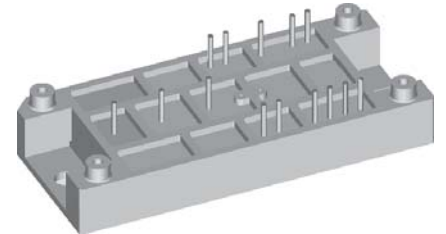
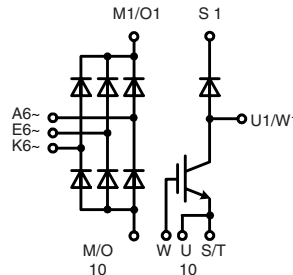


# Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

**V<sub>RRM</sub> = 1200/1600 V**  
**I<sub>dAVM</sub> = 188 A**

## Preliminary Data

V <sub>RRM</sub>	Type	V <sub>RRM</sub>	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		
<b>V<sub>RRM</sub></b>		1200/1600	V	
<b>I<sub>dAVM</sub></b>	T <sub>C</sub> = 80°C, rect., d = 1/3	188	A	
<b>I<sub>FSM</sub></b>	T <sub>VJ</sub> = 45°C, t = 10 ms, V <sub>R</sub> = 0 V	1100	A	
	T <sub>VJ</sub> = 150°C, t = 10 ms, V <sub>R</sub> = 0 V	960	A	
<b>I<sup>2</sup>t</b>	T <sub>VJ</sub> = 45°C, t = 10 ms, V <sub>R</sub> = 0 V	6050	A	
	T <sub>VJ</sub> = 150°C, t = 10 ms, V <sub>R</sub> = 0 V	4610	A	
<b>P<sub>tot</sub></b>	T <sub>C</sub> = 25°C per diode	160	W	
<b>V<sub>CES</sub></b>	T <sub>VJ</sub> = 25°C to 150°C Continuous	<b>VUB 120</b>	<b>VUB160</b>	
		1200	1200 V	
<b>V<sub>GE</sub></b>		± 20	± 20 V	
<b>I<sub>C25</sub></b>	T <sub>C</sub> = 25°C, DC	140	177 A	
		T <sub>C</sub> = 80°C, DC	100	125 A
			T <sub>C</sub> = 80°C, d = 0.5	95
<b>I<sub>CM</sub></b>	t <sub>p</sub> = Pulse width limited by T <sub>VJM</sub>	280	350 A	
<b>P<sub>tot</sub></b>	T <sub>C</sub> = 25°C	570	690 W	
<b>V<sub>RRM</sub></b>		1200	V	
<b>I<sub>FAV</sub></b>	T <sub>C</sub> = 80°C, rect. d = 1/2	34	A	
<b>I<sub>FRMS</sub></b>	T <sub>C</sub> = 80°C, rect. d = 1/2	48	A	
<b>I<sub>FSM</sub></b>	T <sub>VJ</sub> = 45°C, t = 10 ms	200	A	
	T <sub>VJ</sub> = 150°C, t = 10 ms	180	A	
<b>P<sub>tot</sub></b>	T <sub>C</sub> = 25°C	140	W	
<b>T<sub>VJ</sub></b>		-40...+150	°C	
<b>T<sub>VJM</sub></b>		150	°C	
<b>T<sub>stg</sub></b>		-40...+125	°C	
<b>V<sub>ISOL</sub></b>	50/60 Hz	t = 1 min	3000 V~	
	I <sub>ISOL</sub> ≤ 1 mA	t = 1 s	3600 V~	
<b>M<sub>d</sub></b>	Mounting torque (M5) (10-32 UNF)	2-2.5	Nm	
		18-22	lb.in.	
<b>d<sub>s</sub></b>	Creep distance on surface	12.7	mm	
<b>d<sub>A</sub></b>	Strike distance in air	9.4	mm	
<b>a</b>	Maximum allowable acceleration	50	m/s <sup>2</sup>	
<b>Weight</b>	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

