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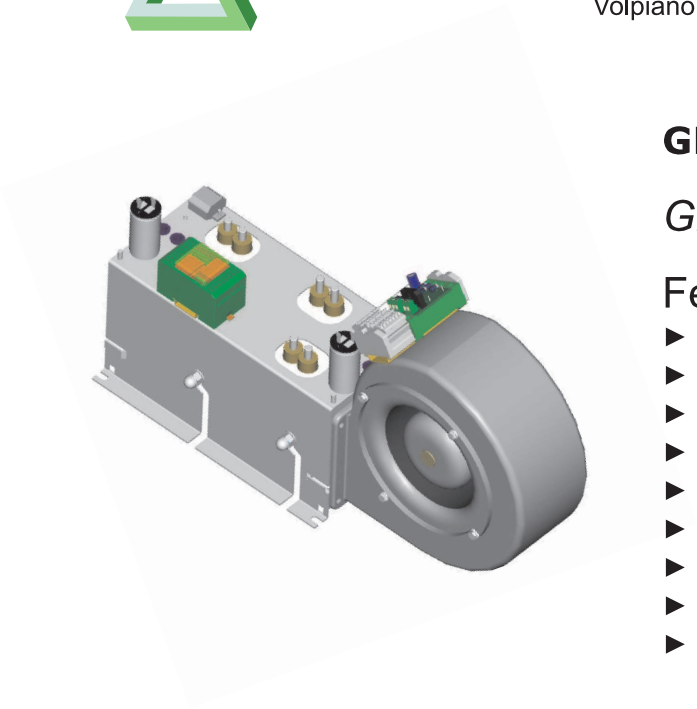


GEM_060, _070 FAMILY

Green Power Easy Module®

Features:

- ► Electrically insulated metal frame
- ► 3000 V_{RMS} Insulation
- ► High reliability
- ► Modular approach
- ► Broad choice of circuit configurations
- ► Fully customizable
- ► Cost effective solution
- ► Suitable for heavy duty applications
- ► Line voltage range up to 690V_{RMS}

Description

This new family of high power diode modules brings to the high power applications the same compactness, ease of use and scalability of the traditional lower power semiconductor modules. In addition to these typical features (i.e. standard dimensions, electrical insulation, various circuit types, etc.) the new *Green Power Easy Module* (**GEM)** family includes many features that simplify their adoption allowing the end users to focus on their core business. These features include:

- embedded air cooling system (heatsinking and high efficiency fan)
- optimised RC snubber circuits
- ducted heat flow
- protection systems (semiconductor fuses, blown fuse switches, over temperatre alarm switch, fan-on-demand function, fan loss detection)
- connection bus bars.

The diode module GEM family can be used for most of the converter circuits like single and three phase bridges, double wye rectifiers, etc.. Their application range covers all standard industrial line voltage applications (up to 690V_{RMS}) such as: electroplating, welding, temperature control, electrolysis, UPS, etc.

Maximum Ratings

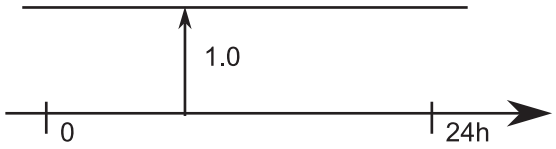
Parameters	GEM_060	GEM_070				Conditions	Units
$I_{F(AV)}$	600	915				180° cond., half sine, T_A=40°C	A
I_{FSM}	17.9	28				50Hz, T_J=$T_{J(MAX)}$, V_R=0V	kA
I_{FSM}	19	29.6				60Hz, T_J=$T_{J(MAX)}$, V_R=0V	kA
I^2t	1602	3920				50Hz, T_J=$T_{J(MAX)}$, V_R=0V	kA^2s
I^2t	1759	4300				60Hz, T_J=$T_{J(MAX)}$, V_R=0V	kA^2s
V_{RRM}	up to 2200	up to 1000				T_J=$T_{J(MAX)}$	V
$T_{J(MAX)}$	175	175					°C

Voltage Ratings

Part Number	Voltage Code	V_{RRM} maximum reverse blocking voltage V	I_{RRM} max blocking current @ T_{JMAX} mA	$V_{L(RMS)}$ maximum suggested line RMS voltage V
GEM_060	10 12 16 22	1000 1200 1600 2200	50	280 400 500 690
GEM_070	08 10	800 1000	50	204 280

Voltage Ratings

Parameters	GEM_060	GEM_070			Conditions	Units
$V_{F(TO)}$ - Threshold voltage	0.85	0.75			$T_J=T_{JMAX}$	V
r_f - Slope resistance	0.26	0.125			$T_J=T_{JMAX}$	mΩ
V_FM - Maximum forward voltage	1.30	1.07			T_J= 25°C - I_F= 1800A	V



Maximum IEC class 1 output current for typical circuit

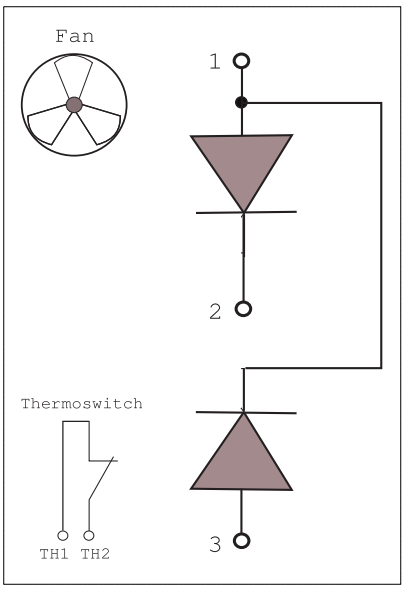
Circuit Type	GEM_060	GEM_070				Conditions	Units
Two pulse bridge	1200	1830				delay angle=0, T_A=40°C	A
Six pulse bridge	1800	2620				delay angle=0, T_A=40°C	A
Double Wye with I.P. transformer	3600	5360				delay angle=0, T_A=40°C	A

