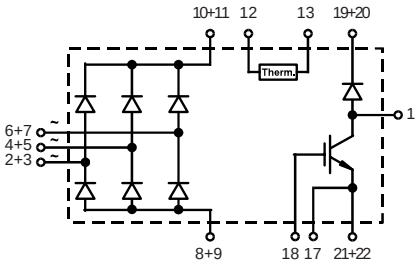
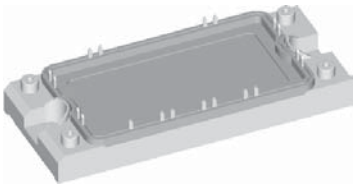
Three Phase Rectifier Bridge
with IGBT and Fast Recovery Diode for Braking System

V_{RRM} = 1600 V
I_{dAVM} = 116/145 A

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





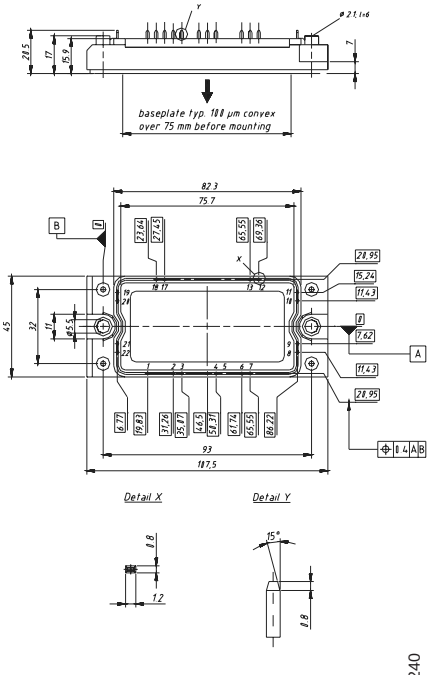
Symbol		Conditions	Maximum Ratings VUB 116	VUB 145	
V_{RRM}	Rectifier Diodes		1600	1600	V
I_{dAVM}		T_C = 100°C, sinusoidal 120°	116	145	A
I_{FSM}		T_{VJ} = 45°C, t = 10 ms, V_R = 0 V	650	900	A
		T_{VJ} = 150°C, t = 10 ms, V_R = 0 V	570	780	A
I^2t		T_{VJ} = 45°C, t = 10 ms, V_R = 0 V	2110	4050	A
		T_{VJ} = 150°C, t = 10 ms, V_R = 0 V	1620	3040	A
P_{tot}		T_C = 25°C per diode	190	250	W
V_{CES}	IGBT	T_{VJ} = 25°C to 150°C	1200	1200	V
V_{GE}		Continuous	± 20	± 20	V
I_{C25}		T_C = 25°C, DC	95	141	A
I_{C80}		T_C = 80°C, DC	67	100	A
I_{CM}		t_p = Pulse width limited by T_{VJM}	100	150	A
P_{tot}		T_C = 25°C	380	570	W
V_{RRM}	Fast Recovery Diode		1200		V
I_{FAV}		T_C = 80°C, rectangular d = 0.5	27		A
I_{FRMS}		T_C = 80°C, rectangular d = 0.5	38		A
I_{FRM}		T_C = 80°C, t_P = 10 µs, f = 5 kHz	tbd		A
I_{FSM}		T_{VJ} = 45°C, t = 10 ms	200		A
P_{tot}		T_C = 25°C	130		W
T_{VJ}	Module		-40...+150		°C
T_{VJM}			150		°C
T_{stg}			-40...+125		°C
V_{ISOL}		50/60 Hz, t = 1 min	2500		V~
		I_{ISOL} ≤ 1 mA, t = 1 s	3000		V~
M_d		Mounting torque	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^2
Weight		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°C, unless otherwise specified) min.	typ.	max.	
I_R	Rectifier Diodes	$V_R = V_{RRM}$, T_{VJ} = 25°C				0.1	mA
		$V_R = V_{RRM}$, T_{VJ} = 150°C				2	mA
V_F		I_F = 80 A, T_{VJ} = 25°C	VUB 116			1.43	V
		I_F = 150 A, T_{VJ} = 25°C	VUB 145			1.68	V
V_{T0}		for power-loss calculations only	VUB 116			0.85	V
			VUB 145			0.85	V
r_T		T_{VJ} = 150°C	VUB 116			7.1	mΩ
			VUB 145			5.9	mΩ
R_{thJC}		per diode	VUB 116			0.65	K/W
			VUB 145			0.5	K/W
R_{thCH}			VUB 116			0.1	K/W
			VUB 145			0.1	K/W
$V_{BR(CES)}$	IGBT	V_{GS} = 0 V, I_C = 0.1 mA		1200			V
$V_{GE(th)}$		I_C = 8 mA	VUB 116	4.5		6.45	V
		I_C = 3 mA	VUB 145	4.5		6.45	V
I_{CES}		T_{VJ} = 25°C, V_{CE} = 1200 V				0.1	mA
		T_{VJ} = 125°C, V_{CE} = 0,8 • V_{CES}				0.5	mA
V_{CEsat}		V_{GE} = 15 V, I_C = 100 A	VUB 116			3.5	V
		V_{GE} = 15 V, I_C = 150 A	VUB 145			3.7	V
t_{SC} (SCSOA)		V_{GE} = 15 V, V_{CE} = 720 V, T_{VJ} = 125°C,				10	µs
RBSOA		V_{GE} = 15 V, V_{CE} = 1200 V, T_{VJ} = 125°C, clamped inductive load, L = 100 µH					
		R_G = 22 Ω	VUB 116			100	A
		R_G = 15 Ω	VUB 145			150	A
C_{ies}		V_{CE} = 25 V, f = 1 MHz, V_{GE} = 0 V	VUB 116		3.8		nF
			VUB 145		5.7		nF
$t_{d(on)}$		V_{CE} = 720 V, I_C = 50/75 A			150		ns
$t_{d(off)}$		V_{GE} = 15 V, R_G = 32/15 Ω			680		ns
E_{on}		Inductive load; L = 100 µH	VUB 116		6		mJ
		T_{VJ} = 125°C	VUB 145		9		mJ
E_{off}			VUB 116		5		mJ
			VUB 145		7.5		mJ
R_{thJC}			VUB 116			0.33	K/W
			VUB 145			0.22	K/W
R_{thJH}			VUB 116			0.66	K/W
			VUB 145			0.44	K/W
I_R	Fast Recovery Diode	$V_R = V_{RRM}$, T_{VJ} = 25°C				0.25	mA
		V_R = 1200 V, T_{VJ} = 125°C			1		mA
V_F		I_F = 30 A, T_{VJ} = 25°C				2.76	V
V_{T0}		For power-loss calculations only				1.3	V
r_T		T_{VJ} = 150°C				16	mΩ
I_{RM}		I_F = 50 A, -di_F/dt = 100 A/µs, V_R = 100 V			5.5	11	A
t_{rr}		I_F = 1 A, -di_F/dt = 200 A/µs, V_R = 30 V			40		ns
R_{thJC}						0.9	K/W
R_{thCH}						0.1	K/W
R_{25}	NTC			4.75	5.0	5.25	kΩ
$B_{25/50}$					3375		K

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