

## Water Cooled Modules

IXYS UK's range of water cooled modules feature a direct cooled base, with no extra interface to the die allowing for more efficient cooling, giving an enhanced average current rating

### Dual Thyristor Modules

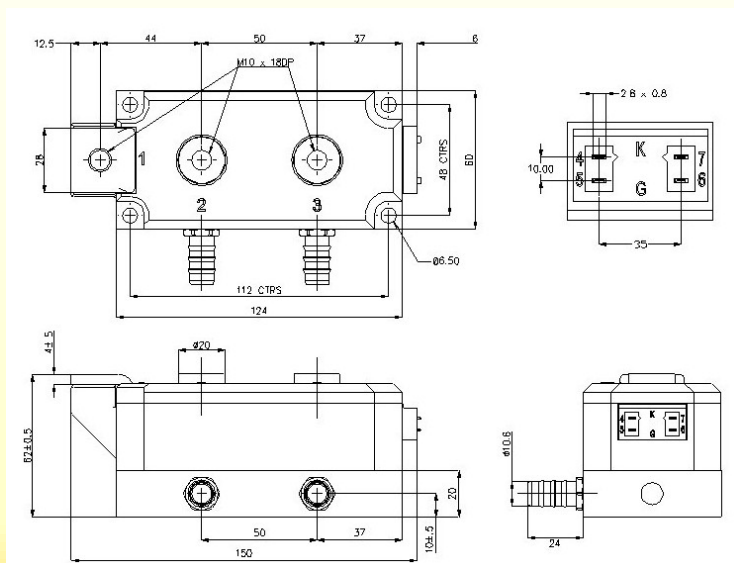
Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJW}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	
	V				A				°C	
MCC600-22io1W	2200	600	40	1116	16500	0.880	0.460	125	0.0900	W64
MCA600-22io1W	2200	600	40	1116	16500	0.880	0.460	125	0.0900	W64
MCK600-22io1W	2200	600	40	1116	16500	0.880	0.460	125	0.0900	W64
MCC700-xxio1W	1400-1800	700	42	1331	16500	0.850	0.270	125	0.0900	W64
MCA700-xxio1W	1400-1800	700	42	1331	16500	0.850	0.270	125	0.0900	W64
MCK700-xxio1W	1400-1800	700	42	1331	16500	0.850	0.270	125	0.0900	W64

### Dual Diode Modules

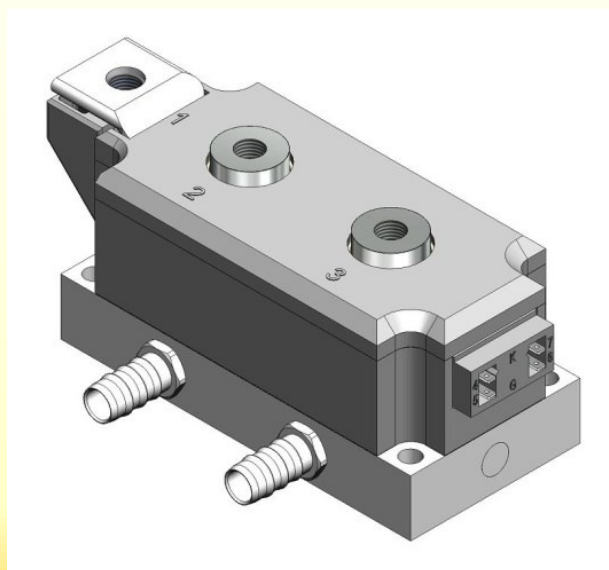
Part No.	$V_{RRM}$	$I_{FAV}$	@ $T_C$	$I_{FRMS}$	$I_{FSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJW}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	
	V				A				°C	
MDD950-xxN1W	1400-2200	950	45	1773	21800	0.750	0.200	150	0.0900	W64
MDA950-xxN1W	1400-2200	950	45	1773	21800	0.750	0.200	150	0.0900	W64
MDK950-xxN1W	1400-2200	950	45	1773	21800	0.750	0.200	150	0.0900	W64

