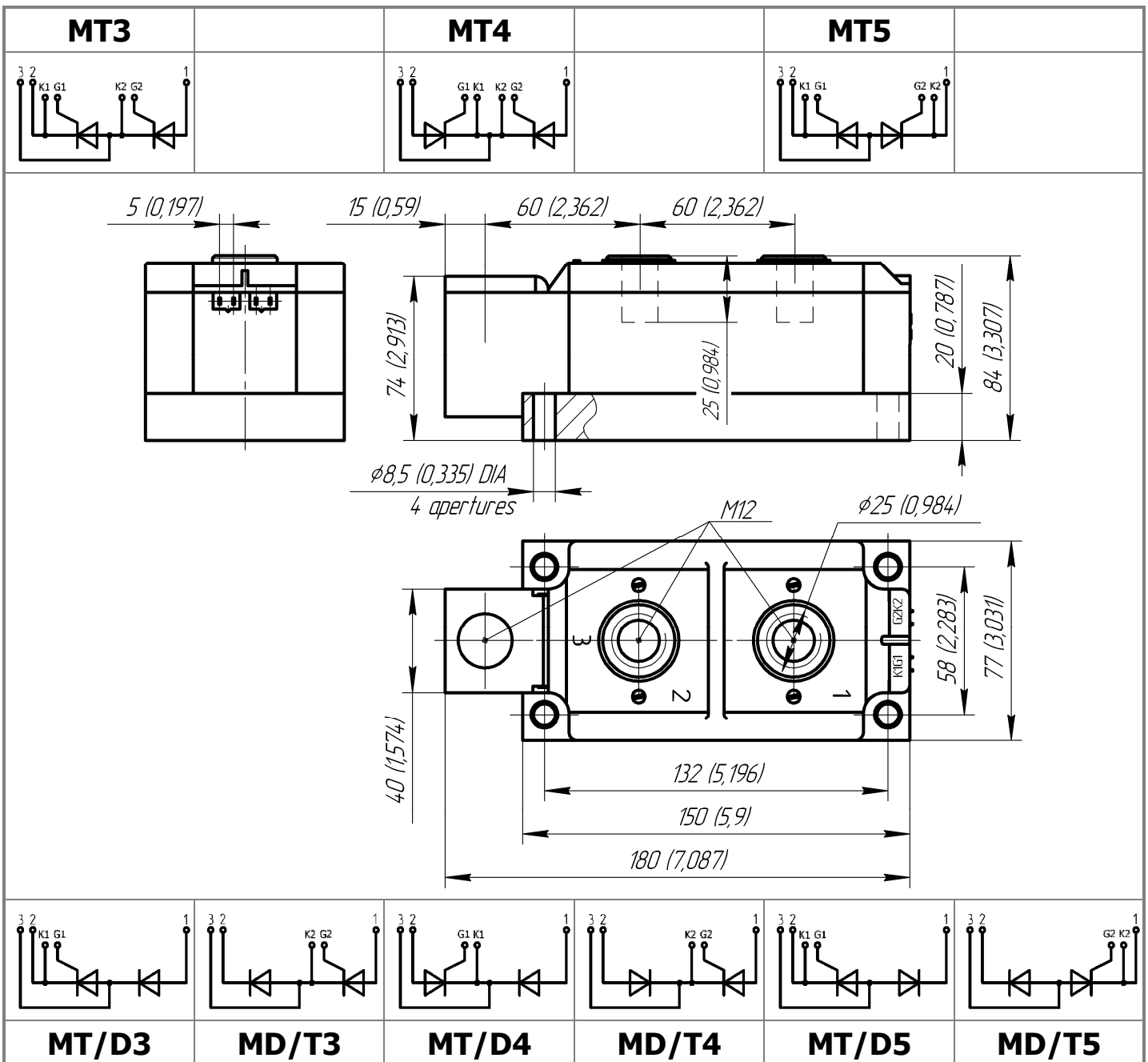Electrically isolated base plate
Industrial standard package
Simplified mechanical design, rapid assembly
Pressure contact

Double Thyristor Module
For Phase Control
MTx-1250-8-D

Mean on-state current	I_{TAV}	1250 A					
Repetitive peak off-state voltage	V_{DRM}	$100 \div 800$ V					
Repetitive peak reverse voltage	V_{RRM}						
Turn-off time	t_q	160 µs					
V_{DRM}, V_{RRM}, V	100	200	300	400	500	600	700	800
Voltage code	1	2	3	4	5	6	7	8
T_j, °C	$-40 \div 150$						

MT3   **MT4**   **MT5**

5 (0,197)   15 (0,59)   60 (2,362)   60 (2,362)

74 (2,913)   25 (0,984)   20 (0,787)   84 (3,307)

∅8,5 (0,335) DIA
4 apertures

M12   ∅25 (0,984)

40 (1,574)   58 (2,283)   77 (3,031)

132 (5,196)
150 (5,9)
180 (7,087)

MT/D3   **MD/T3**   **MT/D4**   **MD/T4**   **MT/D5**   **MD/T5**

All dimensions in millimeters (inches)

