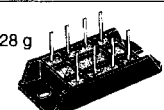



Rectifier Bridges with Fast Diodes

Rectifier Bridges with Superfast Recovery Diodes

1-phase, B2U





Type	V _{RRM}	I _{DAV} @ T _C	I _{FSM} 45°C 10 ms	V _{TO}	r _T	T _{VJM}	R _{thJC} per Chip	R _{thJH} typ per Chip	Fig. No.	Package style	
▶ New	V	A	°C	A	V	m	°C	K/W	K/W		
VBSD 50-015NO1	150	50	110	200	-	-	150	1.40	-	47	Outline drawings on page 91-100
VBE 17-06NO7	600	27	85	50	1.18	22.0	150	2.50	2.8	24	
VBE 17-12NO7	1200	19	85	40	1.32	30.0	150	2.50	2.8		Fig. 46 Weight = 28 g
VBE 20-20NO1	2000	20	85	75	3.30	92.4	150	1.25	-	46	
VBE 26-06NO7	600	44	85	110	1.13	13.0	150	1.60	1.9	24	
VBE 26-12NO7	1200	32	85	90	1.32	30.0	150	1.60	1.9		Fig. 47 Weight = 35 g
VBE 55-06NO7	600	68	100	250	0.98	8.0	150	0.90	1.2		
VBE 55-12NO7	1200	59	85	200	1.31	15.0	150	0.90	1.2		
▶ FBE 22-06N1	600	20	90	40	-	-	150	3.5	3.65	84	
▶ VBE 100-06NO7	600	100	85	600	1.09	4.3	150	0.85	1	24	
▶ VBE 100-12NO7	1200	100	75	500	1.12	5.7	150	0.85	1		
▶ FBS 10-06SC*	600	6.6	90	12	-	-	175	8	11.5	84	
▶ FBS 16-06SC*	600	11	90	20	-	-	175	5.6	8.6		

* SiC-Diodes

3-phase, B6U

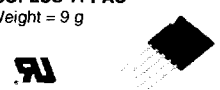


VUE 50-12NO1	1200	50	85	200	1.65	18.2	150	-	1.5	47	Fig. 24 ECO-PAC 1 Weight = 19 g
VUE 30-20NO1	2000	30	85	75	3.30	92.4	150	1.25	1.5		
VUE 22-06NO7	600	34	85	50	1.18	22.0	150	2.50	2.8	24	
VUE 22-12NO7	1200	24	85	40	1.39	55.0	150	2.50	2.8		
VUE 35-06NO7	600	56	85	110	1.13	13.0	150	1.60	1.9		Fig. 42 Weight = 22 g
VUE 35-12NO7	1200	40	85	90	1.32	30.0	150	1.60	1.9		
VUE 75-06NO7	600	86	100	250	0.98	8.0	150	0.90	1.2		
VUE 75-12NO7	1200	74	85	200	1.31	15.0	150	0.90	1.2		
▶ FUE 30-12N1	1200	30	90	80	-	-	150	2.3	2.45	84	
▶ VUE 130-06NO7	600	130	85	600	1.09	4.3	150	0.85	1	84	Fig. 84 ISOPLUS i4-PAC™ Weight = 9 g
▶ VUE 130-12NO7	1200	130	75	500	1.12	5.7	150	0.85	1		

Rectifier Bridges with Semifast Diodes

3-phase, B6U, t_{rr} = 1.5 μs



VUO 18-12DT8	1200	18	63	300	1.2	16	150	9.3	10.2	42	
VUO 18-14DT8	1400										
VUO 18-16DT8	1600										

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

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 approximately 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.