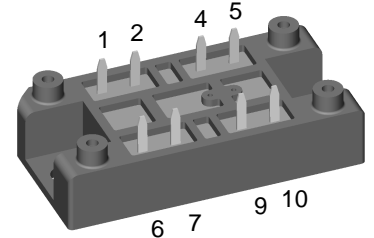
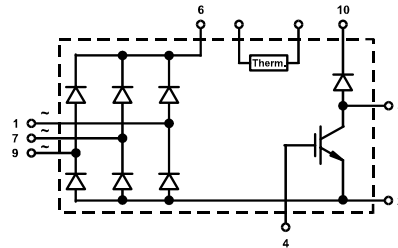


# Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

**V<sub>RRM</sub> = 1200-1600 V**  
**I<sub>dAVM</sub> = 70 A**

V <sub>RRM</sub> V	Type
1200	VUB 71-12 NO1
1600	VUB 71-16 NO1



Symbol	Test Conditions	Maximum Ratings	
<b>V<sub>RRM</sub></b> <b>I<sub>dAV</sub></b> <b>I<sub>dAVM</sub></b>	<b>Rectifier Diodes</b> $T_H = 110^\circ\text{C}$ , sinusoidal 120° limited by leads	1200 / 1600	V
		59	A
		70	A
<b>I<sub>FSM</sub></b> <b>I<sup>2</sup>t</b>	<b>Rectifier Diodes</b> $T_{VJ} = 45^\circ\text{C}$ , $t = 10\text{ ms}$ , $V_R = 0\text{ V}$ $T_{VJ} = 150^\circ\text{C}$ , $t = 10\text{ ms}$ , $V_R = 0\text{ V}$	530	A
		475	A
		1400	A
		1130	A
<b>P<sub>tot</sub></b>	$T_H = 25^\circ\text{C}$ per diode	90	W
<b>V<sub>CES</sub></b> <b>V<sub>GE</sub></b>	<b>IGBT</b> $T_{VJ} = 25^\circ\text{C}$ to $150^\circ\text{C}$ Continuous	1200	V
		$\pm 20$	V
<b>I<sub>C25</sub></b>	$T_H = 25^\circ\text{C}$ , DC	43	A
<b>I<sub>C80</sub></b>	$T_H = 80^\circ\text{C}$ , DC	29	A
<b>I<sub>CM</sub></b>	$t_p = \text{Pulse width limited by } T_{VJM}$	90	A
<b>P<sub>tot</sub></b>	$T_H = 80^\circ\text{C}$	160	W
<b>V<sub>RRM</sub></b> <b>I<sub>FAV</sub></b> <b>I<sub>FRMS</sub></b> <b>I<sub>FRM</sub></b>	<b>Fast Recovery Diode</b> $T_H = 80^\circ\text{C}$ , rectangular $d = 0.5$ $T_H = 80^\circ\text{C}$ , rectangular $d = 0.5$ $T_H = 80^\circ\text{C}$ , $t_p = 10\ \mu\text{s}$ , $f = 5\text{ kHz}$	1200	V
		9	A
		14	A
		90	A
<b>I<sub>FSM</sub></b>	<b>Fast Recovery Diode</b> $T_{VJ} = 45^\circ\text{C}$ , $t = 10\text{ ms}$ $T_{VJ} = 150^\circ\text{C}$ , $t = 10\text{ ms}$	75	A
		60	A
<b>P<sub>tot</sub></b>	$T_H = 25^\circ\text{C}$	40	W
<b>T<sub>VJ</sub></b> <b>T<sub>VJM</sub></b> <b>T<sub>stg</sub></b>	<b>Module</b>	-40...+150	°C
		150	°C
		-40...+125	°C
<b>V<sub>ISOL</sub></b>	<b>Module</b> 50/60 Hz $t = 1\text{ min}$ $I_{ISOL} \leq 1\text{ mA}$ $t = 1\text{ s}$	3000	V~
		3600	V~
<b>M<sub>d</sub></b>	Mounting torque (M5) (10-32 unf)	2-2.5 18-22	Nm lb.in.
<b>Weight</b>	typ.	35	g

