

DISC TYPE THYRISTOR**Features**

- Center amplifying gate
- Metal case with ceramic insulator
- tested according to IEC standards

800A**Typical Applications**

- DC motor controls
- Controlled DC power supplies
- AC controllers

Major Ratings and Characteristics

Parameters	T800A 1K8V	Units	
$I_{T(AV)}$	800	A	
	65	°C	
$I_{T(RMS)}$	1280	A	
@ T_{hs}	25	°C	
I_{TSM}	@ 50Hz	7850	A
	@ 60Hz	8220	A
$I^2 t$	@ 50Hz	308	KA ² s
	@ 60Hz	281	KA ² s
V_{DRM} / V_{RRM}	1800	V	
T_q	typical	200	μs
T_J	range	- 40 to 125	°C

ELECTRICAL SPECIFICATIONS

Voltage Ratings

Type number	Voltage Code	V_{RRM} , maximum repetitive peak reverse voltage V	V_{RSM} , maximum non- repetitive peak rev. voltage V	I_{RRM} max. @ $T_J = 125^\circ\text{C}$ mA
T800A	10	1000	1100	20
	12	1200	1300	
	14	1400	1500	
	16	1600	1700	
	18	1800	1900	
	20	2000	2100	

On-state Conduction

Parameter		T800A	Units	Conditions			
$I_{T(AV)}$	Maximum average on-state current	800	A	180° conduction, half sine wave			
	@ Heatsink temperature	65	°C	Double side(single side)cooled			
$I_{(RMS)}$	Maximum RMS on-state current	1280	A	DC@ 25°C heatsink temperature double side cooled			
I_{TSM}	Maximum peak, one-cycle non-repetitive surge current	7850	A	t = 10ms	No voltage	Sinusoidal half wave, Initial T = T max.	
		8220		t = 8.3ms	reapplied		
		6600		t = 10ms	100% V_{RRM}		
		6900		t = 8.3ms	reapplied		
$I^2 t$	Maximum $I^2 t$ for fusing	308	$KA^2 s$	t = 10ms	No voltage		
		281		t = 8.3ms	reapplied		
		218		t = 10ms	100% V_{RRM}		
		200		t = 8.3ms	reapplied		
$I^2 \sqrt{t}$	Maximum $I^2 \sqrt{t}$ for fusing	3080	$KA^2 \sqrt{s}$	t = 0.1 to 10ms, no voltage reapplied			
V_{TM}	Maximum on-state or forward	1.36	V	$I_{pk} = 105A$, $T_J = 125^{\circ}C$, t p = 10ms sine pulse			
I_H	Maximum holding current	600	mA	$T_J = 25^{\circ}C$, anode supply 12V resistive load			
I_L	Typical latching current	1000					

Switching

Parameter	T800A	Units	Conditions
di/dt Maximum non repetitive rate of rise of turned-on current	1000	A/ μs	Gate drive 20V, 20 Ω , tr $\leq 1\mu\text{s}$ $T_J = T_J \text{ max}$, anode voltage $\leq 80\% V_{DRM}$
t_d Typical delay time	1.0	μs	Gate current 1A, dig/dt = 1A/ μs $V_d = 0.67\% V_{DRM}$, $T_J = 25^\circ\text{C}$
T_q Typical turn-off time	200	A/ μs	$I_{TM} = 300\text{A}$, $T_J = T_J \text{ max}$, di/dt = 20A/ μs , $V_R = 50\text{V}$ dv/dt = 20V/ μs , Gate 0V 100 Ω , t p = 500 μs

Blocking

Parameter	T800A	Units	Conditions
dv/dt Maximum critical rate of rise of off-state voltage	500	V/μs	T _J = T _J max linear to 80% rated V _{DRM}
I _{DRM} Max. peak reverse and off-state leakage current	30	mA	T _J = T _J max, rated V _{DRM} /V _{RRM} applied

