



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

**Double Thyristor Module
For Phase Control
MTx-130-28-F**

Mean on-state current		I_{TAV}	130 A
Repetitive peak off-state voltage		V_{DRM}	2400 ÷ 2800 V
Repetitive peak reverse voltage		V_{RRM}	
Turn-off time		t_q	250 μ s
V_{DRM}, V_{RRM}, V	2400	2600	2800
Voltage code	24	26	28
$T_j, ^\circ C$	- 40 ÷ 125		


MT3		MT4			
<p>plug 2,8x0,8</p> <p>9,8(0,385)</p> <p>23(0,905)</p> <p>23(0,905)</p> <p>17(0,669)</p> <p>5(0,197)</p> <p>28,2(1,110)</p> <p>30(1,181)</p> <p>$\phi 6,5(0,256)$ DIA</p> <p>2 aperture</p> <p>94(3,7)</p> <p>80(3,15)</p> <p>5(0,197)</p> <p>13(0,511)</p> <p>24(0,994)</p> <p>34(1,338)</p> <p>M6</p>					
MT/D3	MD/T3			MT/D5	

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions	
ON-STATE					
I_{TAV}	Mean on-state current	A	130	$T_c = 85\text{ }^\circ\text{C}$; 180° half-sine wave; 50 Hz	
I_{TRMS}	RMS on-state current	A	204		
I_{TSM}	Surge on-state current	kA	3.4 4.0	$T_j = T_{j\max}$ $T_j = 25\text{ }^\circ\text{C}$	180° half-sine wave; $t_p = 10\text{ ms}$; single pulse; $V_D = V_R = 0\text{ V}$; Gate pulse: $I_G = 2\text{ A}$; $t_{GP} = 50\text{ }\mu\text{s}$; $di_G/dt \geq 1\text{ A}/\mu\text{s}$
			4.0 4.6	$T_j = T_{j\max}$ $T_j = 25\text{ }^\circ\text{C}$	180° half-sine wave; $t_p = 8.3\text{ ms}$; single pulse; $V_D = V_R = 0\text{ V}$; Gate pulse: $I_G = 2\text{ A}$; $t_{GP} = 50\text{ }\mu\text{s}$; $di_G/dt \geq 1\text{ A}/\mu\text{s}$
I^2t	Safety factor	$\text{A}^2\text{s}\cdot 10^3$	55 75	$T_j = T_{j\max}$ $T_j = 25\text{ }^\circ\text{C}$	180° half-sine wave; $t_p = 10\text{ ms}$; single pulse; $V_D = V_R = 0\text{ V}$; Gate pulse: $I_G = 2\text{ A}$; $t_{GP} = 50\text{ }\mu\text{s}$; $di_G/dt \geq 1\text{ A}/\mu\text{s}$
			65 85	$T_j = T_{j\max}$ $T_j = 25\text{ }^\circ\text{C}$	180° half-sine wave; $t_p = 8.3\text{ ms}$; single pulse; $V_D = V_R = 0\text{ V}$; Gate pulse: $I_G = 2\text{ A}$; $t_{GP} = 50\text{ }\mu\text{s}$; $di_G/dt \geq 1\text{ A}/\mu\text{s}$
BLOCKING					
V_{DRM}, V_{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	2400÷2800	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; 50 Hz; Gate open	
V_{DSM}, V_{RSM}	Non-repetitive peak off-state and Non-repetitive peak reverse voltages	V	2500÷2900	$T_{j\min} < T_j < T_{j\max}$; 180° half-sine wave; single pulse; Gate open	
V_D, V_R	Direct off-state and Direct reverse voltages	V	$0.75\cdot V_{DRM}$ $0.75\cdot V_{RRM}$	$T_j = T_{j\max}$; Gate open	
TRIGGERING					
I_{FGM}	Peak forward gate current	A	5	$T_j = T_{j\max}$	
V_{RGM}	Peak reverse gate voltage	V	5		
P_G	Gate power dissipation	W	3	$T_j = T_{j\max}$ for DC gate current	
SWITCHING					
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current non-repetitive ($f=1\text{ Hz}$)	$\text{A}/\mu\text{s}$	200	$T_j = T_{j\max}$; $V_D = 0.67\cdot V_{DRM}$; $I_{TM} = 2\text{ } I_{TAV}$; Gate pulse: $I_G = 2\text{ A}$; $t_{GP} = 50\text{ }\mu\text{s}$; $di_G/dt \geq 2\text{ A}/\mu\text{s}$	