Physical and Mechanical Characteristics

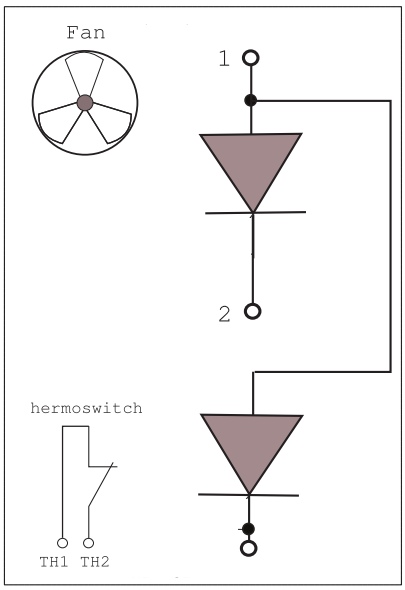
Parameters		GEM_060	GEM_070				Conditions	Units
T_J - Junction operating temp.		175	175					°C
T_{STG} - Storage temperature		-40 / +70	-40 / +70					°C
T Mounting torque ± 10%	GEM to panel	7	7				M6 mounting screws	Nm
	Busbar to GEM	14	14				M8 mounting screws	Nm
wt - approximate weight		11	11				with VFB options	kg

Circuit Configurations

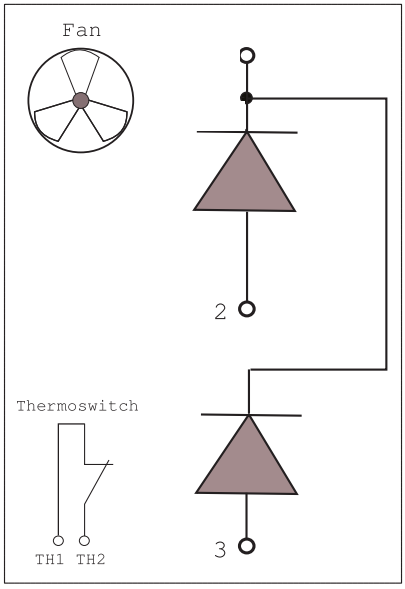
GEMD...

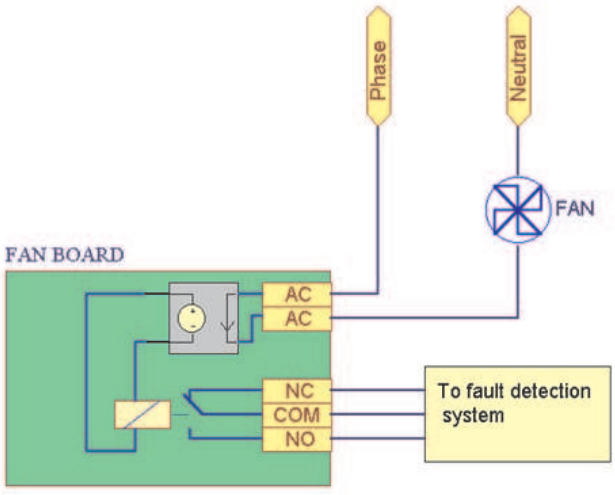


GEMJ...



GEMC...





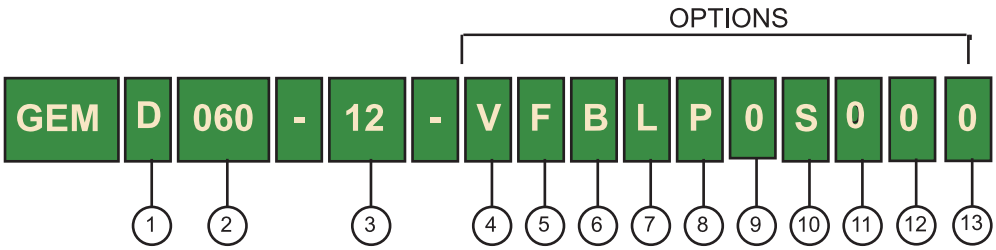
Cooling unit characteristics

Supply voltage: 230V
Supply freq.: 50-60 Hz
Supply current: 0.67 A
Noise: 61dB

Thermoswitch characteristics

Contact type: normally closed
Switch temp.: 100°C
Insulation: 2500 V_{DC}

Ordering Information



1. Circuit configuration : D, J, C
2. GEM average current / 10
3. GEM bloking voltage/ 100
4. 0= No Fan; V= 230VAC single
5. 0= No fuse; F= Individual fuse
6. 0= No busbar; B= With standard copper busbars at terminals
7. Not applicable
8. Not applicable
9. 0= No cooling alarm; C= Cooling alarm available
10. Not applicable
11. 0= No RC snubber; 2= Two RC snubbers
12. 0= Standard Zinc-plated steel body; S= Amagnetic stainless-steel body
13. 0= No Fan-on-demand; F= fan-on-demand function (Thermoswitch 50°C trip point)