

Three Phase Rectifier Bridge

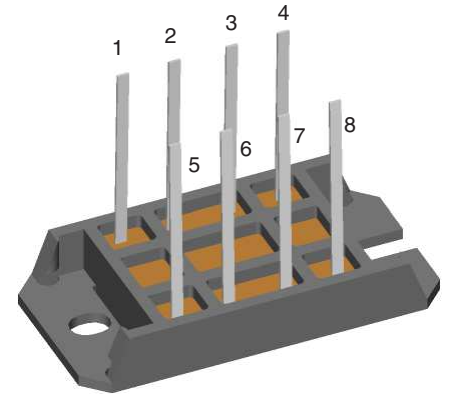
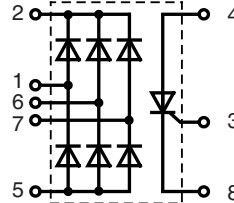
with Fast Diodes and "Softstart" Thyristor

$$I_{dAVM} = 39 \text{ A}$$

$$I_{TAVM} = 31 \text{ A}$$

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

V_{RSM} V	V_{RRM} V	Type
1300	1200	VUC 36-12go2
1700	1600	VUC 36-16go2



Symbol	Conditions	Maximum Ratings		
		Diode	Thyristor	
I_{dAV}	$T_K = 85^\circ\text{C}$, module	34	-	A
I_{dAVM}	module	39	-	A
I_{TAVM}	$T_K = 85^\circ\text{C}$, DC	-	31	A
I_{FSM}, I_{TSM}	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	300	400 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	330	440 A
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	270	360 A
		$t = 8.3 \text{ ms}$ (60 Hz), sine	300	400 A
I^2t	$T_{VJ} = 45^\circ\text{C}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	450	800 A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	460	810 A ² s
	$T_{VJ} = T_{VJM}$ $V_R = 0$	$t = 10 \text{ ms}$ (50 Hz), sine	365	650 A ² s
		$t = 8.3 \text{ ms}$ (60 Hz), sine	380	670 A ² s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ $f = 400 \text{ Hz}$, $t_p = 200 \mu\text{s}$ $V_D = \frac{2}{3} V_{DRM}$ $I_G = 0.3 \text{ A}$ $di_G/dt = 0.3 \text{ A}/\mu\text{s}$	repetitive, $I_T = 50 \text{ A}$	150	A/ μs
		non repetitive, $I_T = I_{TAVM}$	500	A/ μs
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = \frac{2}{3} V_{DRM}$ $R_{GK} = \infty$; method 1 (linear voltage rise)		200	V/ μs
V_{RGM}			10	V
P_{GM}	$T_{VJ} = T_{VJM}$	$t_p = 30 \mu\text{s}$	≤ 10	W
	$I_T = I_{TAVM}$	$t_p = 10 \text{ ms}$	≤ 1	W
P_{GAVM}			0.5	W
T_{VJ}			-40...+125	$^\circ\text{C}$
T_{VJM}			125	$^\circ\text{C}$
T_{stg}			-40...+125	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS	$t = 1 \text{ min}$	3000	V~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$	3600	V~
M_d	Mounting torque	(M5)	2-2.5	Nm
		(10-32 UNF)	18-22	lb.in.
Weight	typ.		28	g

Features

- Package with DCB ceramic base plate
- Isolation voltage 3600 V~
- Planar passivated chips
- Fast recovery diodes to reduce EMI
- Separate thyristor for softstart
- Solderable terminals
- UL registered E 72873

Applications

- Input rectifier for switching power supplies (SMPS)
- Softstart capacitor charging
- Electric drives and auxiliaries

Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature & power cycling
- Up to 10 dB lower EMI/RFI compared to standard rectifier

Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated

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IXYS reserves the right to change limits, test conditions and dimensions.

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Symbol	Conditions	Characteristic Values	
		Diode	Thyristor
I_R, I_D	$V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	≤ 5 ≤ 0.3	≤ 5 mA ≤ 0.3 mA
V_F, V_T	$I_F = 55$ A; $I_T = 45$ A $T_{VJ} = 25^\circ\text{C}$	≤ 1.85	≤ 1.4 V
V_{T0}	For power-loss calculations only	1.2	0.85 V
r_T	$T_{VJ} = 125^\circ\text{C}$	16	10 m Ω
V_{GT}	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$		≤ 1.5 V
I_{GT}	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$		≤ 80 mA
V_{GD}	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = T_{VJM}$		≤ 0.2 V
I_{GD}	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = T_{VJM}$		≤ 5 mA
I_L	$t_G = 30$ μs ; $I_G = 0.3$ A $di_G/dt = 0.3$ A/ μs $T_{VJ} = 25^\circ\text{C}$		≤ 300 mA
I_H	$V_D = 6$ V; $R_{GK} = \infty$ $T_{VJ} = 25^\circ\text{C}$		≤ 100 mA
t_{gd}	$V_D = \frac{1}{2} V_{DRM}$; $I_G = 0.3$ A $di_G/dt = 0.3$ A/ μs $T_{VJ} = 25^\circ\text{C}$		≤ 2.5 μs
t_q	$I_T = 15$ A; $t_p = 300$ μs ; $-di/dt = 10$ A/ μs ; $T_{VJ} = 125^\circ\text{C}$ $V_R = 100$ V; $dv/dt = 20$ V/ μs ; $V_D = \frac{2}{3} V_{DRM}$		typ. 130 μs
t_{rr}	$I_F = 10$ A; $V_R = \frac{1}{2} V_{RRM}$ $-di/dt = 10$ A/ μs $T_{VJ} = 25^\circ\text{C}$	≤ 1.5	- μs
R_{thJC}	per thyristor (diode); DC current per module	1.4 0.233	0.9 K/W - K/W
R_{thJH}	per thyristor (diode); DC current per module	2.0 0.333	1.1 K/W - K/W
d_s	Creeping distance on surface		7 mm
d_A	Creepage distance in air		7 mm
a	Max. allowable acceleration		50 m/s ²

Dimensions in mm (1 mm = 0.0394")

