

DATASHEET

MITSUBISHI ELECTRIC

TM15T3A-H

OTHER SYMBOLS:

TM15T3AH, TM15T3A H, TM15T3A-H

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MITSUBISHI THYRISTOR MODULES

TM15T3A-M,-H

MEDIUM POWER GENERAL USE
INSULATED TYPE

TM15T3A-M,-H



- **Io** DC output current **30A**
- **VRRM** Repetitive peak reverse voltage **400/800V**
- **VDRM** Repetitive peak off-state voltage **400/800V**
- **3 Phase Mix Bridge**
- **Insulated Type**
- **UL Recognized**

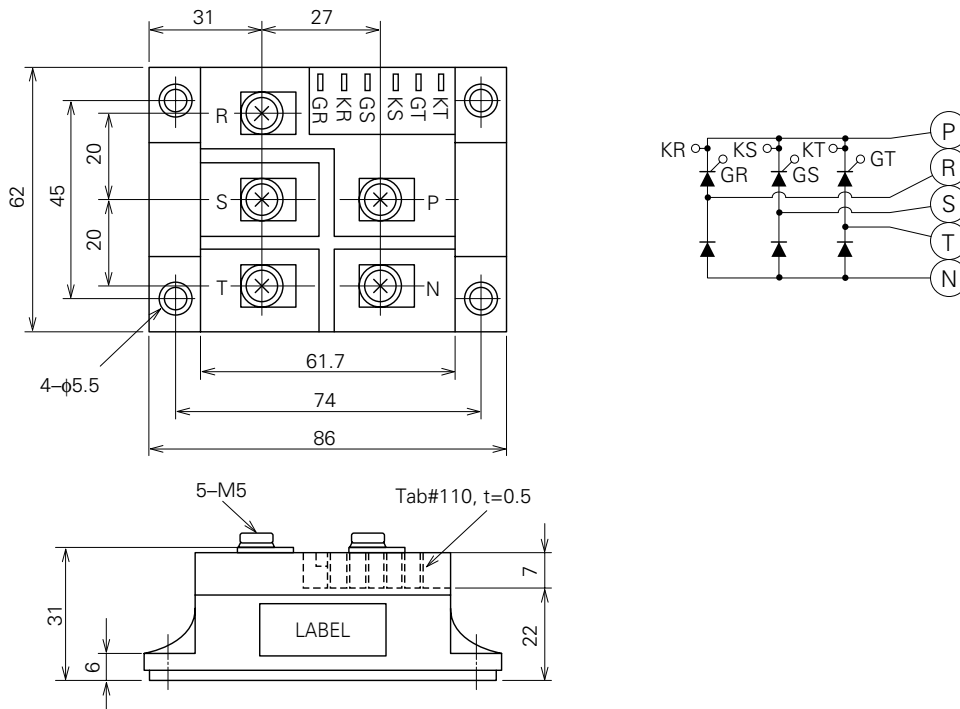
Yellow Card No. E80276 (N)
File No. E80271

APPLICATION

DC motor control, NC equipment, AC motor control, contactless switches, electric furnace temperature control, light dimmers

OUTLINE DRAWING & CIRCUIT DIAGRAM

Dimensions in mm



TM15T3A-M,-H

MEDIUM POWER GENERAL USE
INSULATED TYPE

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Voltage class		Unit
		M	H	
VRRM	Repetitive peak reverse voltage	400	800	V
VRSM	Non-repetitive peak reverse voltage	480	960	V
VR (DC)	DC reverse voltage	320	640	V
VDRM	Repetitive peak off-state voltage	400	800	V
VDSM	Non-repetitive peak off-state voltage	480	960	V
VD (DC)	DC off-state voltage	320	640	V

Symbol	Parameter	Conditions	Ratings	Unit
Io	DC output current	3-phase fullwave rectified, TC=104°C	30	A
ITSM, IFSM	Surge (non-repetitive) current	One half cycle at 60Hz, peak value	300	A
I ² t	I ² t for fusing	Value for one cycle of surge current	3.8 × 10 ²	A ² s
di/dt	Critical rate of rise of on-state current	VD=1/2VDRM, IG=0.5A, Tj=125°C	100	A/μs
PGM	Peak gate power dissipation		5.0	W
PG (AV)	Average gate power dissipation		0.5	W
VFGM	Peak gate forward voltage		10	V
VRGM	Peak gate reverse voltage		5.0	V
IFGM	Peak gate forward current		2.0	A
Tj	Junction temperature		-40~125	°C
Tstg	Storage temperature		-40~125	°C
Viso	Isolation voltage	Charged part to case	2500	V
—	Mounting torque	Main terminal screw M5	1.47~1.96	N·m
			15~20	kg·cm
		Mounting screw M5	1.47~1.96	N·m
			15~20	kg·cm
—	Weight	Typical value	310	g

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test conditions	Limits			Unit
			Min.	Typ.	Max.	
I _{RRM}	Repetitive peak reverse current	T _j =125°C, V _{RRM} applied	—	—	4.0	mA
I _{DRM}	Repetitive peak of off-state	T _j =125°C, V _{DRM} applied	—	—	4.0	mA
V _{TM} , V _{FM}	current	T _j =125°C, I _{TM} =I _{FM} =75A, instantaneous meas.	—	—	1.5	V
dv/dt	Forward voltage	T _j =125°C, V _D =2/3V _{DRM}	500	—	—	V/μs
V _{GT}	Critical rate of rise of off-state voltage	T _j =25°C, V _D =6V, R _L =2Ω	—	—	2.0	V
V _{GD}	Gate trigger voltage	T _j =125°C, V _D =1/2V _{DRM}	0.25	—	—	V
I _{GT}	Gate non-trigger voltage	T _j =25°C, V _D =6V, R _L =2Ω	10	—	50	mA
R _{th (j-c)}	Gate trigger current	Junction to case (per 1/6 module)	—	—	1.8	°C/W
R _{th (c-f)}	Thermal resistance	Case to fin, Conductive grease applied (per 1/6 module)	—	—	0.36	°C/W
—	Contact thermal resistance Insulation resistance	Measured with a 500V megohmmeter between main terminal and case	10	—	—	MΩ

Note: Items of the above table applies to the Thyristor part and the Diode part as circled in the following tables.

