

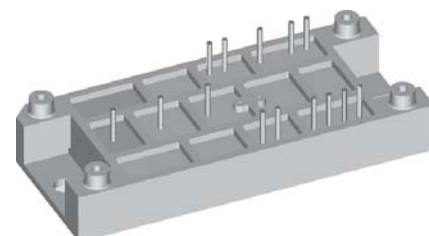
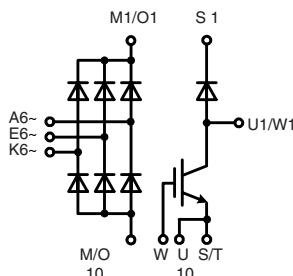
Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

$$V_{RRM} = 1200/1600 \text{ V}$$

$$I_{dAVM} = 188 \text{ A}$$

Preliminary Data

V_{RRM}	Type	V_{RRM}	Type
V		V	
1200	VUB 120-12 NO2	1600	VUB 120-16 NO2
1200	VUB 160-12 NO2	1600	VUB 160-16 NO2



Symbol	Conditions	Maximum Ratings	
V_{RRM}	$T_C = 80^\circ\text{C}$, rect., $d = 1/3$	1200/1600	V
I_{dAVM}		188	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	1100	A
	$T_{VJ} = 150^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	960	A
I^2t	$T_{VJ} = 45^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	6050	A
	$T_{VJ} = 150^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	4610	A
P_{tot}	$T_C = 25^\circ\text{C}$ per diode	160	W
V_{CES} V_{GE}	$T_{VJ} = 25^\circ\text{C}$ to 150°C Continuous	VUB 120 1200 ± 20	VUB160 1200 ± 20 V
I_{C25} I_{C80}	$T_C = 25^\circ\text{C}$, DC $T_C = 80^\circ\text{C}$, DC $T_C = 80^\circ\text{C}$, $d = 0.5$	140 100 95	177 125 95 A
I_{CM}		$t_p = \text{Pulse width limited by } T_{VJM}$	280 350 A
P_{tot}		$T_C = 25^\circ\text{C}$	570 690 W
V_{RRM} I_{FAV} I_{FRMS}	$T_C = 80^\circ\text{C}$, rect. $d = 1/2$ $T_C = 80^\circ\text{C}$, rect. $d = 1/2$	1200 34 48	V A A
I_{FSM}		$T_{VJ} = 45^\circ\text{C}$, $t = 10 \text{ ms}$ $T_{VJ} = 150^\circ\text{C}$, $t = 10 \text{ ms}$	200 180 A
P_{tot}	$T_C = 25^\circ\text{C}$	140	W
T_{VJ} T_{VJM} T_{stg}		-40...+150 150 -40...+125	$^\circ\text{C}$ $^\circ\text{C}$ $^\circ\text{C}$
V_{ISOL}	50/60 Hz $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ $t = 1 \text{ s}$	3000 3600 V~ V~
M_d	Mounting torque (M5) (10-32 UNF)	2-2.5 18-22	Nm lb.in.
d_s d_A a	Creep distance on surface Strike distance in air Maximum allowable acceleration	12.7 9.4 50	mm mm m/s^2
Weight	typ.	80	g

Features

- Soldering connections for PCB mounting
- Isolation voltage 3600 V~
- Ultrafast diode
- Convenient package outline
- UL registered E 72873
- Case and potting UL94 V-0

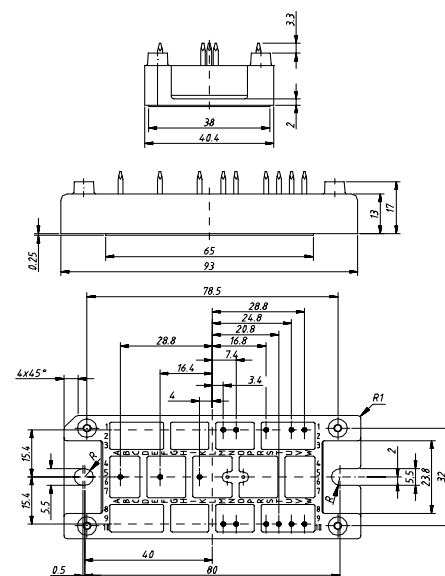
Applications

- Drive Inverters with brake system

Advantages

- 2 functions in one package
- Easy to mount with two screws
- Suitable for wave soldering
- High temperature and power cycling capability

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747

IXYS reserves the right to change limits, test conditions and dimensions.