### Thyristor/Diode Modules

Part No.	$V_{RRM}$	$I_{TAV}$	@ $T_C$	$I_{TRMS}$	$I_{TSM}$	$V_{TO}$	$r_T$	$T_{VJM}$	$R_{thJW}$	Fig. No.
	$V_{DRM}$				125°C, 10ms				Per die	
	V				A				°C	
MCD600-22io1W	2200	600	40	1116	16500	0.880	0.460	125	0.0900	W64
MDC600-22io1W	2200	600	40	1116	16500	0.880	0.460	125	0.0900	W64
MCD700-xxio1W	1400-1800	700	42	1331	16500	0.850	0.270	125	0.0900	W64
MDC700-xxio1W	1400-1800	700	42	1331	16500	0.850	0.270	125	0.0900	W64



W64 – 150A113

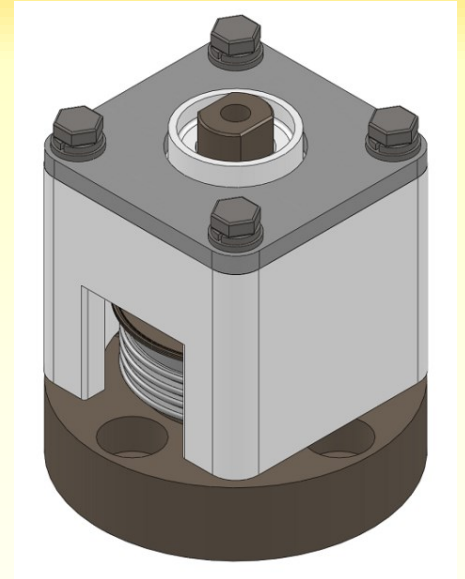


## Easy Mount, Rectifier Diode Module Assemblies

Introducing the new range of **easy mount** standard rectifier diode module assemblies from IXYS UK

These new module assemblies, which can be supplied either with the diodes ready mounted or as kits allow for easy mounting of rectifier diodes to cooling fins using four bolts.

The diodes are single side mounted directly to a copper base plate pre-drilled with the four bolt holes. Diodes can be either anode or cathode side down, with three versions available suitable for 34mm to 50mm electrode devices. An extensive range of 'standard' parts is available, see overleaf, with the mounting hole positions compatible with the now obsolete range of flat based rectifiers previously offered by a number of manufacturers.



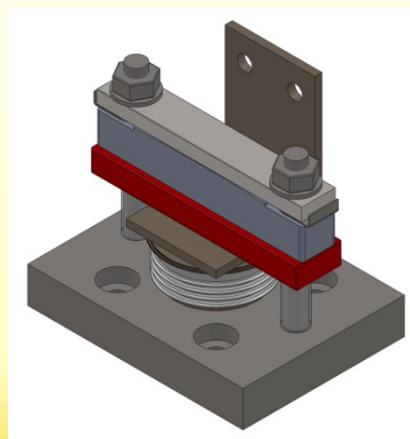
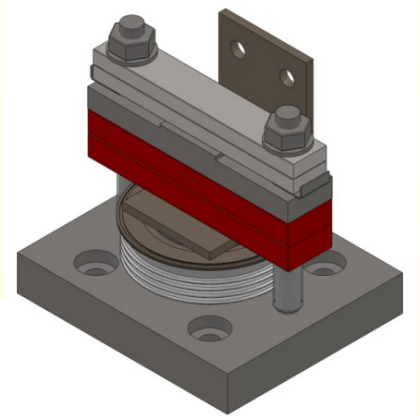
### Features and Benefits

- Design compatible with obsolete flat based rectifiers
- Utilises high reliability, hermetically sealed IXYS UK capsule diodes
- Voltage ratings up to 4.5kV
- Current ratings up to 2035A
- Direct single side mounting to cooling plates



