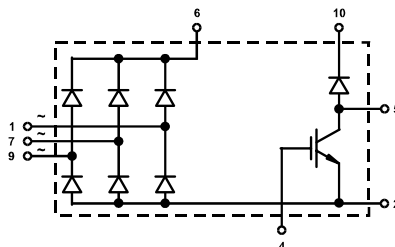


Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

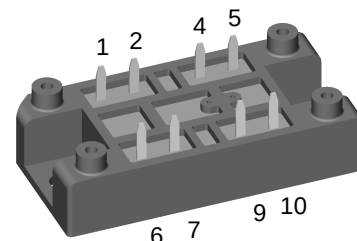
Preliminary data

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



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

$$I_{dAV} = 51 \text{ A}$$



Symbol	Test Conditions	Maximum Ratings	
V_{RRM}		1200 / 1600	V
I_{dAV}	$T_H = 110^\circ\text{C}$, sinusoidal 120° limited by leads	51	A
I_{dAVM}		70	A
I_{FSM}	$T_{VJ} = 45^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$ $T_{VJ} = 150^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	300 260	A
I^2t	$T_{VJ} = 45^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$ $T_{VJ} = 150^\circ\text{C}$, $t = 10 \text{ ms}$, $V_R = 0 \text{ V}$	450 340	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 ± 20	V V
I_{C25}	$T_H = 25^\circ\text{C}$, DC	31	A
I_{C80}	$T_H = 80^\circ\text{C}$, DC	21	A
I_{CM}	$t_p = \text{Pulse width limited by } T_{VJM}$	62	A
P_{tot}	$T_H = 25^\circ\text{C}$	130	W
V_{RRM}		1200	V
I_{FAV}	$T_H = 80^\circ\text{C}$, rectangular $d = 0.5$	9	A
I_{FRMS}	$T_H = 80^\circ\text{C}$, rectangular $d = 0.5$	14	A
I_{FRM}	$T_H = 80^\circ\text{C}$, $t_p = 10 \mu\text{s}$, $f = 5 \text{ kHz}$	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 60	A
P_{tot}	$T_H = 25^\circ\text{C}$	40	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.
Weight	typ.	35	g

Features

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

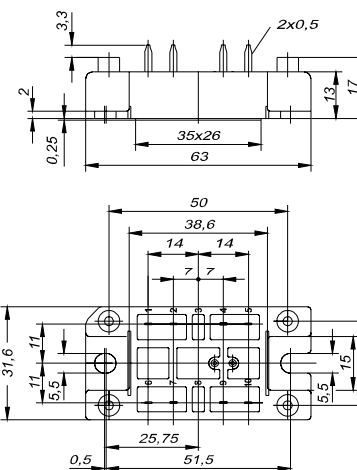
Applications

- 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.

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Symbol	Test Conditions	Characteristic Values ($T_{VJ} = 25^{\circ}\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_R	$V_R = V_{RRM}^1$ $T_{VJ} = 25^{\circ}\text{C}$ $V_R = V_{RRM}^1$ $T_{VJ} = 150^{\circ}\text{C}$			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
t_{SC} (SCSOA)	$V_{GE} = 15\text{ V}$, $V_{CE} = 0.6 V_{CES}$, $T_{VJ} = 125^{\circ}\text{C}$, $R_G = 4.7\text{ }\Omega$, non repetitive			10 μs
I_C (RBSOA)	$V_{GE} = 15\text{ V}$, $V_{CE} = 0.8 V_{CES}$, $T_{VJ} = 125^{\circ}\text{C}$, $R_G = 4.7\text{ }\Omega$, Clamped Inductive load, $L = 100\text{ }\mu\text{H}$			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}	$V_{CE} = 600\text{ V}$, $I_C = 25\text{ A}$ $V_{GE} = 15\text{ V}$, $R_G = 4.7\text{ }\Omega$ Inductive load; $L = 100\text{ }\mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$	100 220 1600 3.5 12		ns ns ns mJ mJ
R_{thJH}				1 K/W
I_R	$V_R = V_{RRM}^1$ $T_{VJ} = 25^{\circ}\text{C}$ $V_R = 800\text{ V}$, $T_{VJ} = 150^{\circ}\text{C}$			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
d_s d_A a	Creep distance on surface Strike distance in air Maximum allowable acceleration			12.7 mm 9.4 mm 50 m/s ²