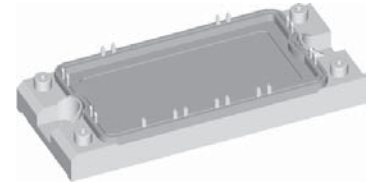
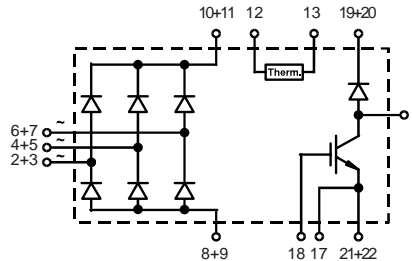


## Three Phase Rectifier Bridge with IGBT and Fast Recovery Diode for Braking System

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

$$I_{dAVM} = 116/145 \text{ A}$$

$V_{RRM}$ V	Type
1600	VUB 116-16 NO1
1600	VUB 145-16 NO1



Symbol	Conditions	Maximum Ratings		
		VUB 116	VUB 145	
$V_{RRM}$		1600	1600 V	
$I_{dAVM}$		116	145 A	
$I_{FSM}$	Rectifier Diodes	$T_C = 100^\circ\text{C}$ , sinusoidal 120°		
			$T_{VJ} = 45^\circ\text{C}$ , $t = 10 \text{ ms}$ , $V_R = 0 \text{ V}$	650 A
			$T_{VJ} = 150^\circ\text{C}$ , $t = 10 \text{ ms}$ , $V_R = 0 \text{ V}$	570 A
			$T_{VJ} = 45^\circ\text{C}$ , $t = 10 \text{ ms}$ , $V_R = 0 \text{ V}$	2110 A
$I^2t$			$T_{VJ} = 150^\circ\text{C}$ , $t = 10 \text{ ms}$ , $V_R = 0 \text{ V}$	3040 A
				1620 A
$P_{tot}$	$T_C = 25^\circ\text{C}$ per diode	190	250 W	
$V_{CES}$	$T_{VJ} = 25^\circ\text{C}$ to $150^\circ\text{C}$ Continuous	1200	1200 V	
$V_{GE}$		$\pm 20$	$\pm 20$ V	
$I_{C25}$	IGBT	$T_C = 25^\circ\text{C}$ , DC	95	141 A
			$T_C = 80^\circ\text{C}$ , DC	67
$I_{C80}$			67	100 A
$I_{CM}$	$t_p = \text{Pulse width limited by } T_{VJM}$	100	150 A	
$P_{tot}$	$T_C = 25^\circ\text{C}$	380	570 W	
$V_{RRM}$	Fast Recovery Diode	$T_C = 80^\circ\text{C}$ , rectangular $d = 0.5$	1200	V
$I_{FAV}$			27	A
$I_{FRMS}$			38	A
$I_{FRM}$			tbd	A
$I_{FSM}$		$T_{VJ} = 45^\circ\text{C}$ , $t = 10 \text{ ms}$	200	A
$P_{tot}$	$T_C = 25^\circ\text{C}$	130	W	
$T_{VJ}$	Module	50/60 Hz, $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ , $t = 1 \text{ s}$	-40...+150	°C
$T_{VJM}$			150	°C
$T_{stg}$			-40...+125	°C
$V_{ISOL}$		2500	V~	
$M_d$	Mounting torque	3000	V~	
		2.25...2.75	Nm	
		20...25	lb.in.	
$d_s$	Creep distance on surface	12.7	mm	
$d_A$	Strike distance in air	9.6	mm	
$a$	Maximum allowable acceleration	50	m/s <sup>2</sup>	
<b>Weight</b>	typ.	180	g	

### Features

- Soldering connections for PCB mounting
- Convenient package outline
- Thermistor