THERMAL					
T_{stg}	Storage temperature	$^\circ\text{C}$	-40 ÷ 50		
T_j	Operating junction temperature	$^\circ\text{C}$	-40 ÷ 125		
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	1.80	$T_j=25\text{ }^\circ\text{C}; I_{TM}=500\text{ A}$	
$V_{T(TO)}$	On-state threshold voltage, max	V	0.85	$T_j=T_{j\text{ max}};$	
r_T	On-state slope resistance, max	m Ω	2.400	$0.5\pi I_{TAV} < I_T < 1.5\pi I_{TAV}$	
I_L	Latching current, max	mA	500	$T_j=25\text{ }^\circ\text{C}; V_D=12\text{ V};$ Gate pulse: $I_G=2\text{ A};$ $t_{GP}=50\text{ }\mu\text{s}; di_G/dt \geq 1\text{ A}/\mu\text{s}$	
I_H	Holding current, max	mA	250	$T_j=25\text{ }^\circ\text{C};$ $V_D=12\text{ V};$ Gate open	
BLOCKING					
I_{DRM}, I_{RRM}	Repetitive peak off-state and Repetitive peak reverse currents, max	mA	40	$T_j=T_{j\text{ max}};$ $V_D=V_{DRM}; V_R=V_{RRM}$	
$(dv_D/dt)_{crit}$	Critical rate of rise of off-state voltage, min	V/ μs	1000	$T_j=T_{j\text{ max}};$ $V_D=0.67\cdot V_{DRM};$ Gate open	
TRIGGERING					
V_{GT}	Gate trigger direct voltage, max	V	4.00 2.50 2.00	$T_j=T_{j\text{ min}}$ $T_j=25\text{ }^\circ\text{C}$ $T_j=T_{j\text{ max}}$	$V_D=12\text{ V}; I_D=3\text{ A};$ Direct gate current
I_{GT}	Gate trigger direct current, max	mA	400 250 200	$T_j=T_{j\text{ min}}$ $T_j=25\text{ }^\circ\text{C}$ $T_j=T_{j\text{ max}}$	
V_{GD}	Gate non-trigger direct voltage, min	V	0.25	$T_j=T_{j\text{ max}};$ $V_D=0.67\cdot V_{DRM};$	
I_{GD}	Gate non-trigger direct current, min	mA	10.00	Direct gate current	
SWITCHING					
t_{gd}	Delay time	μs	2.50	$T_j=25\text{ }^\circ\text{C}; V_D=0.4\cdot V_{DRM}; I_{TM}=I_{TAV};$ Gate pulse: $I_G=2\text{ A};$ $t_{GP}=50\text{ }\mu\text{s}; di_G/dt \geq 2\text{ A}/\mu\text{s}$	
t_q	Turn-off time, max	μs	250	$dv_D/dt=50\text{ V}/\mu\text{s}; T_j=T_{j\text{ max}}; I_{TM}=200\text{ A};$ $di_R/dt=-10\text{ A}/\mu\text{s}; V_R=100\text{ V};$ $V_D=0.67\text{ }V_{DRM};$	
THERMAL					
R_{thjc}	Thermal resistance, junction to case				
	per module	$^\circ\text{C}/\text{W}$	0.0950	180° half-sine wave, 50 Hz	
	per arm	$^\circ\text{C}/\text{W}$	0.1900		
	per module	$^\circ\text{C}/\text{W}$	0.0900	DC	
per arm	$^\circ\text{C}/\text{W}$	0.1800			
R_{thch}	Thermal resistance, case to heatsink				
	per module	$^\circ\text{C}/\text{W}$	0.0300		
	per arm	$^\circ\text{C}/\text{W}$	0.0600		
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 (M6) ¹⁾	Nm	6.00	Tolerance $\pm 15\%$	
M_2	Terminal connection torque (M6) ¹⁾	Nm	6.00	Tolerance $\pm 15\%$	
w	Weight	g	320		

PART NUMBERING GUIDE						NOTES				
MT	3	-	130	-	28	-	F	-	N	1) The screws must be lubricated
1	2		3		4		5		6	
1. Thyristor module (MT) Thyristor – Diode module (MT/D) Diode – Thyristor module (MD/T) 2. Circuit Schematic 3. Average On-state Current, A 4. Voltage Code 5. Package Type (M.F) 6. Ambient Conditions: N – Normal										
		UL certified file-No. E255404								

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