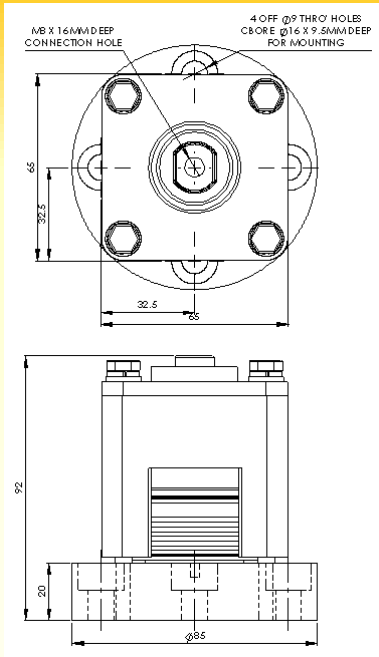
### Applications

- Rail Applications
- Traction Main Drives
- DC Locomotives
- Trackside Substations
- Front-end Rectification
- Power Conversion
- Marine and Off-Shore Applications
- Chemical Power Supplies

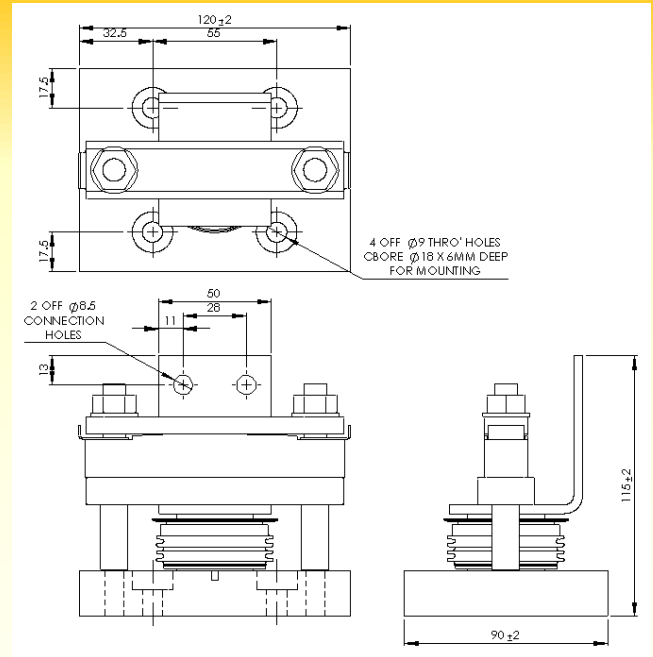


Part No.	Old Square Base Part No.	Base Polarity	$V_{RRM}$	$I_{TAV}$	$I_{TSM}$	$i^2t$	$V_{TO}$	$r_T$	$R_{th}$	$T_{JM}$	Outline (see overleaf)
				$T_C - 100^\circ C$							
			V	A	kA	$A^2s$	V	$m\Omega$	K/W	$^\circ C$	
W1185LC450KBR †	SW45KBR515	Anode	4500	435	10.2	$520 \times 10^3$	1.00	0.575	0.085	160	WC64
W1185LC450KBN †	SW45KBN515	Cathode	4500	380	10.2	$520 \times 10^3$	1.00	0.575	0.101	160	WC64
W1411LC360KBR †	SW36KBR595	Anode	3600	505	12.2	$744 \times 10^3$	0.90	0.388	0.085	160	WC64
W1411LC360KBN †	SW36KBN595	Cathode	3600	445	12.2	$744 \times 10^3$	0.90	0.388	0.101	160	WC64
W1524LC300KBR †	SW30KBR636	Anode	3000	540	13.4	$898 \times 10^3$	0.87	0.323	0.085	160	WC64
W1524LC300KBN †	SW30KBN636	Cathode	3000	470	13.4	$898 \times 10^3$	0.87	0.323	0.101	160	WC64
W1748LC220KBR †	SW22KBR805	Anode	2200	660	13.5	$911 \times 10^3$	0.87	0.28	0.085	175	WC64
W1748LC220KBN †	SW22KBN805	Cathode	2200	582	13.5	$911 \times 10^3$	0.87	0.28	0.101	175	WC64
W2058LC120KBR †	SW12KBR935	Anode	1200	760	16.1	$1.30 \times 10^6$	0.79	0.192	0.085	175	WC64
W2058LC120KBN †	SW12KBN935	Cathode	1200	665	16.1	$1.30 \times 10^6$	0.79	0.192	0.101	175	WC64
W1185LC450KCR	SW38KBR515	Anode	4500	455	10.2	$520 \times 10^3$	1.00	0.575	0.08	160	WC65
W1185LC450KCN	SW45KBN515	Cathode	4500	395	10.2	$520 \times 10^3$	1.00	0.575	0.097	160	WC65