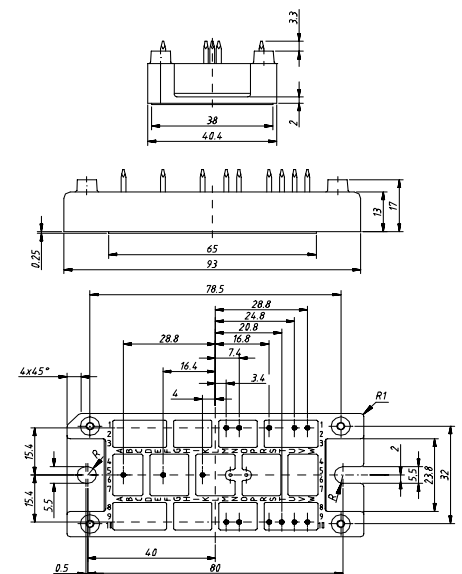
## Applications

- 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 ( $T_{VJ} = 25^{\circ}\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$I_R$	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$			0.3 mA
	$V_R = V_{RRM}, T_{VJ} = 150^{\circ}\text{C}$			5 mA
$V_F$	$I_F = 150 \text{ A}, T_{VJ} = 25^{\circ}\text{C}$			1.46 V
$V_{T0}$	For power-loss calculations only			0.87 V
$r_T$	$T_{VJ} = 150^{\circ}\text{C}$			4.0 m $\Omega$
$R_{thJC}$	per diode			0.6 K/W
$R_{thCH}$			0.2	K/W
$V_{BR(CE)}$	$V_{GS} = 0 \text{ V}, I_C = 1 \text{ mA}$	1200		V
$V_{GE(th)}$	$I_C = 4 \text{ mA}$	4.5		6.5 V
$I_{CES}$	$V_{CE} = 1200 \text{ V}, T_{VJ} = 25^{\circ}\text{C}$			0.2 mA
	$T_{VJ} = 125^{\circ}\text{C}$			1 mA
$V_{CEsat}$	$V_{GE} = 15 \text{ V}, I_C = 50 \text{ A}$	VUB 120		2.1 V
	$I_C = 75 \text{ A}$	VUB 160		2.2 V
$t_{SC}$ (SCSOA)	$V_{GE} = 15 \text{ V}, V_{CE} = 900 \text{ V}, T_{VJ} = 125^{\circ}\text{C},$ $R_G = 15/10 \Omega, \text{ non repetitive}$			10 $\mu\text{s}$
RBSOA	$V_{GE} = 15 \text{ V}, V_{CE} = 1200 \text{ V}, T_{VJ} = 125^{\circ}\text{C},$ Clamped Inductive load, $L = 100 \mu\text{H}$			
$C_{ies}$	$V_{CE} = 25 \text{ V}, f = 1 \text{ MHz}, V_{GE} = 0 \text{ V}$	VUB 120	5.7	nF
		VUB 160	7.4	nF
$t_{d(on)}$	$V_{CE} = 600 \text{ V}, I_C = 50/75 \text{ A}$ $V_{GE} = 15 \text{ V}, R_G = 15/10 \Omega$ Inductive load; $L = 100 \mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$	VUB 120	170	ns
$t_{d(on)}$		VUB 160	330	ns
$t_{d(off)}$		VUB 120	680	ns
$t_{d(off)}$		VUB 160	750	ns
$E_{on}$		VUB 120	11	mJ
$E_{off}$		VUB 160	12	mJ
$R_{thJC}$		VUB 120		0.22 K/W
		VUB 160		0.18 K/W
$R_{thCH}$		VUB 120	0.1	K/W
		VUB 160	0.1	K/W
$I_R$	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$		0.75	0.5 mA
	$T_{VJ} = 125^{\circ}\text{C}$			1 mA
$V_F$	$I_F = 30 \text{ A}, T_{VJ} = 25^{\circ}\text{C}$			2.7 V
$V_{T0}$	For power-loss calculations only			1.3 V
$r_T$	$T_{VJ} = 150^{\circ}\text{C}$			15 m $\Omega$
$I_{RM}$	$I_F = 50 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}, V_R = 100 \text{ V}$		8	12 A
$t_{tr}$	$I_F = 1 \text{ A}, -di_F/dt = 100 \text{ A}/\mu\text{s}, V_R = 30 \text{ V}$		40	60 ns
$R_{thJC}$				0.9 K/W
			0.3	K/W