

# Three Phase Rectifier Bridge

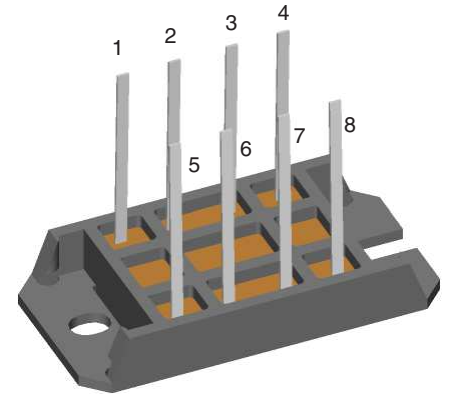
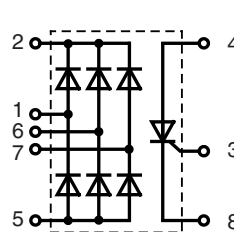
with Fast Diodes and "Softstart" Thyristor

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

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

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

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

## Disclaimer Notice

Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at [www.littelfuse.com/disclaimer-electronics](http://www.littelfuse.com/disclaimer-electronics).

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

20200117c



Symbol	Conditions	Characteristic Values	
		Diode	Thyristor
$I_R, I_D$	$V_R = V_{RRM}; V_D = V_{DRM}$ $T_{VJ} = T_{VJM}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 5$ $\leq 0.3$	$\leq 5$ mA $\leq 0.3$ mA
$V_F, V_T$	$I_F = 55$ A; $I_T = 45$ A $T_{VJ} = 25^\circ\text{C}$	$\leq 1.85$	$\leq 1.4$ V
$V_{T0}$	For power-loss calculations only	1.2	0.85 V
$r_T$	$T_{VJ} = 125^\circ\text{C}$	16	10 m $\Omega$
$V_{GT}$	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$		$\leq 1.5$ V
$I_{GT}$	$V_D = 6$ V $T_{VJ} = 25^\circ\text{C}$		$\leq 80$ mA
$V_{GD}$	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = T_{VJM}$		$\leq 0.2$ V
$I_{GD}$	$V_D = \frac{2}{3} V_{DRM}$ $T_{VJ} = T_{VJM}$		$\leq 5$ mA
$I_L$	$t_G = 30$ $\mu\text{s}$ ; $I_G = 0.3$ A $di_G/dt = 0.3$ A/ $\mu\text{s}$ $T_{VJ} = 25^\circ\text{C}$		$\leq 300$ mA
$I_H$	$V_D = 6$ V; $R_{GK} = \infty$ $T_{VJ} = 25^\circ\text{C}$		$\leq 100$ mA
$t_{gd}$	$V_D = \frac{1}{2} V_{DRM}$ ; $I_G = 0.3$ A $di_G/dt = 0.3$ A/ $\mu\text{s}$ $T_{VJ} = 25^\circ\text{C}$		$\leq 2.5$ $\mu\text{s}$
$t_q$	$I_T = 15$ A; $t_p = 300$ $\mu\text{s}$ ; $-di/dt = 10$ A/ $\mu\text{s}$ ; $T_{VJ} = 125^\circ\text{C}$ $V_R = 100$ V; $dv/dt = 20$ V/ $\mu\text{s}$ ; $V_D = \frac{2}{3} V_{DRM}$		typ. 130 $\mu\text{s}$
$t_{rr}$	$I_F = 10$ A; $V_R = \frac{1}{2} V_{RRM}$ $-di/dt = 10$ A/ $\mu\text{s}$ $T_{VJ} = 25^\circ\text{C}$	$\leq 1.5$	- $\mu\text{s}$
$R_{thJC}$	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 <sup>2</sup>

Dimensions in mm (1 mm = 0.0394")