W1411LC360KCR	SW36KBR595	Anode	3600	530	13.2	$756 \times 10^3$	0.90	0.388	0.08	160	WC65
W1411LC360KCN	SW36KBN595	Cathode	3600	460	12.3	$759 \times 10^3$	0.90	0.388	0.097	160	WC65
W1524LC300KCR	SW30KBR635	Anode	3000	565	13.4	$898 \times 10^3$	0.87	0.323	0.08	160	WC65
W1524LC300KCN	SW30KBN636	Cathode	3000	490	13.4	$898 \times 10^3$	0.87	0.323	0.097	160	WC65
W1748LC220KCR	SW22KBR805	Anode	2200	690	13.5	$911 \times 10^3$	0.87	0.28	0.08	175	WC65
W1748LC220KCN	SW22KBN805	Cathode	2200	600	13.5	$911 \times 10^3$	0.87	0.28	0.097	175	WC65
W2058LC120KCR	SW12KBR935	Anode	1200	800	16.1	$1.30 \times 10^6$	0.79	0.192	0.08	175	WC65
W2058LC120KCN	SW12KBN935	Cathode	1200	690	16.1	$1.30 \times 10^6$	0.79	0.192	0.097	175	WC65
W3082MC450KDR	SB45KDR680	Anode	4500	1115	26.6	$3.54 \times 10^6$	0.923	0.192	0.037	160	WC66
W3082MC450KDN	SB45KDN680	Cathode	4500	1030	26.6	$3.54 \times 10^6$	0.923	0.192	0.041	160	WC66
W3708MC350KDR	SB35KDR820	Anode	3500	1240	33.7	$5.68 \times 10^6$	0.958	0.112	0.037	160	WC66
W3708MC350KDN	SB35KDN820	Cathode	3500	1145	33.7	$5.68 \times 10^6$	0.958	0.112	0.041	160	WC66
W3842MC280KDR	SB25KDR950	Anode	2800	1325	33.5	$5.61 \times 10^6$	0.831	0.118	0.037	160	WC66
W3842MC280KDN	SB25KDN950	Cathode	2800	1225	33.5	$5.61 \times 10^6$	0.831	0.118	0.041	160	WC66
W5636MC150KDR	SB15KDR14C	Anode	1500	2035	43.9	$9.64 \times 10^6$	0.698	0.059	0.037	175	WC66
W5636MC150KDN	SB15KDN14C	Cathode	1500	1875	43.9	$9.64 \times 10^6$	0.698	0.059	0.041	175	WC66

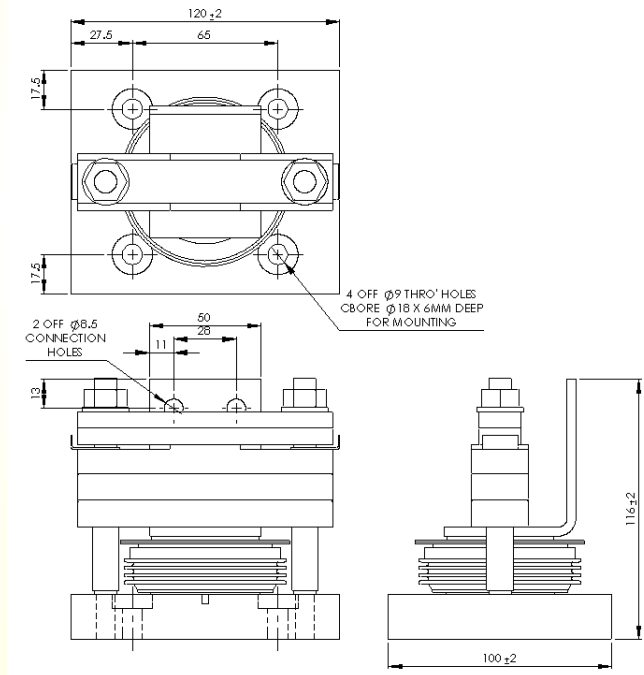
† - Assembly supplied as kit of parts, all other designs available as either kit of parts or fully assembled



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