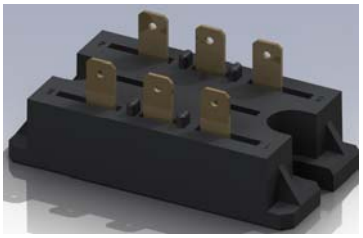
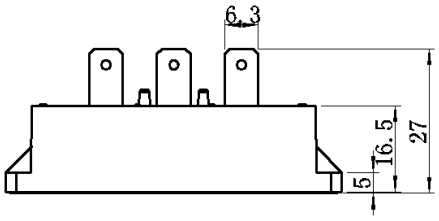
GUERTE®

Three-phase Half-controlled Module
MFQ 42.5A

Feature

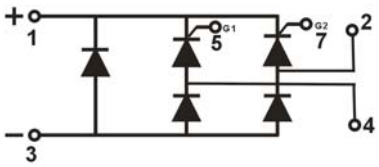
- International standard package
- Low forward voltage drop
- Isolation voltage 2500V～

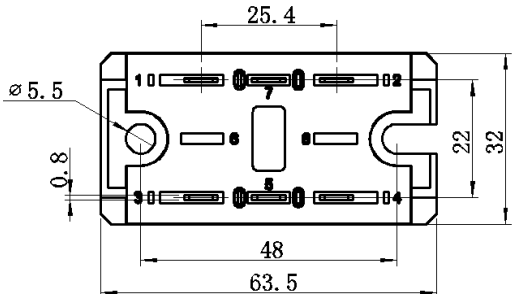




Application

- Different kinds of rectifiers
- AC/DC electric machine control
- Heating control
- Dimming
- Inverters





■ Maximum value

Symbol	Parameter	Rating		unit
		MFQ42.5-12	MFQ42.5-16	
V_{RRM}	Peak reverse repetitive voltage	1200	1600	V
V_{RSM}	Peak reverse non-repetitive voltage	1300	1700	V
V_{DRM}	Peak off-state repetitive voltage	1200	1600	V

Symbol	Parameter	Test condition	Rating	Unit
I_O	Average on-state current	Single-phase full-wave rectifying circuit T_C:85℃	42.5	A
$I_{T(RMS)}$, $I_{F(RMS)}$	Forward RMS current	Single-side heat-disspiation,180°sin half wave, 50Hz, T_C:85℃	67	A
I_{TSM}, I_{FSM}	Forward surge current	t=10ms, 50Hz,Sin，Tj	460	A
I^2t	I^2t value	V_R = 0.6V_{RRM}，Tj	1050	A^2S
P_{GM}	Peak gate power		10	W
$P_{G(AV)}$	Average gate power		0.5	W
di/dt	On-state current critical rise rate	I_{GM}=1.5A, t_r≤0.5μs, Tj=25℃	100	A/μs
V_{ISO}	Isolation voltage	AC one minute	2500	V
Tj	Operating junction temperature		-40 to +125	℃
Tjm	Rated junction temperature		125	℃
Tstg	Storage temperature		-40 to +125	℃
Md	Mounting torque（copper plate） M6		4	N·m
W_t	Weight		76	g

■ Electrical characteristics

Symbol	Parameter	Test condition	Rating	Unit
I_{DRM}	Peak off-state repetitive current	One-side heat-dissipation, V_D=V_{DRM}, sine half wave, Tj=125℃	8	mA
I_{RRM}	Peak reverse repetitive current	One-side heat-dissipation, V_R=V_{RRM}, sine half wave, Tj=125℃	8	mA
V_{TM} / V_{FM}	Peak forward voltage	I_{TM} / I_{FM} =60A, Tj=25℃	1.6/1.3	V
V_{GT}	Gate trigger voltage	Tj=25℃,I_T=1A,V_D=12V	0.7-1.5	V
I_{GT}	Gate trigger current	Tj=25℃,I_T=1A,V_D=12V	20-100	mA
V_{GD}	Gate non-trigger voltage	Tj=125℃,V_D=2/3V_{DRM}	0.2	V
I_{GD}	Gate non-trigger current	Tj=125℃,V_D=2/3V_{DRM}	10	mA
dv/dt	On-state voltage critical rise rate	Tj=125℃, V_D=2/3V_{DRM}	500	V/μs
I_H	Holding current	Tj=25℃	20-100	mA
I_L	Latching current	Tj=25℃	100-400	mA
Rth(j-c)	Thermal impedance（junction-case）	One-side heat dissipation, sine half wave	0.24	℃/W