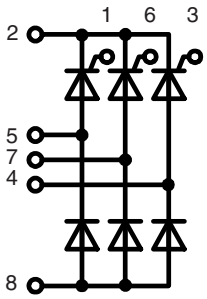
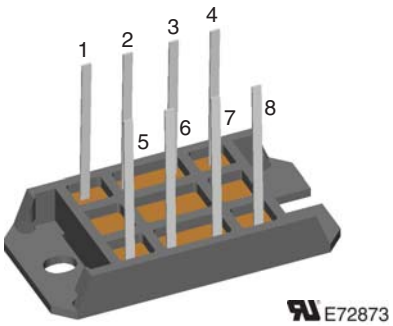
Three Phase Half Controlled Rectifier Bridge

I_{dAVM} = 27 A
V_{RRM} = 1200/1600 V

V_{RSM} V_{DSM} V	V_{RRM} V_{DRM} V	Type
1300	1200	VVZ 24-12io1
1700	1600	VVZ 24-16io1





Symbol	Conditions		Maximum Ratings	
I_{dAV}	T_K = 100°C; module		21	A
I_{dAVM}	module		27	A
I_{FRMS}, I_{TRMS}	per leg		16	A
I_{FSM}, I_{TSM}	T_{VJ} = 45°C;	t = 10 ms (50 Hz), sine	300	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	320	A
	T_{VJ} = T_{VJM}	t = 10 ms (50 Hz), sine	270	A
	V_R = 0	t = 8.3 ms (60 Hz), sine	290	A
I^2t	T_{VJ} = 45°C	t = 10 ms (50 Hz), sine	450	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	430	A^2s
	T_{VJ} = T_{VJM}	t = 10 ms (50 Hz), sine	365	A^2s
	V_R = 0	t = 8.3 ms (60 Hz), sine	350	A^2s
$(di/dt)_{cr}$	T_{VJ} = T_{VJM}	repetitive, I_T = 50 A	150	A/µs
	f =400 Hz, t_P =200 µs			
	V_D = 2/3 V_{DRM}			
	I_G = 0.3 A,	non repetitive, I_T = 1/3 • I_{dAV}	500	A/µs
	di_G/dt = 0.3 A/µs			
$(dv/dt)_{cr}$	T_{VJ} = T_{VJM}; V_{DR} = 2/3 V_{DRM}		1000	V/µs
	R_{GK} = ∞; method 1 (linear voltage rise)			
V_{RGM}			10	V
P_{GM}	T_{VJ} = T_{VJM}	t_p = 30 µs	≤ 10	W
	I_T = I_{TAVM}	t_p = 500 µs	≤ 5	W
		t_p = 10 ms	≤ 1	W
P_{GAVM}			0.5	W
T_{VJ}			-40...+125	°C
T_{VJM}			125	°C
T_{stg}			-40...+125	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	3000	V~
	I_{ISOL} ≤ 1 mA	t = 1 s	3600	V~
M_d	Mounting torque	(M5)	2-2.5	Nm
		(10-32 UNF)	18-22	lb.in.
Weight	typ.		28	g

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

Features

- Package with DCB ceramic base plate
- Isolation voltage 3600 V~
- Planar passivated chips
- Soldering terminals
- UL registered E 72873

Applications

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

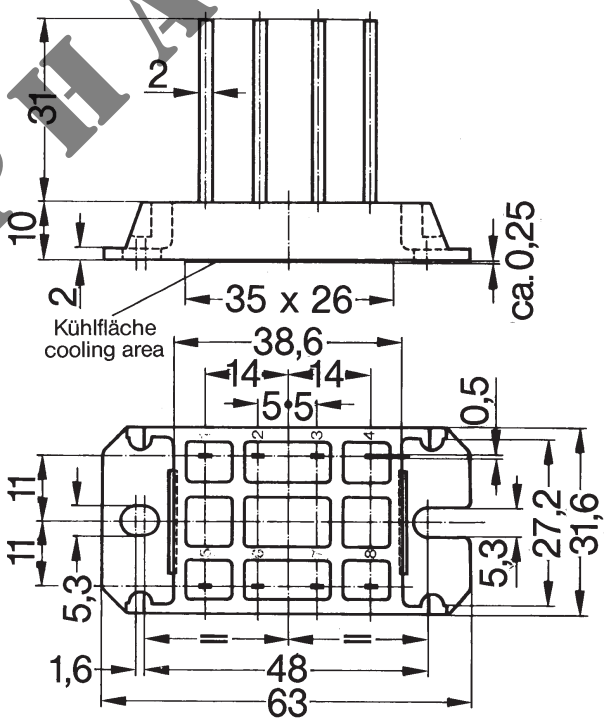
Advantages

- Easy to mount with two screws
- Space and weight savings
- Improved temperature and power cycling