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{TAV}	Mean on-state current	A	1250 1140	T_c=77 °C; T_c=85 °C; 180° half-sine wave; 50 Hz
I_{TRMS}	RMS on-state current	A	1963	T_c=77 °C; 180° half-sine wave; 50 Hz
I_{TSM}	Surge on-state current	kA	34.0 39.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_D=V_R=0 V; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs
			36.0 41.0	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_D=V_R=0 V; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs
I^2t	Safety factor	$A^2s \cdot 10^3$	5780 7605	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 50 Hz (t_p=10 ms); single pulse; V_D=V_R=0 V; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs
			5375 6975	T_j=$T_{j\,max}$ T_j=25 °C	180° half-sine wave; 60 Hz (t_p=8.3 ms); single pulse; V_D=V_R=0 V; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs
BLOCKING				
V_{DRM}, V_{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	100÷800	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz; Gate open
V_{DSM}, V_{RSM}	Non-repetitive peak off-state and Non-repetitive peak reverse voltages	V	200÷900	$T_{j\,min}$< T_j <$T_{j\,max}$; 180° half-sine wave; 50 Hz;single pulse; Gate open
V_D, V_R	Direct off-state and Direct reverse voltages	V	0.75·V_{DRM} 0.75·V_{RRM}	T_j=$T_{j\,max}$; Gate open
TRIGGERING				
I_{FGM}	Peak forward gate current	A	8	T_j=$T_{j\,max}$
V_{RGM}	Peak reverse gate voltage	V	5	
P_G	Gate power dissipation	W	4	T_j=$T_{j\,max}$ for DC gate current
SWITCHING				
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current non-repetitive (f=1 Hz)	A/µs	400	T_j=$T_{j\,max}$; V_D=0.67·V_{DRM}; I_{TM}=2 I_{TAV}; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs
THERMAL				
T_{stg}	Storage temperature	°C	-40 ÷ 125	
T_j	Operating junction temperature	°C	-40 ÷ 150	
MECHANICAL				
a	Acceleration under vibration	m/s^2	50	

CHARACTERISTICS

Symbols and parameters		Units	Values	Conditions	
ON-STATE					
V_{TM}	Peak on-state voltage, max	V	1.20	T_j=25 °C; I_{TM}=3925 A	
$V_{T(TO)}$	On-state threshold voltage, max	V	0.80	T_j=$T_{j\,max}$;	
r_T	On-state slope resistance, max	mΩ	0.120	$0.5\,\pi\,I_{TAV} < I_T < 1.5\,\pi\,I_{TAV}$	
I_L	Latching current, max	mA	1500	T_j=25 °C; V_D=12 V; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs	
I_H	Holding current, max	mA	300	T_j=25 °C; V_D=12 V; Gate open	
BLOCKING					
I_{DRM}, I_{RRM}	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	100	T_j=$T_{j\,max}$; V_D=V_{DRM}; V_R=V_{RRM}	
$(dv_D/dt)_{crit}$	Critical rate of rise of off-state voltage, min	V/µs	1000	T_j=$T_{j\,max}$; V_D=0.67·V_{DRM}; Gate open	
TRIGGERING					
V_{GT}	Gate trigger direct voltage, max	V	4.00	T_j= $T_{j\,min}$	V_D=12 V; I_D=3 A; Direct gate current
			2.50	T_j=25 °C	
			2.00	T_j= $T_{j\,max}$	
I_{GT}	Gate trigger direct current, max	mA	500	T_j= $T_{j\,min}$	
			300	T_j= 25 °C	
			200	T_j= $T_{j\,max}$	
V_{GD}	Gate non-trigger direct voltage, min	V	0.25	T_j=$T_{j\,max}$; V_D=0.67·V_{DRM}; Direct gate current	
I_{GD}	Gate non-trigger direct current, min	mA	10.00		
SWITCHING					
t_{gd}	Delay time	µs	1.60	T_j=25 °C; V_D=0.4·V_{DRM}; I_{TM}=I_{TAV}; Gate pulse: I_G=2 A; t_{GP}=50 µs; di_G/dt≥1 A/µs	
t_q	Turn-off time, max	µs	160	dv_D/dt=50 V/µs; T_j=$T_{j\,max}$; I_{TM}= I_{TAV}; di_R/dt=-10 A/µs; V_R=100V; V_D=0.67 V_{DRM};	
THERMAL					
R_{thjc}	Thermal resistance, junction to case				180° half-sine wave, 50 Hz
	per module	°C/W	0.0250		
	per arm	°C/W	0.0500		
R_{thch}	Thermal resistance, case to heatsink				
	per module	°C/W	0.0080		
	per arm	°C/W	0.0160		
INSULATION					
V_{ISOL}	Insulation test voltage	kV	3.00	Sine wave, 50 Hz; RMS	t=1 min
			3.60		t=1 sec
MECHANICAL					
M_1	Mounting torque (M8)[1]	Nm	9.00	Tolerance ± 15%	
M_2	Terminal connection torque (M12)[1]	Nm	18.00	Tolerance ± 15%	
w	Weight	g	3500		

PART NUMBERING GUIDE	NOTES
	[1] The screws must be lubricated

MT	3	-	1250	-	8	-	D	-	N
1	2		3		4		5		6

1. Thyristor module (MT)
   Thyristor – Diode module (MT/D)
   Diode – Thyristor module (MD/T)
2. Circuit Schematic:
   3 – serial connection
   4 – common Cathode
   5 – common Anode
3. Average On-state Current, A
4. Voltage Code
5. Package Type (M.D)
6. Ambient Conditions:
   N – Normal

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