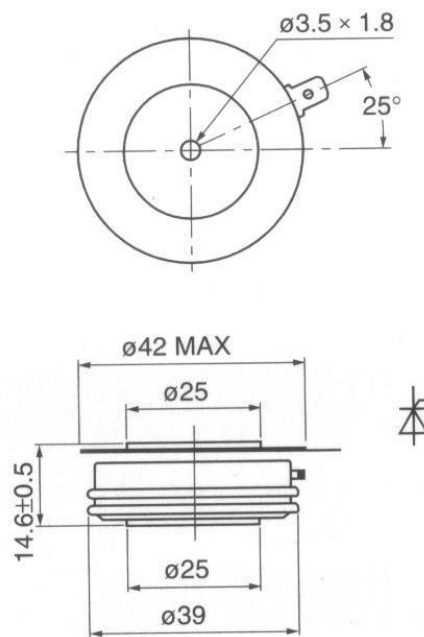
Triggering

Parameter	T800A	Units	Conditions
P _{GM} Maximum peak gate power	10	W	T _J = T _J max, t _p ≤ 5ms
P _{G(AV)} Maximum average gate power	2.0		T _J = T _J max, f = 50Hz, d% = 50
I _{GM} Max. peak positive gate current	3.0	A	T _J = T _J max, t _p ≤ 5ms
+V _{GM} Maximum peak positive gate voltage	20	V	T _J = T _J max, t _p ≤ 5ms
-V _{GM} Maximum peak negative gate voltage	5.0		
I _{GT} DC gate current required to trigger	TYP.	MAX.	T _J = - 40°C T _J = 25°C T _J = 125°C Max. required gate trigger/ current/ voltage are the lowest value which will trigger all units 12V anode-to-cathode applied
	180	-	
	90	150	
	40	-	
V _{GT} DC gate voltage required to trigger	2.9	-	T _J = - 40°C T _J = 25°C T _J = 125°C
	1.8	30	
	1.2	-	
I _{GD} DC gate current not to trigger	10	mA	T _J = T _J max Max. gate current/ voltage not to trigger is the max. value which will not trigger any unit with rated V anode-to-cathode applied
V _{GD} DC gate voltage not to trigger	0.30	V	

Thermal and Mechanical Specification

Parameter	T800A	Units	Conditions
T _J Max. operating temperature range	-40 to 125	°C	
T _{stg} Max. storage temperature range	-40 to 150		
R _{thJC} Max. thermal resistance, junction to case	0.17 0.08	K/W	DC operation
R _{thCS} Max. thermal resistance, case to heatsink	0.033 0.017		Mounting surface, smooth, flat and greased
T Mounting torque, ± 10%	4900 (500)		
wt Approximate weight	150	g	

