

Three Phase Rectifier Bridge

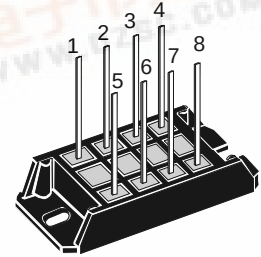
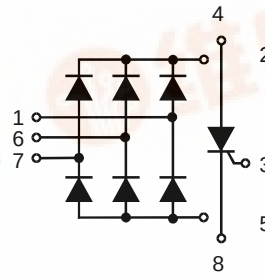
with Fast Diodes and "Softstart" Thyristor

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

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

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

V_{RSM}	V_{RRM}	Type
V_{DSM}	V_{DRM}	
V	V	
1300	1200	VUC 36-12go2
1500	1400	VUC 36-14go2
1700	1600	VUC 36-16go2



Symbol	Test 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}	$T_{VJ} = 45^{\circ}\text{C}$;	$t = 10\text{ ms}$ (50 Hz), sine	300	400	A
	$V_R = 0$	$t = 8.3\text{ ms}$ (60 Hz), sine	330	440	A
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$ (50 Hz), sine	270	360	A
	$V_R = 0$	$t = 8.3\text{ ms}$ (60 Hz), sine	300	400	A
I^2t	$T_{VJ} = 45^{\circ}\text{C}$	$t = 10\text{ ms}$ (50 Hz), sine	450	800	A^2s
	$V_R = 0$	$t = 8.3\text{ ms}$ (60 Hz), sine	460	810	A^2s
	$T_{VJ} = T_{VJM}$	$t = 10\text{ ms}$ (50 Hz), sine	365	650	A^2s
	$V_R = 0$	$t = 8.3\text{ ms}$ (60 Hz), sine	380	670	A^2s
$(di/dt)_{cr}$	$T_{VJ} = T_{VJM}$ repetitive, $I_T = 50\text{ A}$		150	$\text{A}/\mu\text{s}$	
	$f = 400\text{ Hz}$, $t_p = 200\text{ }\mu\text{s}$				
	$V_D = 2/3 V_{DRM}$				
	$I_G = 0.3\text{ A}$, non repetitive, $I_T = I_{TAVM}$		500	$\text{A}/\mu\text{s}$	
	$di_G/dt = 0.3\text{ A}/\mu\text{s}$				
$(dv/dt)_{cr}$	$T_{VJ} = T_{VJM}$; $V_{DR} = 2/3 V_{DRM}$		200	$\text{V}/\mu\text{s}$	
	$R_{GK} = \infty$; method 1 (linear voltage rise)				
V_{RGM}			10	V	
P_{GM}	$T_{VJ} = T_{VJM}$	$t_p = 30\text{ }\mu\text{s}$	≤ 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

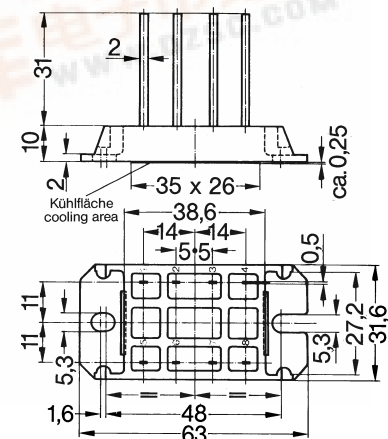
Applications

- 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 and power cycling
- Up to 10 dB lower EMI/RFI compared to standard rectifier

Dimensions in mm (1 mm = 0.0394")



Data according to IEC 60747 and refer to a single thyristor/diode unless otherwise stated.
IXYS reserves the right to change limits, test conditions and dimensions.

Symbol	Test 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}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3 V_{DRM}$	≤ 0.2 V
I_{GD}	$T_{VJ} = T_{VJM}$;	$V_D = 2/3 V_{DRM}$	≤ 5 mA
I_L	$T_{VJ} = 25^\circ\text{C}$; $t_G = 30$ μs $I_G = 0.3$ A; $di_G/dt = 0.3$ A/ μs		≤ 300 mA
I_H	$T_{VJ} = 25^\circ\text{C}$; $V_D = 6$ V; $R_{GK} = \infty$		≤ 100 mA
t_{gd}	$T_{VJ} = 25^\circ\text{C}$; $V_D = 1/2 V_{DRM}$ $I_G = 0.3$ A; $di_G/dt = 0.3$ A/ μs		≤ 2.5 μs
t_q	$T_{VJ} = 125^\circ\text{C}$; $I_T = 15$ A, $t_b = 300$ μs , $-di/dt = 10$ A/ μs $V_R = 100$ V, $dv/dt = 20$ V/ μs , $V_D = 2/3 V_{DRM}$		typ. 130 μs
t_{rr}	$T_{VJ} = 25^\circ\text{C}$; $I_F = 10$ A; $-di/dt = 10$ A/ μs , $V_R = 1/2 V_{RRM}$	≤ 1.5	- μs
R_{thJC}	per thyristor (diode); DC current	1.4	0.9 K/W
	per module	0.233	- K/W
R_{thJH}	per thyristor (diode); DC current	2.0	1.1 K/W
	per module	0.333	- 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