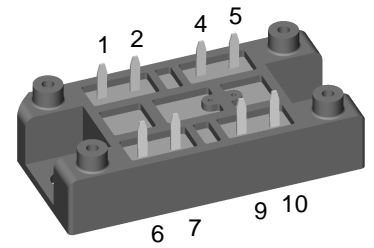
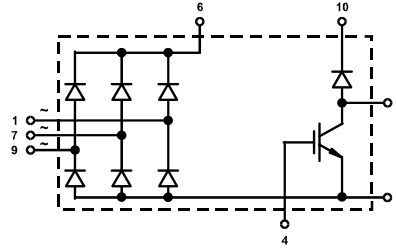


Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

$V_{RRM} = 1200-1600\text{ V}$
 $I_{dAV} = 51\text{ A}$

Preliminary data

V_{RRM} V	Type
1200	VUB 51-12 NO1
1600	VUB 51-16 NO1



Symbol	Test Conditions	Maximum Ratings	
V_{RRM} I_{dAV} I_{dAVM}	$T_H = 110^\circ\text{C}$, sinusoidal 120° limited by leads	1200 / 1600	V
		51	A
		70	A
I_{FSM} I^2t	$T_{VJ} = 45^\circ\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$ $T_{VJ} = 150^\circ\text{C}$, $t = 10\text{ ms}$, $V_R = 0\text{ V}$	300	A
		260	A
		450	A
		340	A
P_{tot}	$T_H = 25^\circ\text{C}$ per diode	80	W
V_{CES} V_{GE}	$T_{VJ} = 25^\circ\text{C}$ to 150°C Continuous	1200	V
		± 20	V
I_{C25} I_{C80}	$T_H = 25^\circ\text{C}$, DC $T_H = 80^\circ\text{C}$, DC	31	A
		21	A
I_{CM}	$t_p =$ Pulse width limited by T_{VJM}	62	A
P_{tot}	$T_H = 25^\circ\text{C}$	130	W
V_{RRM} I_{FAV} I_{FRMS} I_{FRM}	$T_H = 80^\circ\text{C}$, rectangular $d = 0.5$ $T_H = 80^\circ\text{C}$, rectangular $d = 0.5$ $T_H = 80^\circ\text{C}$, $t_p = 10\text{ }\mu\text{s}$, $f = 5\text{ kHz}$	1200	V
		9	A
		14	A
		90	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$, $t = 10\text{ ms}$ $T_{VJ} = 150^\circ\text{C}$, $t = 10\text{ ms}$	75	A
		60	A
P_{tot}	$T_H = 25^\circ\text{C}$	40	W
T_{VJ} T_{VJM} T_{stg}		-40...+150	$^\circ\text{C}$
		150	$^\circ\text{C}$
		-40...+125	$^\circ\text{C}$
V_{ISOL}	50/60 Hz $I_{ISOL} \leq 1\text{ mA}$	$t = 1\text{ min}$ 3000	V~
		$t = 1\text{ s}$ 3600	V~
M_d	Mounting torque (M5) (10-32 unf)	2-2.5 18-22	Nm lb.in.
Weight	typ.	35	g

Features

- Soldering connections for PCB mounting
- Isolation voltage 3600 V~
- Ultrafast freewheel diode
- Convenient package outline
- UL registered E 72873

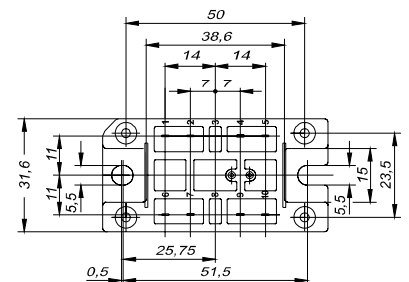
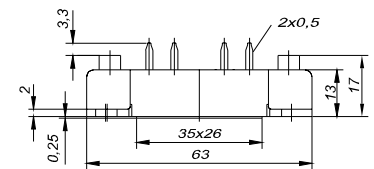
Applications

- Drive Inverters with brake system

Advantages

- 2 functions in one package
- No external isolation
- 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.

Symbol	Test Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)			
		min.	typ.	max.	
Rectifier Diodes	I_R	$V_R = V_{RRM}^{\dagger}$ $V_R = V_{RRM}^{\dagger}$	$T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 150^{\circ}\text{C}$	0.1 mA 3 mA	
	V_F	$I_F = 25\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$	1.16 V	
	V_{T0} r_T	For power-loss calculations only $T_{VJ} = 150^{\circ}\text{C}$		0.8 V 12.5 m Ω	
	R_{thJH}	per diode		1.5 K/W	
	$V_{BR(CES)}$ $V_{GE(th)}$	$V_{GS} = 0\text{ V}$, $I_C = 3\text{ mA}$ $I_C = 10\text{ mA}$	1200 5	V V	
I_{GES}	$V_{GE} = \pm 20\text{ V}$		500 nA		
I_{CES}	$T_{VJ} = 25^{\circ}\text{C}$, $V_{CE} = 0.8 V_{CES}$ $T_{VJ} = 125^{\circ}\text{C}$, $V_{CE} = 0.8 V_{CES}$		250 μA 1 mA		
V_{CEsat}	$V_{GE} = 15\text{ V}$, $I_C = 25\text{ A}$		3.5 V		
IGBT	t_{SC} (SCSOA)	$V_{GE} = 15\text{ V}$, $V_{CE} = 0.6 V_{CES}$, $T_{VJ} = 125^{\circ}\text{C}$, $R_G = 4.7\ \Omega$, non repetitive		10 μs	
	I_C (RBSOA)	$V_{GE} = 15\text{ V}$, $V_{CE} = 0.8 V_{CES}$, $T_{VJ} = 125^{\circ}\text{C}$, $R_G = 4.7\ \Omega$, Clamped Inductive load, $L = 100\ \mu\text{H}$		50 A	
	C_{ies}	$V_{CE} = 25\text{ V}$, $f = 1\text{ MHz}$, $V_{GE} = 0\text{ V}$	2.9	nF	
	$t_{d(on)}$ $t_{d(off)}$ t_{fi} E_{on} E_{off}	$V_{CE} = 600\text{ V}$, $I_C = 25\text{ A}$ $V_{GE} = 15\text{ V}$, $R_G = 4.7\ \Omega$ Inductive load; $L = 100\ \mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$	100 220 1600 3.5 12	ns ns ns mJ mJ	
	R_{thJH}			1 K/W	
Fast Recovery Diode	I_R		$V_R = V_{RRM}^{\dagger}$ $V_R = 800\text{ V}$	$T_{VJ} = 25^{\circ}\text{C}$ $T_{VJ} = 150^{\circ}\text{C}$	0.2 mA 6 mA
	V_F		$I_F = 12\text{ A}$	$T_{VJ} = 25^{\circ}\text{C}$	2.7 V
	V_{T0} r_T		For power-loss calculations only $T_{VJ} = 150^{\circ}\text{C}$		1.65 V 46 m Ω
	I_{RM}	$I_F = 25\text{ A}$, $-di_F/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$	$T_J = 100^{\circ}\text{C}$	6.5 7 A	
	t_{rr}	$I_F = 1\text{ A}$, $-di_F/dt = 100\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$	$T_J = 100^{\circ}\text{C}$	50 70 ns	
R_{thJH}			3.12 K/W		
Module	d_s	Creep distance on surface		12.7 mm	
	d_A	Strike distance in air		9.4 mm	
	a	Maximum allowable acceleration		50 m/s ²	