MMK200X040DA

400V 200A Thyristor Module

PRELIMINARY

FEATURES

- □ High surge current
- □ Easy construction
- □ Non-isolated (Mounting base as common Anode terminal)
- □ High $I_{T(AV)}$

APPLICATIONS

- □ DC Motor Control and Drives
- □ Welders
- □ Power Converters
- □ Heat and Temperature Control

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Voltage Class	Unit
		4	
V_{RRM}	Repetitive peak reverse voltage	400	V
V_{RSM}	Non-repetitive peak reverse voltage	480	
$V_{R\ (DC)}$	DC reverse voltage	480	
V_{DRM}	Repetitive peak off-state voltage	600	
V_{DSM}	Non-repetitive peak off-state voltage	720	
$V_{D\ (DC)}$	DC off-state voltage	480	

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Conditions	Ratings	Unit
$I_{T\ (RMS)}$	RMS on-state current		314	A
$I_{T\ (AV)}$	Average on-state current	Three-phase, half-wave, Tc=119°C	200	A
I_{TSM}	Surge (non-repetitive) on-state current	One half cycle at 60Hz, peak value	5600	A
I^2t	I^2t for fusing	Value for one cycle of surge current	146000	A^2s
di/dt	Critical rate of rise of on-state current	V_D=1/2 V_{DRM}, I_G=1.0A, Tj=125°C	80	A/μs
P_{GM}	Peak gate power dissipation		5.0	W
$P_{G\ (AV)}$	Average gate power dissipation		0.5	W
V_{FGM}	Peak gate forward voltage		10	V
V_{RGM}	Peak gate reverse voltage		5.0	V
I_{FGM}	Peak gate forward current		2.0	A
Tj	Junction temperature		−40~+150	°C
Tstg	Storage temperature		−40~+125	°C
–	Mounting torque	Main terminal screw M8	8~10	N·m
			80~100	kg·cm
		Mounting screw M6	1.9~2.9	N·m
			20~35	kg·cm
–	Weight	Typical value	290	g

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I_{RRM}	Repetitive peak reverse current	Tj=125°C, V_{RRM} applied	–	–	40	mA
I_{DRM}	Repetitive peak off-state current	Tj=25°C, V_{DRM} applied	–	–	40	mA
V_{TM}	On-state voltage	Tj=125°C, I_{TM}=600A, instantaneous meas.	–	–	1.2	V
dv/dt	Critical rate of rise of off-state voltage	Tj=125°C, V_D=2/3·VDRM	200	–	–	V/μs
V_{GT}	Gate trigger voltage	Tj=25°C, V_D=6V, IT=1A	–	–	3.0	V
V_{GD}	Gate non-trigger voltage	Tj=125°C, V_D=1/2·VDRM	0.25	–	–	V
I_{GT}	Gate trigger current	Tj=25°C, V_D=6V, IT=1A	15	–	150	mA
Rth (j-c)	Thermal resistance	Junction to case (per 1/3 module)	–	–	0.15	°C/W

Package Outline

Dimensions (mm)