

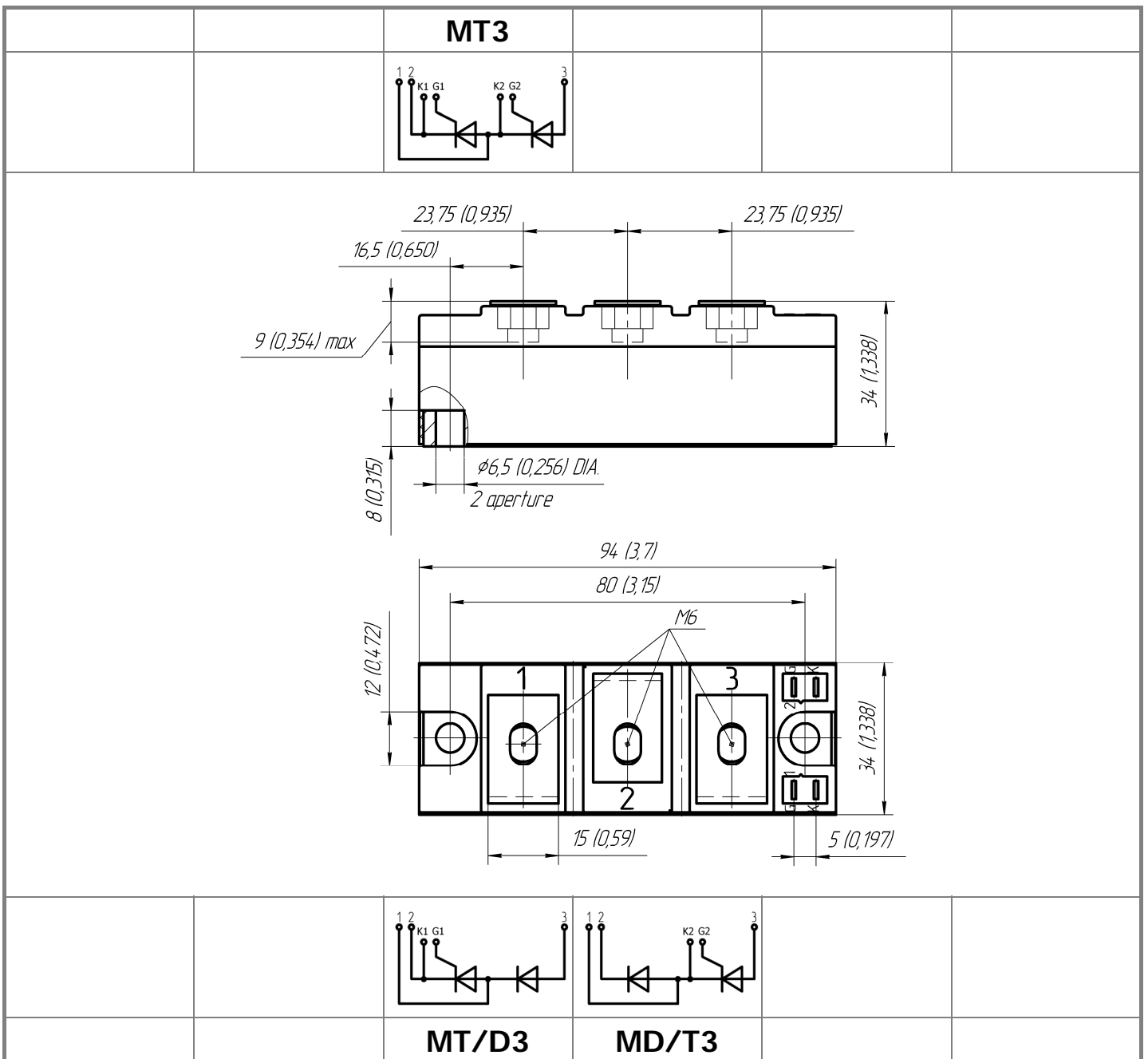


Electrically isolated base plate
Industrial standard package
Simplified mechanical design, rapid assembly
Pressure contact

**Double Thyristor Module
For Phase Control
MTx-150-18-F**

Old Type: MTx-160-18-F

Mean on-state current			I_{TAV}	150 A	
Repetitive peak off-state voltage			V_{DRM}	1000 ÷ 1800 V	
Repetitive peak reverse voltage			V_{RRM}		
Turn-off time			t_q	200 μ s	
V_{DRM}, V_{RRM}, V	1000	1200	1400	1600	1800
Voltage code	10	12	14	16	18
$T_j, ^\circ C$	- 40 ÷ 125				



All dimensions in millimeters (inches)