Recommended replacements:
VVZ40-12io1
VVZ40-16io1

Symbol	Conditions		Characteristic Values		
I_R, I_D	$V_R = V_{RRM}$; $V_D = V_{DRM}$	$T_{VJ} = T_{VJM}$	≤	5	mA
		$T_{VJ} = 25°C$	≤	0.3	mA
V_F, V_T	I_F, I_T = 30 A, $T_{VJ} = 25°C$		≤	1.45	V
V_{T0}	For power-loss calculations only			1	V
r_T	($T_{VJ} = 125°C$)			16	mΩ
V_{GT}	V_D = 6 V;	$T_{VJ} = 25°C$	≤	1.0	V
		$T_{VJ} = -40°C$	≤	1.2	V
I_{GT}	V_D = 6 V;	$T_{VJ} = 25°C$	≤	65	mA
		$T_{VJ} = -40°C$	≤	80	mA
		$T_{VJ} = 125°C$	≤	50	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	I_G = 0.3 A; t_G = 30 µs	$T_{VJ} = 25°C$	≤	150	mA
	di_G/dt = 0.3 A/µs	$T_{VJ} = -40°C$	≤	200	mA
		$T_{VJ} = 125°C$	≤	100	mA
I_H	$T_{VJ} = 25°C$; V_D = 6 V; $R_{GK} = \infty$		≤	100	mA
t_{gd}	$T_{VJ} = 25°C$; $V_D = 1/2\ V_{DRM}$		≤	2	µs
	I_G = 0.3 A; di_G/dt = 0.3 A/µs				
t_q	$T_{VJ} = 125°C$; I_T = 15 A, t_p = 300 µs, -di/dt = 10 A/µs		typ.	150	µs
Q_r	V_R = 100 V, dv/dt = 20 V/µs, $V_D = 2/3\ V_{DRM}$			75	µC
R_{thJC}	per thyristor (diode); DC current			2.1	K/W
	per module			0.35	K/W
R_{thJH}	per thyristor (diode); DC current			2.7	K/W
	per module			0.45	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")