Outline Table



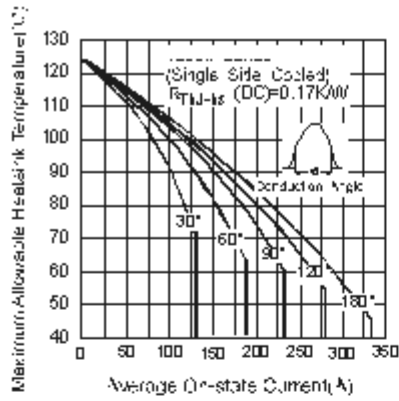


Fig.1-Current Ratings Characteristics

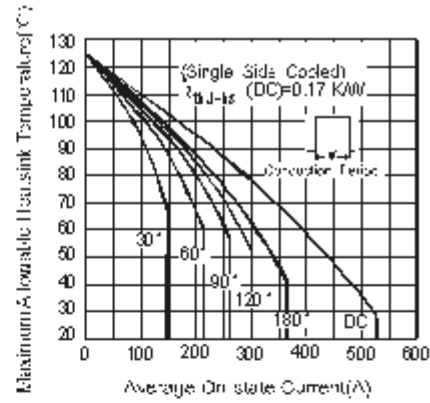


Fig.2-Current Ratings Characteristics

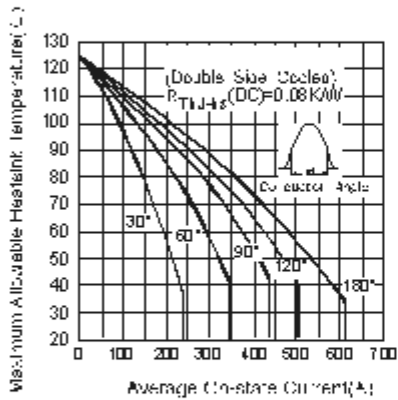


Fig.3-Current Ratings Characteristics

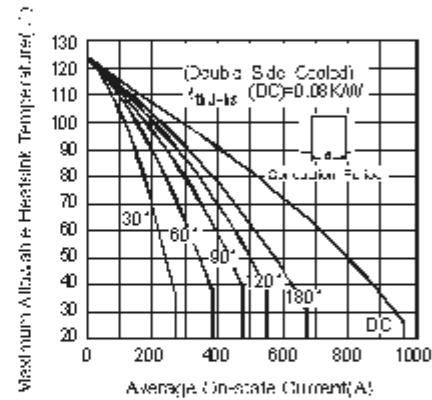


Fig.4-Current Ratings Characteristics

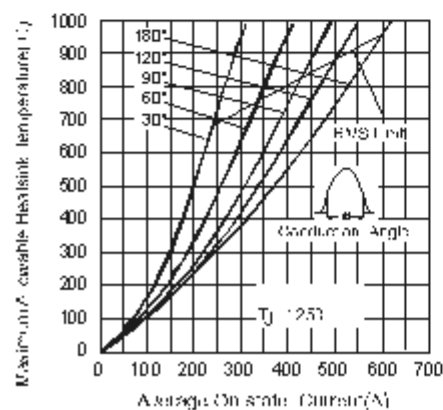


Fig.5-On-state Power Loss Characteristics

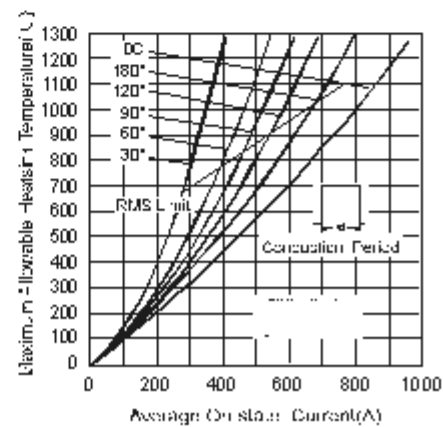


Fig.6-On-state Power Loss Characteristics

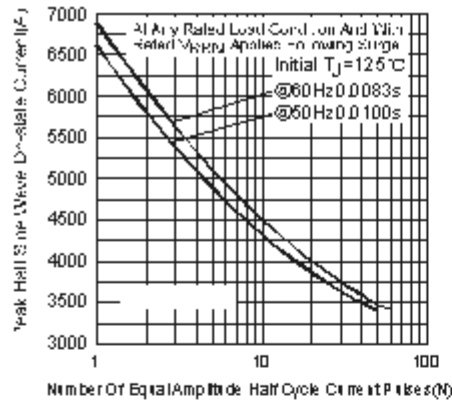


Fig.7-Maximum Non-Repetitive Surge Current Single and Double Side Cooled

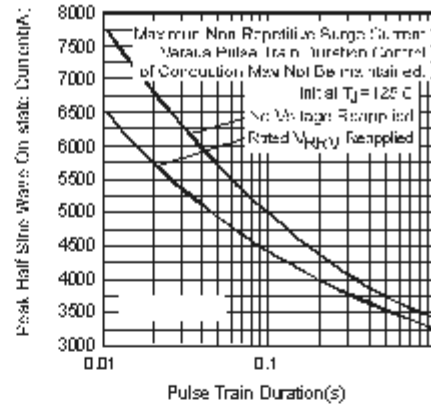


Fig.8-Maximum Non-Repetitive Surge Current Single and Double Side Cooled

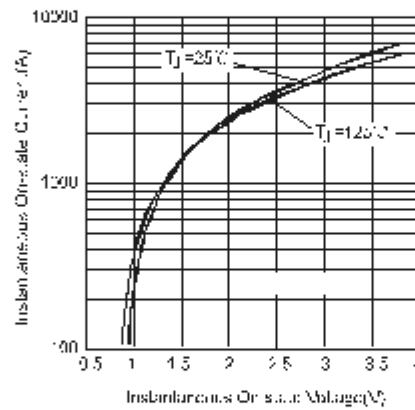


Fig.9-On-state Voltage Drop Characteristics

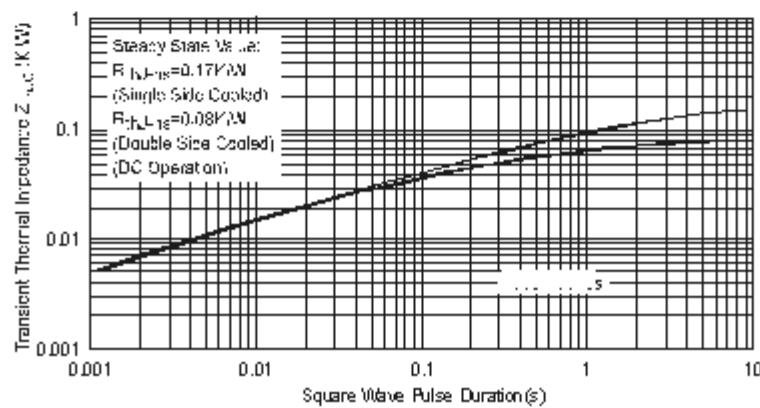


Fig.10-Thermal Impedance Z_{thJC} Characteristics