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MEDIUM POWER GENERAL USE
INSULATED TYPE

MAXIMUM RATINGS

Item	VRRM	VRSM	VR (DC)	VDRM	VD _{SM}	VD (DC)	IT (RMS)	IT (AV)	ITSM	I ² t	di/dt
							IF (RMS)	IF (AV)	IFSM		
Thyristor	○	○	○	○	○	○	○	○	○	○	○
Diode	○	○	○	—	—	—	○	○	○	○	—

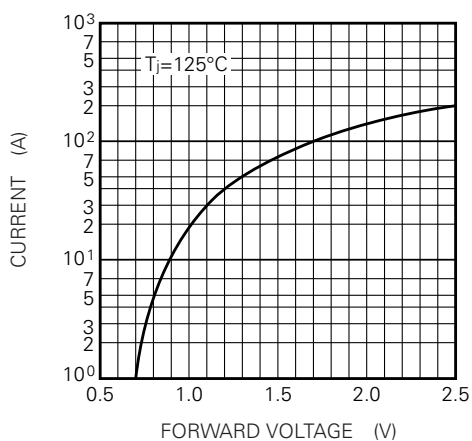
Item	PGM	PG (AV)	VFGM	IFGM	T _j	T _{stg}
Thyristor	○	○	○	○	○	○
Diode	—	—	—	—	○	○

ELECTRICAL CHARACTERISTICS

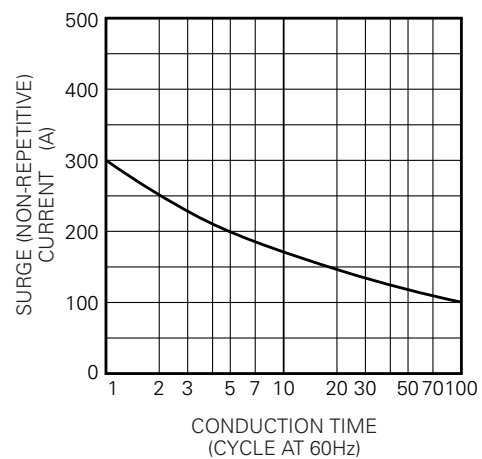
Item	I _{RRM}	I _{DRM}	V _{TM}	dv/dt	V _{GT}	V _{GD}	I _{GT}	R _{th(j-c)}	R _{th(c-f)}
			V _{FM}						
Thyristor	○	○	○	○	○	○	○	○	○
Diode	○	—	○	—	—	—	—	○	○

PERFORMANCE CURVES

MAXIMUM FORWARD CHARACTERISTIC



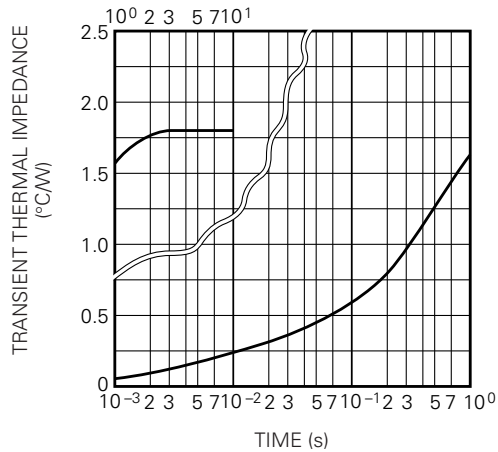
RATED SURGE (NON-REPETITIVE) CURRENT



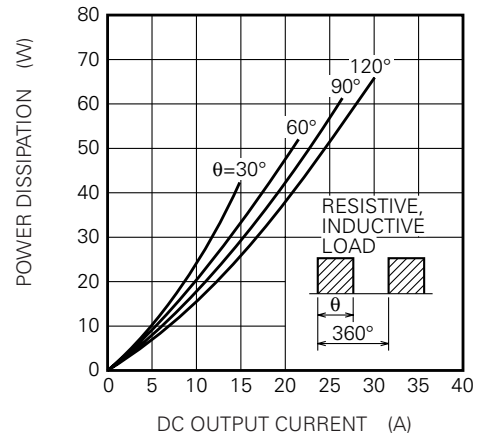
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MEDIUM POWER GENERAL USE
INSULATED TYPE

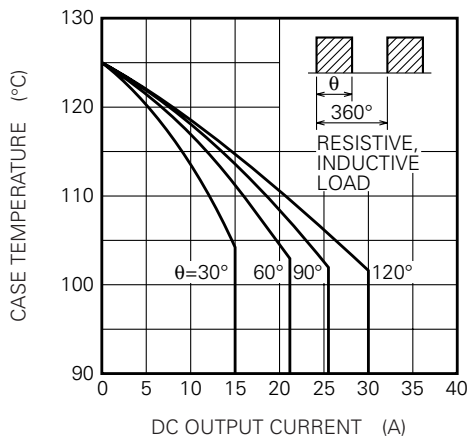
MAXIMUM TRANSIENT THERMAL IMPEDANCE (JUNCTION TO CASE) (PER SINGLE ELEMENT)



MAXIMUM POWER DISSIPATION (THREE PHASE FULLWAVE RECTIFIED)



LIMITING VALUE OF THE DC OUTPUT CURRENT (THREE PHASE FULLWAVE RECTIFIED)



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