MAXIMUM ALLOWABLE RATINGS

Symbols and parameters		Units	Values	Test conditions
ON-STATE				
I_{TAV}	Mean on-state current	A	150	$T_c=85\text{ }^\circ\text{C}$; Double side cooled; 180° half-sine wave; 50 Hz
I_{TRMS}	RMS on-state current	A	235	
I_{TSM}	Surge on-state current	kA	4.0 5.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_D=V_R=0\text{ V}$; Gate pulse: $I_G=I_{FGM}$; $V_G=20\text{ V}$; $t_{GP}=500\text{ }\mu\text{s}$; $di_G/dt=1\text{ A}/\mu\text{s}$
			5.0 6.0	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_D=V_R=0\text{ V}$; Gate pulse: $I_G=I_{FGM}$; $V_G=20\text{ V}$; $t_{GP}=500\text{ }\mu\text{s}$; $di_G/dt=1\text{ A}/\mu\text{s}$
I^2t	Safety factor	$A^2s\cdot 10^3$	80 125	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 50 Hz ($t_p=10\text{ ms}$); single pulse; $V_D=V_R=0\text{ V}$; Gate pulse: $I_G=I_{FGM}$; $V_G=20\text{ V}$; $t_{GP}=500\text{ }\mu\text{s}$; $di_G/dt=1\text{ A}/\mu\text{s}$
			100 145	$T_j=T_{j\text{ max}}$ $T_j=25\text{ }^\circ\text{C}$ 180° half-sine wave; 60 Hz ($t_p=8.3\text{ ms}$); single pulse; $V_D=V_R=0\text{ V}$; Gate pulse: $I_G=I_{FGM}$; $V_G=20\text{ V}$; $t_{GP}=500\text{ }\mu\text{s}$; $di_G/dt=1\text{ A}/\mu\text{s}$
BLOCKING				
V_{DRM}, V_{RRM}	Repetitive peak off-state and Repetitive peak reverse voltages	V	1000÷1800	$T_{j\text{ min}} < T_j < T_{j\text{ max}}$; 180° half-sine wave; 50 Hz; Gate open
V_{DSM}, V_{RSM}	Non-repetitive peak off-state and Non-repetitive peak reverse voltages	V	1100÷1900	$T_{j\text{ min}} < T_j < T_{j\text{ max}}$; 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}	$T_j=T_{j\text{ max}}$; Gate open
TRIGGERING				
I_{FGM}	Peak forward gate current	A	5	$T_j=T_{j\text{ max}}$
V_{RGM}	Peak reverse gate voltage	V	5	
P_G	Gate power dissipation	W	3	$T_j=T_{j\text{ max}}$ for DC gate current
SWITCHING				
$(di_T/dt)_{crit}$	Critical rate of rise of on-state current non-repetitive (f=1 Hz)	A/ μs	250	$T_j=T_{j\text{ max}}$; $V_D=0.67\cdot V_{DRM}$; $I_{TM}=2\text{ }I_{TAV}$; Gate pulse: $I_G=I_{FGM}$; $V_G=20\text{ V}$; $t_{GP}=500\text{ }\mu\text{s}$; $di_G/dt=1\text{ A}/\mu\text{s}$
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	1.50	$T_j=25\text{ }^\circ\text{C}$; $I_{TM}=502\text{ A}$
$V_{T(TO)}$	On-state threshold voltage, max	V	0.90	$T_j=T_{j\text{ max}}$;
r_T	On-state slope resistance, max	m Ω	1.250	$0.5\pi\text{ }I_{TAV} < I_T < 1.5\pi\text{ }I_{TAV}$

PROTON-ELECTROTEX, LLC

E-mail: info@proton-electrotex.com; Web: www.proton-electrotex.com
Tel: +1 302-351-6252; Toll Free: +1 877-764-6345; Fax: +1 302-351-5131

I_L	Latching current, max	mA	500	$T_j=25\text{ }^\circ\text{C}; V_D=12\text{ V};$ Gate pulse: $I_G=I_{FGM}; V_G=20\text{ V};$ $t_{GP}=500\text{ }\mu\text{s}; di_G/dt=1\text{ A}/\mu\text{s}$
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	$T_j=T_{j\text{ min}}$ $T_j=25\text{ }^\circ\text{C}$ $T_j=T_{j\text{ max}}$
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	2.00	$T_j=25\text{ }^\circ\text{C}; V_D=0.4\cdot V_{DRM}; I_{TM}=I_{TAV};$ Gate pulse: $I_G=I_{FGM}; V_G=20\text{ V};$ $t_{GP}=500\text{ }\mu\text{s}; di_G/dt=1\text{ A}/\mu\text{s}$
t_q	Turn-off time, max	μs	200	$dv_D/dt=50\text{ V}/\mu\text{s}; T_j=T_{j\text{ max}}; I_{TM}=I_{TAV};$ $di_R/dt=10\text{ A}/\mu\text{s}; V_R=100\text{ V};$ $V_D=0.67\text{ }V_{DRM};$
THERMAL				
R_{thjc}	Thermal resistance, junction to case			180° half-sine wave, 50 Hz
	per module	$^\circ\text{C}/\text{W}$	0.0950	
	per arm	$^\circ\text{C}/\text{W}$	0.1900	
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;
			3.60	RMS
MECHANICAL				
M_1	Mounting torque (M6) ¹⁾	Nm	6.00	Tolerance $\pm 15\%$
M_2	Terminal connection torque (M6) ¹⁾	Nm	6.00	Tolerance $\pm 10\%$
w	Weight	g	400	

PART NUMBERING GUIDE

MT	3	-	150	-	18	-	F	-	N
1	2	3	4	5	6				

- MT - Phase Control Thyristor
MTs - Phase Control Thyristor with Distributed Amplified Gate
- Circuit Schematic
- Average On-state Current, A
- Voltage Code
- Package Type
- Ambient Conditions:
N - Normal
T - Tropical

NOTES

¹⁾ The screws must be lubricated

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Tel: +1 302-351-6252; Toll Free: +1 877-764-6345; Fax: +1 302-351-5131