

83A Thyristor High Voltage SCRs

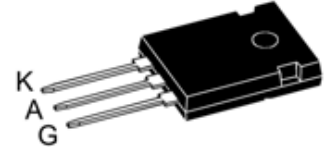
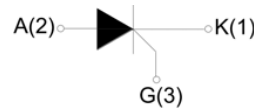
Parameters Summary

VD/VR:1200V/1600V/1800V IT(RMS):130A IGT :80mA

TO-247

FEATURES

- High thermal cycling performance
- High voltage capacity
- Very high current surge capability



APPLICATIONS

- Line rectifying 50/60 Hz
- Softstart AC motor control
- DC Motor control
- Power converter
- AC power control
- Lighting and temperature control

Module Type

Type	V _{RRM} / V _{DRM}	V _{RSM}
DAT083S120P1	1200V	1300V
DAT083S160P1	1600V	1700V
DAT083S180P1	1800V	1900V

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T _{stg}	-40 ~150	°C
Operating junction temperature range	T _j	-40 ~150	°C
Repetitive peak off-state voltage (T =25°C)	V _{DRM}	1200/1600/1800	V
Repetitive peak reverse voltage (T =25°C)	V _{RRM}	1200/1600/1800	V
Non repetitive surge peak Off-state voltage	V _{DSM}	V _{DRM} +100	V
Non repetitive peak reverse voltage	V _{RSM}	V _{RRM} +100	V
RMS on-state current (T =100°C)	I _{T(RMS)}	130	A
Average on-state current (180° conduction angle)	I _{T(AV)}	83	A
Non repetitive surge peak on-state current	I _{TSM}	1500	A
I ² t value for fusing (tp=10ms)	I ² t	11250	A ² S
Critical rate of rise of on-state current(I =2×IGT, tr ≤ 100 ns)	di/dt	150	A/μS
Peak gate current	I _{GM}	15	A
Average gate power dissipation	P _{G(AV)}	1	W

Thermal Resistances

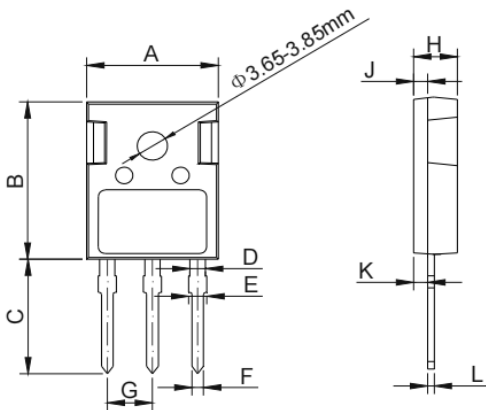
Symbol	Parameter	Value	Unit
R _{th(j-c)}	Junction to case (DC)	0.20	°C/W

ELECTRICAL CHARACTERISTICS (T=25°C unless otherwise specified)

