

## Thyristor Module

$V_{RRM} / V_{DRM}$  800 to 1800V

$I_{TAV}$  250 Amp

$I_{TRMS}$  390 Amp

### Features

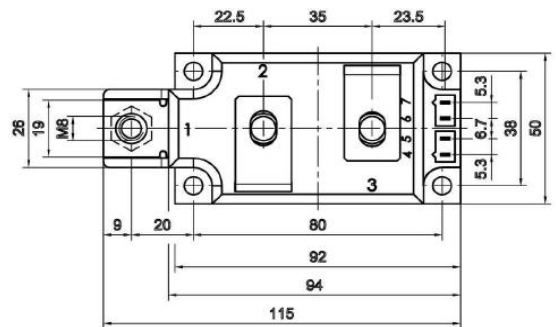
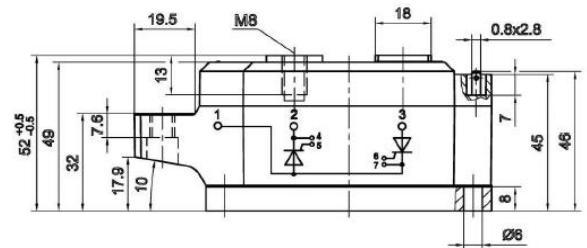
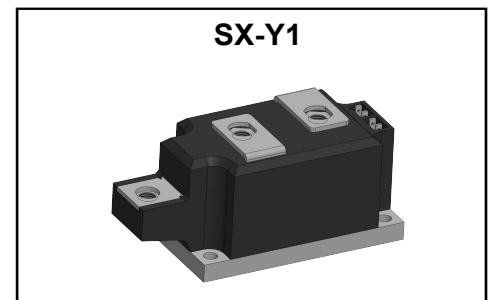
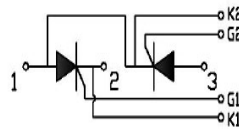
- Aluminum nitride(AIN) ceramic
- Precious metal pressure contacts for high reliability
- Long-term stability

### Applications

- Input converters for AC inverter drives
- AC motor softstarters
- DC motor control and drives
- Applied in temperature control instruments

### Module Type

Type	$V_{RRM}$	$V_{RSM}$
DATTD250-08SX	800V	900V
DATTD250-12SX	1200V	1250V
DATTD250-16SX	1600V	1700V
DATTD250-18SX	1800V	1900V



Dimensions in mm  
Unspecified dimension tolerance  $\pm 0.5\text{mm}$

### Maximum Ratings

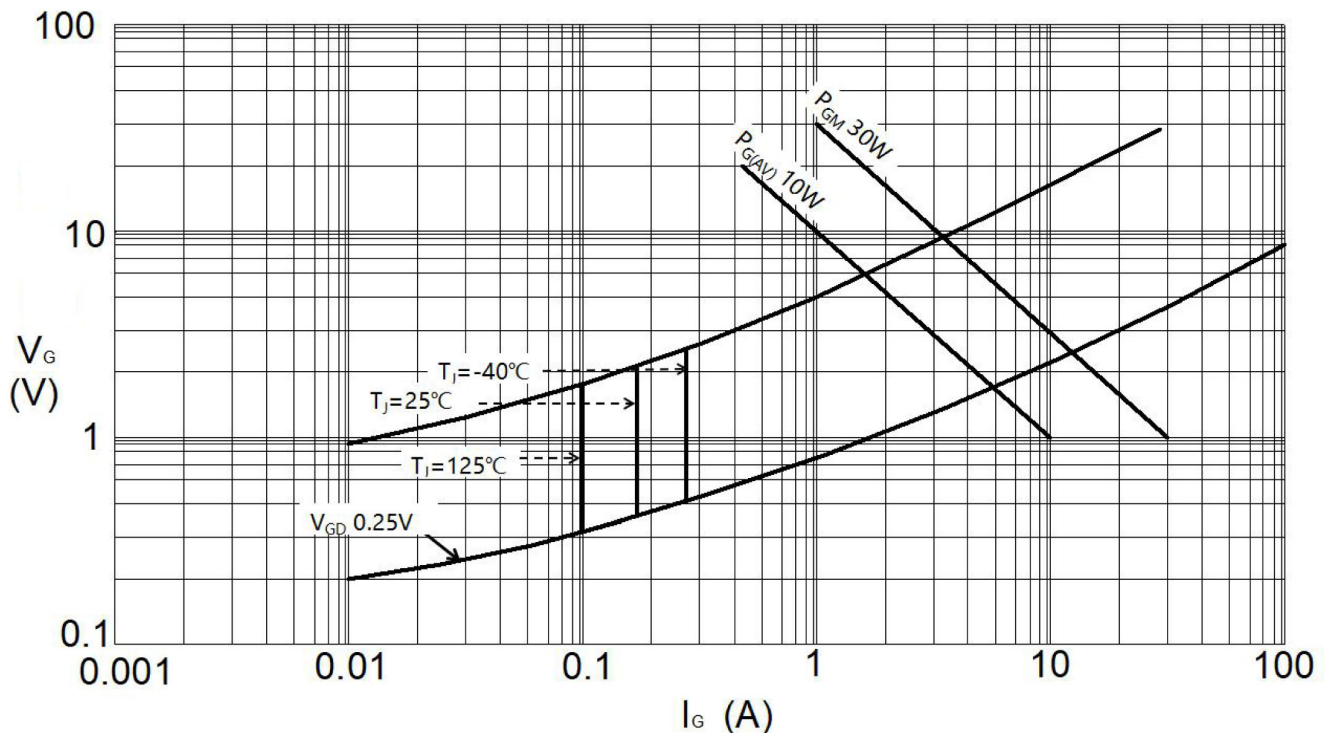
Symbol	Item	Conditions	Values	Unit
$I_{TAV}$	Average On-state Current	180° Conduction Sin Half Wave, $T_c = 80^\circ\text{C}$	250	A
$I_{TRMS}$	RMS On-state Current		390	A
$I_{TSM}$	Surge On-state Current	$T_j = 25^\circ\text{C}$ , $t = 50\text{Hz}(10\text{ms})$ , $V_R = 0\text{V}$	9000	A
$I^2t$	Circuit Fusing Consideration	$t = 10\text{ms}$ $T_j = 25^\circ\text{C}$	405000	$\text{A}^2\text{s}$
$V_{ISO}$	Isolation Breakdown Voltage	AC 50Hz/60Hz; R.M.S; 1min	2500	V
$T_j$	Operating Junction Temperature		-40to+125	$^\circ\text{C}$
$T_{stg}$	Storage Temperature		-40to+125	$^\circ\text{C}$
$M_t$	Mounting Torque	To Terminals(M8)	9 $\pm$ 15%	N·m
$M_s$		To Heatsink(M6)	5 $\pm$ 15%	
Weight	Module(Approximately)		700	g
di/dt	Critical Rate of Rise of On-state Current, Max	$T_j = 125^\circ\text{C}$ , $V_D = 1/2V_{DRM}$ , $I_G = 180\text{mA}$ , $di_G/dt = 0.1\text{A}/\mu\text{s}$	150	$\text{A}/\mu\text{s}$

