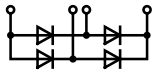
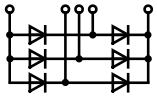
Rectifier Bridges with Fast Diodes

1-phase, B2U



Type ✧ under development	V_{RRM} V	I_{dAV} A	@ T_C °C	I_{FSM} 45°C 10 ms A	V_{F0} V	r_F mΩ	T_{VJM} °C	R_{thJC} K/W	R_{thCH} K/W	Fig. No.
VBE 17-06NO7	600	27	85	50	1.18	22.0	150	2.50	0.30	X101
VBE 17-12NO7	1200	19	85	40	1.32	30.0	150	2.50	0.30	
VBE 26-06NO7	600	44	85	110	1.13	13.0	150	1.60	0.30	
VBE 26-12NO7	1200	32	85	90	1.32	30.0	150	1.60	0.30	
VBE 55-06NO7	600	68	100	250	0.98	8.0	150	0.90	0.30	
VBE 55-12NO7	1200	59	85	200	1.31	15.0	150	0.90	0.30	
VBE 60-06A	600	60	100	250	0.98	8.2	150	1.15	0.10	X027a
VBE 60-12A	1200	60	70	200	1.31	14.0	150	1.15	0.10	
DHG 40B1200LB	1200	34	80	150	1.35	42.0	175	1.50	0.50	X030a
DPG 60B600LB	600	60	100	250	0.85	17.0	175	1.10	0.40	
FBE 22-06N1	600	22	115	50	1.04	24.0	175	3.00	0.20	X024a
VBE 100-06NO7	600	100	85	600	1.09	4.3	150	0.80	0.20	X102
VBE 100-12NO7	1200	100	70	500	1.07	8.2	150	0.80	0.20	
DCG 20B650LB *	650	21	80	250	0.74	118.0	175	2.10	0.70	X030a
✧ **DCG 20B1200LB ***	1200	18	80	60	0.68	133.0	175	3.30	0.85	
FBS 10-12SC *	1200	9	80	100	-	-	175	7.00	3.50	X024a

* SiC-Diodes



3-phase, B6U

FUS 45-0045B	45	45	130	150	0.30	14.8	150	3.00	0.20	X024a
DHG 60U1200LB	1200	60	80	200	1.35	2.9	150	1.20	0.40	X030a
VUE 50-12NO1	1200	50	85	200	1.65	18.2	150	1.20	0.30	X103
VUE 22-06NO7	600	34	85	50	1.18	22.0	150	2.50	0.30	X101
VUE 22-12NO7	1200	24	85	40	1.39	55.0	150	2.50	0.30	
VUE 35-06NO7	600	56	85	110	1.13	13.0	150	1.60	0.30	
VUE 35-12NO7	1200	40	85	90	1.32	30.0	150	1.60	0.30	
VUE 75-06NO7	600	86	100	250	0.98	8.0	150	0.90	0.30	
VUE 75-12NO7	1200	74	85	200	1.31	15.0	150	0.90	0.30	
FUE 30-12N1	1200	30	120	90	0.97	48.0	175	2.30	0.20	X024a
VUE 130-06NO7	600	130	85	600	1.09	4.3	150	0.80	0.20	X102
VUE 130-12NO7	1200	130	70	500	1.07	8.2	150	0.80	0.20	

Package style

Outline drawings on pages O-36...O-59

X024a **ISOPLUS i4-PAC™**

X027a **SOT-227B miniBLOC**

X030a **SMPD-B**

X101 **ECO-PAC 1**

See data sheet for pin arrangement

X102 **ECO-PAC 2**

See data sheet for pin arrangement

X103 **V1-A-Pack**

See data sheet for pin arrangement

Rectifier Bridges incorporating Fast Diodes

Power switching semiconductors are used in inverter systems with DC-Link. Due to high switching frequencies, harmonics and line distortion may be generated. It is important that the new designs reduce these influences and fulfill the EMI filtering requirements according to EMI/EMC VDE 0871 and other.

The noise level can be reduced by up to **10dB** when the input rectifier is equipped with semi-fast diodes and is therefore optimised for turn off; resulting in a lower peak recovery current compared to non-optimised and normal rectifier diodes.

The noise level can be further reduced approximetely by another **5dB** when using rectifier bridges equipped with Fast Recovery Epitaxial Diodes (FRED) like module types VBE (single phase bridge) or VUE (three phase bridge). However these are more expensive but may be necessary in some applications to fulfill the VDE or other standards.

This behaviour has a direct influence on the design of the EMI filter networks with its capacitors and inductors of which the size and costs can be reduced.

More detailed information is available in the IXYS application note D98005E „Input Rectifiers with Semi-fast Diodes for DC Link“ on www.ixys.com.

Data according to IEC 60747 and refer to a single diode or thyristor unless otherwise stated.