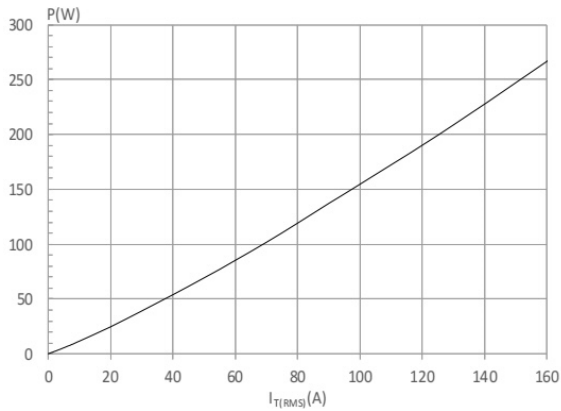
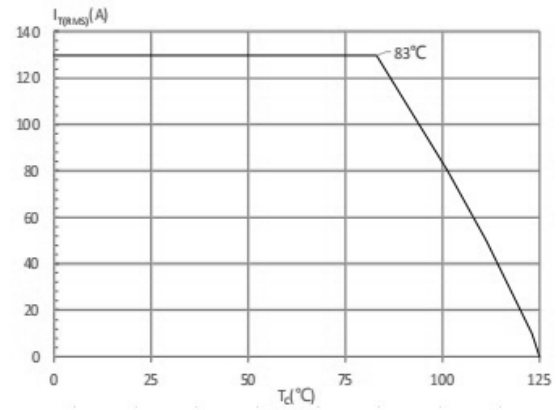
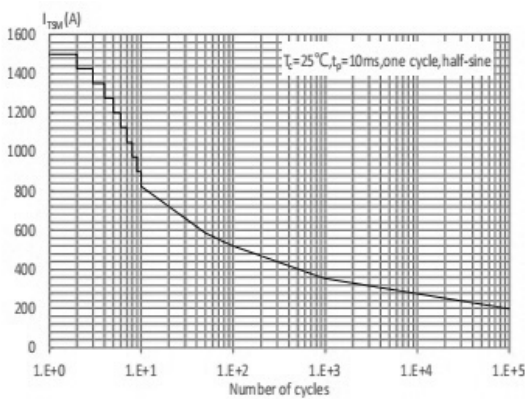
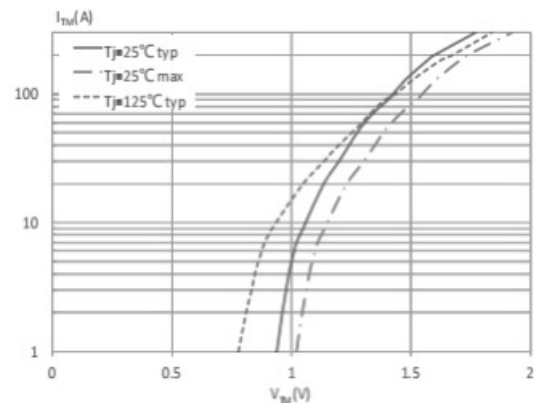
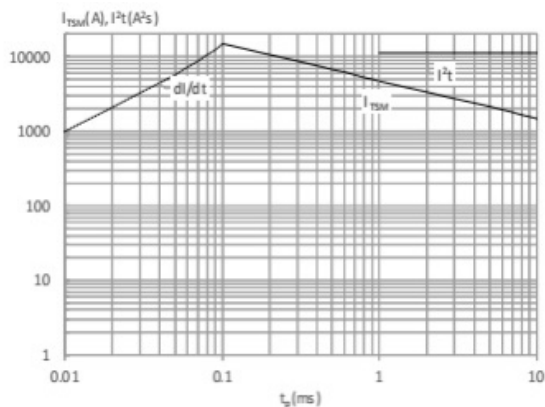
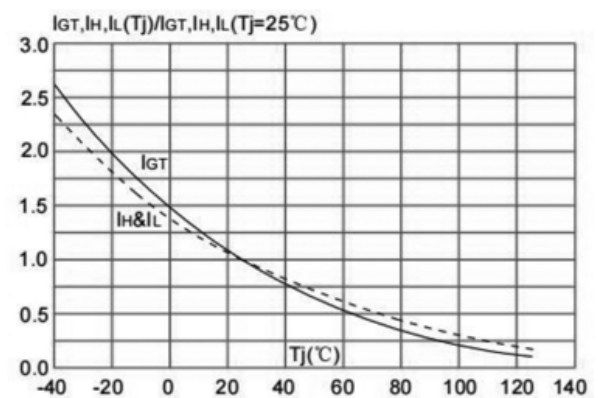
Symbol	Test Condition	Value			Unit
		Min.	Typ.	Max.	
I_{GT}	V = 12V	20	40	80	mA
V_{GT}		-	-	1.5	V
V_{GD}	VD=VDRM Tj=125°C	0.2	-	-	V
I_L	$I_G=1.2I_{GT}$ Tj=25°C	-	-	350	mA
I_H	IT=500mA	-	-	250	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open Tj=125°C	2000	-	-	V/μs

STATIC CHARACTERISTICS

Symbol	Parameter	Value(MAX.)	Unit
V_{TM}	ITM = 180A tp=380μs Tj = 25°C	1.7	V
I_{DRM}	$V_D=V_{DRM}$ $V_R=V_{RRM}$	Tj = 25°C	100
I_{RRM}		Tj = 125°C	12

TO-247 Package Mechanical Data


Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	15.50	15.80	16.10	0.610	0.662	0.634
B	20.80	21.00	22.20	0.819	0.827	0.835
C	19.70	20.00	20.30	0.776	0.787	0.799
D	1.80	2.00	2.20	0.071	0.079	0.087
E	1.90	2.10	2.30	0.075	0.083	0.091
F	1.00	1.20	1.40	0.039	0.047	0.055
G	5.25	5.44	5.65	0.207	0.214	0.222
H	4.80	5.00	5.20	0.189	0.197	0.205
J	1.90	2.00	2.10	0.075	0.079	0.083
K	2.20	2.35	2.50	0.087	0.093	0.098
L	0.41	0.60	0.79	0.016	0.024	0.031

Typical Characteristics
FIG.1: Maximum power dissipation versus on - state current

FIG.2: on-state current versus case temperature

FIG.3: Surge peak on-state current versus number of cycles

FIG.4: On-state characteristics (maximum values)

FIG.5: Non-repetitive surge peak on-state current for a sinusoidal pulse with width $t_p < 10\text{ms}$, and corresponding value of I_t

FIG.6: Relative variations of gate trigger current holding current and latching current versus junction temperature


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