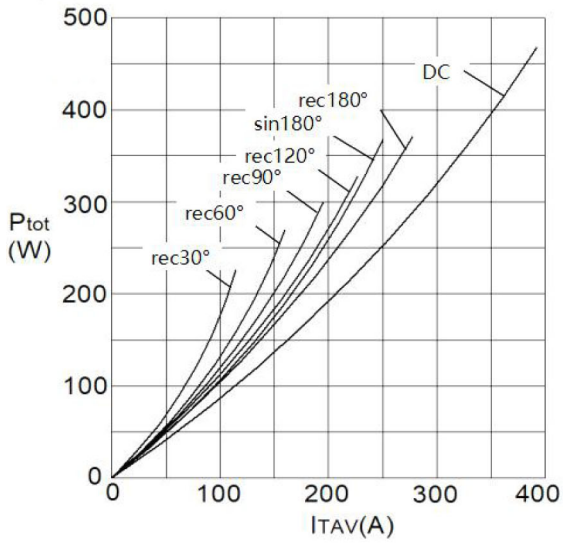
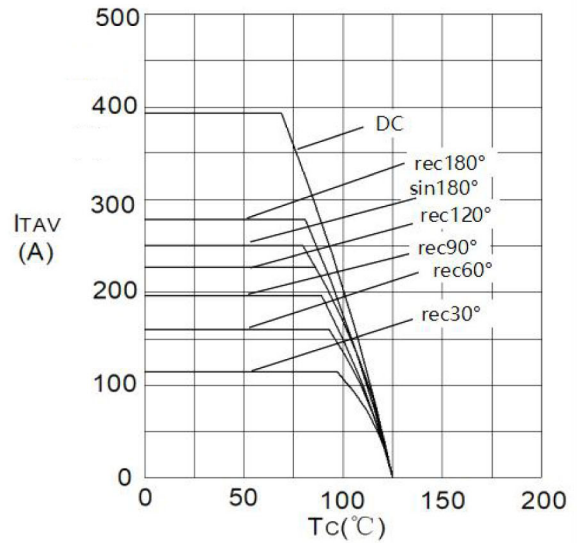
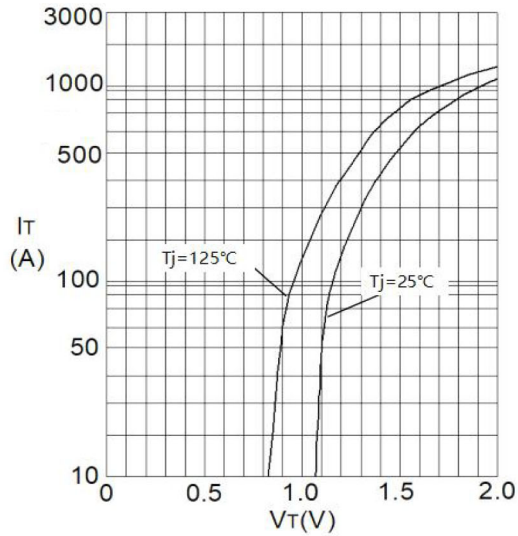
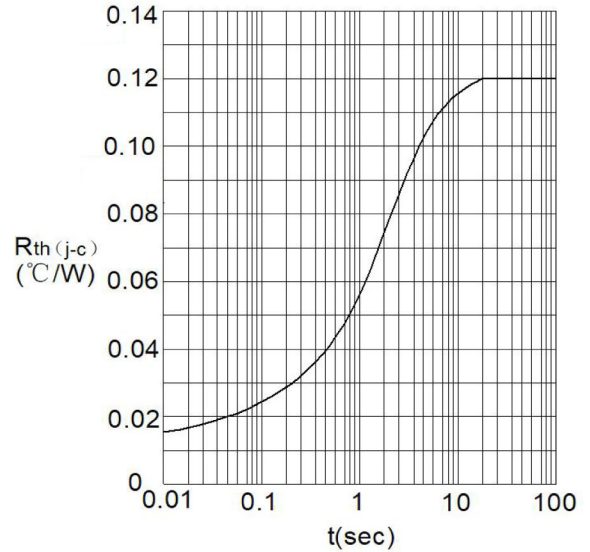
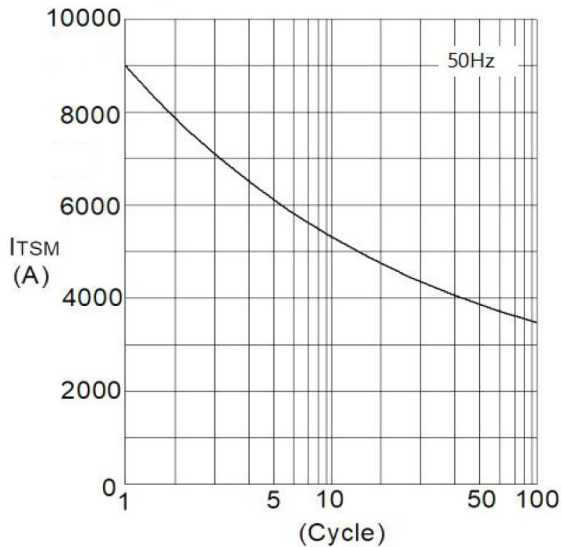
### Thermal Characteristics