### Features

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

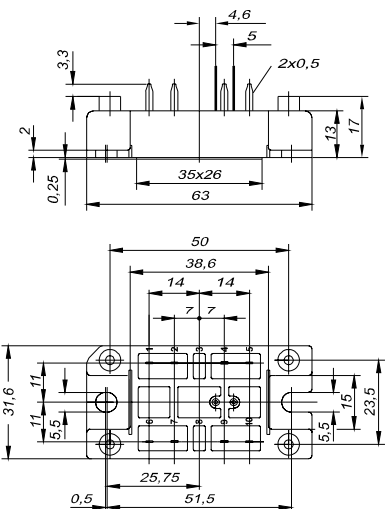
### Applications

- Drive Inverters with brake system

### Advantages

- 2 functions in one package
- No external isolation necessary
- 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.	
<b>Rectifier Diodes</b>	$I_R$	$V_R = V_{RRM}^1$ $T_{VJ} = 25^{\circ}\text{C}$ $V_R = V_{RRM}^1$ $T_{VJ} = 150^{\circ}\text{C}$		0.1 mA 3 mA	
	$V_F$	$I_F = 25\text{ A}$ , $T_{VJ} = 25^{\circ}\text{C}$		1.3 V	
	$V_{T0}$ $r_T$	For power-loss calculations only $T_{VJ} = 150^{\circ}\text{C}$		0.85 V 8.5 m $\Omega$	
	$R_{thJH}$	per diode		1.42 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		
$I_{CES}$	$T_{VJ} = 25^{\circ}\text{C}$ , $V_{CE} = V_{CES}$ $T_{VJ} = 125^{\circ}\text{C}$ , $V_{CE} = 0.8 V_{CES}$		700 $\mu\text{A}$ 1.5 mA		
$V_{CEsat}$	$V_{GE} = 15\text{ V}$ , $I_C = 25\text{ A}$		2.9 V		
<b>IGBT</b>					
$t_{SC}$ (SCSOA)	$V_{GE} = 15\text{ V}$ , $V_{CE} = 600\text{ V}$ , $T_{VJ} = 125^{\circ}\text{C}$ , $R_G = 22\ \Omega$ , non repetitive		10 $\mu\text{s}$		
RBSOA	$V_{GE} = 15\text{ V}$ , $V_{CE} = 800\text{ V}$ , $T_{VJ} = 125^{\circ}\text{C}$ , $R_G = 22\ \Omega$ , Clamped Inductive load, $L = 100\ \mu\text{H}$		50 A		
$C_{ies}$	$V_{CE} = 25\text{ V}$ , $f = 1\text{ MHz}$ , $V_{GE} = 0\text{ V}$	4.5	nF		
$t_{d(on)}$ $t_{d(off)}$ $t_{fi}$ $E_{on}$ $E_{off}$	$V_{CE} = 600\text{ V}$ , $I_C = 25\text{ A}$ $V_{GE} = 15\text{ V}$ , $R_G = 22\ \Omega$ Inductive load; $L = 100\ \mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$	300 350 1600 6 8	ns ns ns mJ mJ		
$R_{thJH}$			0.8 K/W		
<b>Fast Recovery Diode</b>		$I_R$	$V_R = V_{RRM}^1$ , $T_{VJ} = 25^{\circ}\text{C}$ $V_R = 800\text{ V}$ , $T_{VJ} = 150^{\circ}\text{C}$	4	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 $\Omega$
	$I_{RM}$	$I_F = 25\text{ A}$ , $-di_F/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$	6.5	7 A	
	$t_{rr}$	$I_F = 1\text{ A}$ , $-di_F/dt = 100\text{ A}/\mu\text{s}$ $V_R = 30\text{ V}$	50	70 ns	
$R_{thJH}$			3.12 K/W		
<b>NTC</b>					
$R_{25}$	Siemens Typ S 891/2,2k/+9		2,2 k $\Omega$		
<b>Module</b>	$d_S$	Creep distance on surface		12.7 mm	
	$d_A$	Strike distance in air		9.4 mm	
	$a$	Maximum allowable acceleration		50 m/s <sup>2</sup>	