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Symbol	Conditions	Characteristic Values		
		(T _{VJ} = 25°C, unless otherwise specified)		
		min.	typ.	max.
I_R	Rectifier Diodes	V _R = V _{RRM} , T _{VJ} = 25°C		0.3 mA
		V _R = V _{RRM} , T _{VJ} = 150°C		5 mA
V_F	Rectifier Diodes	I _F = 150 A, T _{VJ} = 25°C		1.46 V
V_{T0}		For power-loss calculations only		0.87 V
r_T	Rectifier Diodes	T _{VJ} = 150°C		4.0 mΩ
R_{thJC}		per diode		0.6 K/W
R_{thCH}	Rectifier Diodes		0.2	K/W
V_{BR(CES)}		V _{GS} = 0 V, I _C = 1 mA	1200	V
V_{GE(th)}	Rectifier Diodes	I _C = 4 mA	4.5	6.5 V
I_{CES}		V _{CE} = 1200 V, T _{VJ} = 25°C		0.2 mA
	Rectifier Diodes	T _{VJ} = 125°C		1 mA
V_{CEsat}		V _{GE} = 15 V, I _C = 50 A VUB 120		2.1 V
		I _C = 75 A VUB 160		2.2 V
t_{SC}	Rectifier Diodes	V _{GE} = 15 V, V _{CE} = 900 V, T _{VJ} = 125°C,		10 μs
(SCSOA)		R _G = 15/10 Ω, non repetitive		
RBSOA	Rectifier Diodes	V _{GE} = 15 V, V _{CE} = 1200 V, T _{VJ} = 125°C,		
		Clamped Inductive load, L = 100 μH		
	Rectifier Diodes	R _G = 15 Ω VUB 120		150 A
		R _G = 10 Ω VUB 160		200 A
C_{ies}	IGBT	V _{CE} = 25 V, f = 1 MHz, V _{GE} = 0 V VUB 120	5.7	nF
		VUB 160	7.4	nF
t_{d(on)}	IGBT	VUB 120	170	ns
t_{d(on)}		VUB 160	330	ns
t_{d(off)}	IGBT	VUB 120	680	ns
t_{d(off)}		VUB 160	750	ns
E_{on}	IGBT	VUB 120	11	mJ
		VUB 160	12	mJ
E_{off}	IGBT	VUB 120	8	mJ
		VUB 160	10	mJ
R_{thJC}	IGBT	VUB 120		0.22 K/W
		VUB 160		0.18 K/W
R_{thCH}	IGBT	VUB 120	0.1	K/W
		VUB 160	0.1	K/W
I_R	Fast Recovery Diode	V _R = V _{RRM} , T _{VJ} = 25°C		0.5 mA
		T _{VJ} = 125°C	0.75	1 mA
V_F	Fast Recovery Diode	I _F = 30 A, T _{VJ} = 25°C		2.7 V
V_{T0}		For power-loss calculations only		1.3 V
r_T	Fast Recovery Diode	T _{VJ} = 150°C		15 mΩ
I_{RM}		I _F = 50 A, -di _F /dt = 100 A/μs, V _R = 100 V	8	12 A
t_{rr}	Fast Recovery Diode	I _F = 1 A, -di _F /dt = 100 A/μs, V _R = 30 V	40	60 ns
R_{thJC}				0.9 K/W
R_{thCH}			0.3	K/W