Symbol	Item	Conditions	Values	Unit
$R_{th(j-c)}$	Thermal Impedance, Max	Junction to Case(Per Thyristor)	0.12	$^\circ\text{C}/\text{W}$
$R_{th(c-s)}$	Thermal Impedance, Max	Case to Heat Sink	0.04	$^\circ\text{C}/\text{W}$

**■ Electrical Characteristics**

Symbol	Item	Conditions	Values			Unit
			Min.	Typ.	Max.	
$V_{TM}$	Peak On-State Voltage, Max	$T_j = 25^\circ\text{C}$ , $I_T = 750\text{A}$	-	-	1.75	V
$I_{DRM}$ $/I_{RRM}$	Repetitive Peak Reverse Current, Max /Repetitive Peak Off-state Current, Max	$T_j = 125^\circ\text{C}$ , $V_R = V_{RRM}$ , $V_D = V_{DRM}$	-	-	40	mA
$V_{GT}$	Gate Trigger Voltage, Max	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{V}$	-	-	2.5	V
$I_{GT}$	Gate Trigger Current, Max	$T_j = 25^\circ\text{C}$ , $V_D = 6\text{V}$	-	-	180	mA
$V_{GD}$	Gate Non-Trigger Voltage, Max	$T_j = 125^\circ\text{C}$ , $V_D = 2/3V_{DRM}$	-	-	0.25	V
$I_L$	Latching Current	$T_j = 25^\circ\text{C}$	-	400	-	mA
$I_H$	Holding Current	$T_j = 25^\circ\text{C}$	-	180	-	mA
$t_{gt}$	Turn On Time	$T_j = 25^\circ\text{C}$	-	3	-	$\mu\text{s}$
$dv/dt$	Critical Rate of Rise of Off-state Voltage, Min	$T_j = 125^\circ\text{C}$ , $V_D = 2/3V_{DRM}$ Linear Voltage Rise	1000			V/ $\mu\text{s}$
$V_{T0}$	Threshold Voltage, for power loss calculation only	$T_j = 125^\circ\text{C}$	0.85			V
$r_T$	Slope Resistance, for power loss calculation only	$T_j = 125^\circ\text{C}$	0.87			m $\Omega$

**Performance Curves**
**Fig1. Gate Trigger Characteristics**


**Fig2. Power Dissipation**

**Fig3. Forward Current Derating Curve**

**Fig4. Forward Characteristics**

**Fig5. Transient Thermal Impedance**

**Fig6. Max Non-Repetitive Forward Surge Current**


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