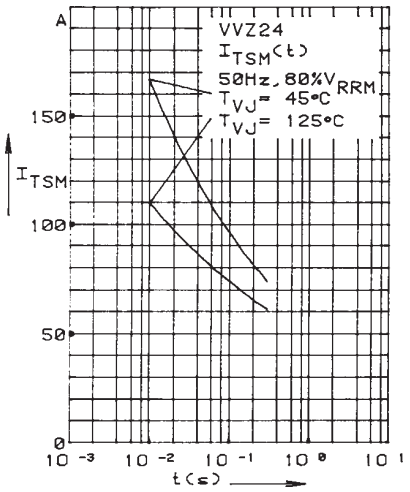


Fig. 1 Surge overload current per chip
I_{FSM}: Crest value, t: duration

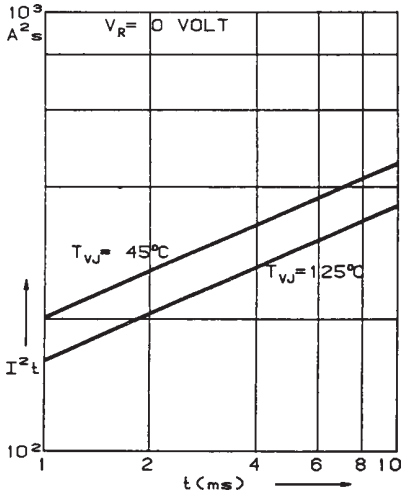


Fig. 2 I^2t versus time (1-10 ms) per chip

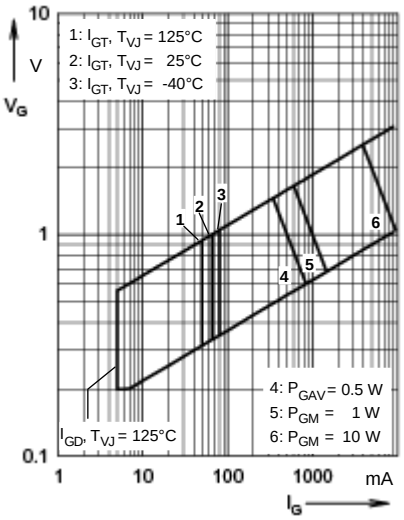


Fig. 3 Gate trigger characteristics
Triggering

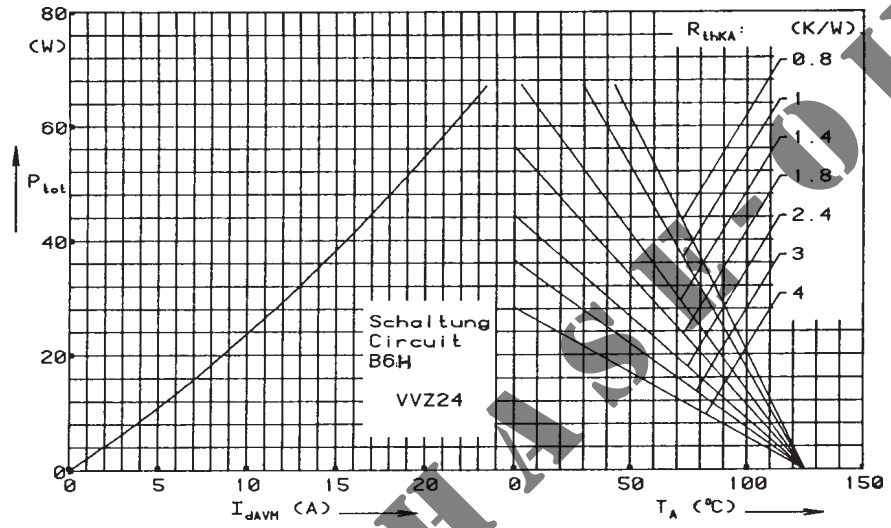


Fig. 4 Power dissipation versus direct output current and ambient temperature

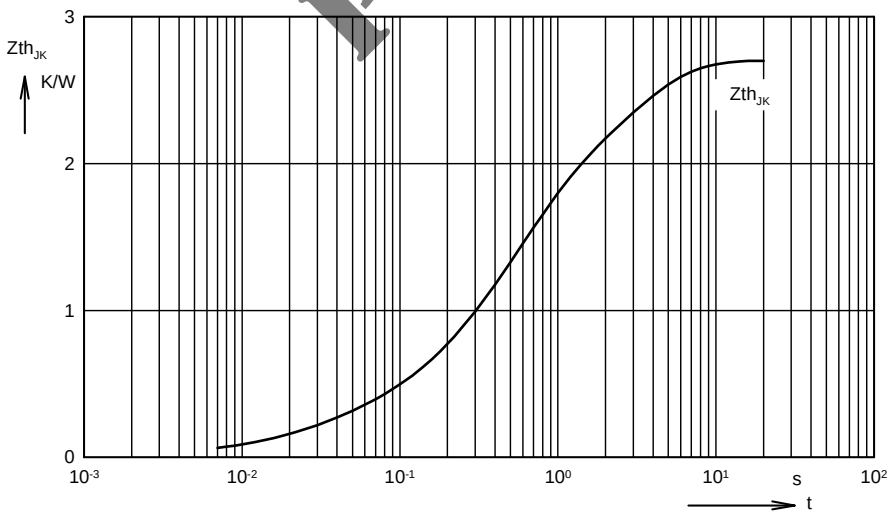


Fig. 5 Transient thermal impedance junction to heatsink

Constants for Z_{thJK} calculation

i	R_{thi} (K/W)	t_i (s)
1	0.17	0.028
2	1.4	0.44
3	1.1	2.6

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IXYS:
VVZ24-12io1