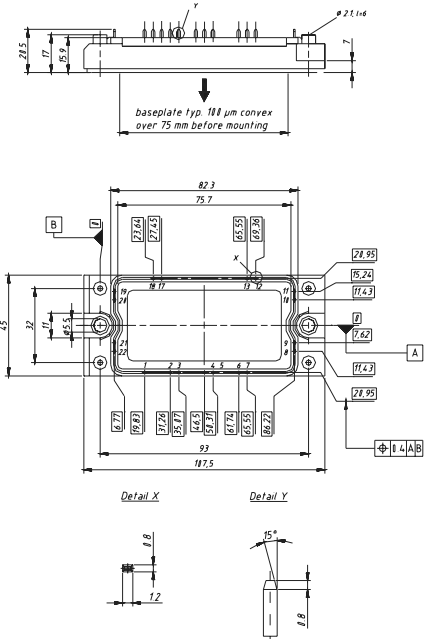
### Applications

- 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.
<b>Rectifier Diodes</b>	$I_R$	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$ $V_R = V_{RRM}, T_{VJ} = 150^{\circ}\text{C}$		0.1 mA 2 mA
	$V_F$	$I_F = 80\text{ A}, T_{VJ} = 25^{\circ}\text{C}$ $I_F = 150\text{ A}, T_{VJ} = 25^{\circ}\text{C}$	VUB 116 VUB 145	1.43 V 1.68 V
	$V_{T0}$	for power-loss calculations only	VUB 116 VUB 145	0.85 V 0.85 V
	$r_T$	$T_{VJ} = 150^{\circ}\text{C}$	VUB 116 VUB 145	7.1 m $\Omega$ 5.9 m $\Omega$
	$R_{thJC}$	per diode	VUB 116 VUB 145	0.65 K/W 0.5 K/W
	$R_{thCH}$		VUB 116 VUB 145	0.1 K/W 0.1 K/W
	<b>IGBT</b>	$V_{BR(CES)}$	$V_{GS} = 0\text{ V}, I_C = 0.1\text{ mA}$	1200
$V_{GE(th)}$		$I_C = 8\text{ mA}$	VUB 116	4.5 V
		$I_C = 3\text{ mA}$	VUB 145	4.5 V
$I_{CES}$		$T_{VJ} = 25^{\circ}\text{C}, V_{CE} = 1200\text{ V}$		0.1 mA
		$T_{VJ} = 125^{\circ}\text{C}, V_{CE} = 0.8 \cdot V_{CES}$		0.5 mA
$V_{CEsat}$		$V_{GE} = 15\text{ V}, I_C = 100\text{ A}$	VUB 116	3.5 V
		$V_{GE} = 15\text{ V}, I_C = 150\text{ A}$	VUB 145	3.7 V
$t_{SC}(\text{SCSOA})$		$V_{GE} = 15\text{ V}, V_{CE} = 720\text{ V}, T_{VJ} = 125^{\circ}\text{C}$ ,		10 $\mu\text{s}$
<b>RBSOA</b>		$V_{GE} = 15\text{ V}, V_{CE} = 1200\text{ V}, T_{VJ} = 125^{\circ}\text{C}$ , clamped inductive load, $L = 100\text{ }\mu\text{H}$		
		$R_G = 22\text{ }\Omega$	VUB 116	100 A
		$R_G = 15\text{ }\Omega$	VUB 145	150 A
$C_{ies}$		$V_{CE} = 25\text{ V}, f = 1\text{ MHz}, V_{GE} = 0\text{ V}$	VUB 116 VUB 145	3.8 nF 5.7 nF
$t_{d(on)}$		$V_{CE} = 720\text{ V}, I_C = 50/75\text{ A}$ $V_{GE} = 15\text{ V}, R_G = 32/15\text{ }\Omega$ Inductive load; $L = 100\text{ }\mu\text{H}$ $T_{VJ} = 125^{\circ}\text{C}$		150 ns
$t_{d(off)}$			680 ns	
$E_{on}$	VUB 116		6 mJ	
$E_{off}$	VUB 145		9 mJ	
	VUB 116		5 mJ	
VUB 145	7.5 mJ			
$R_{thJC}$		VUB 116 VUB 145	0.33 K/W 0.22 K/W	
	$R_{thJH}$	VUB 116 VUB 145	0.66 K/W 0.44 K/W	
<b>Fast Recovery Diode</b>	$I_R$	$V_R = V_{RRM}, T_{VJ} = 25^{\circ}\text{C}$ $V_R = 1200\text{ V}, T_{VJ} = 125^{\circ}\text{C}$	1	0.25 mA mA
	$V_F$	$I_F = 30\text{ A}, T_{VJ} = 25^{\circ}\text{C}$		2.76 V
	$V_{T0}$	For power-loss calculations only		1.3 V
	$r_T$	$T_{VJ} = 150^{\circ}\text{C}$		16 m $\Omega$
	$I_{RM}$	$I_F = 50\text{ A}, -di_F/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$	5.5	11 A
	$t_{rr}$	$I_F = 1\text{ A}, -di_F/dt = 200\text{ A}/\mu\text{s}, V_R = 30\text{ V}$	40	ns
	$R_{thJC}$ $R_{thCH}$			0.9 K/W 0.1 K/W
$R_{25}$ $B_{25/50}$	<b>NTC</b>	4.75 3375	5.0 K	