IXYS UK WESTCODE

Date: - 15th October, 2013

Data Sheet Issue:- P2

Phase Control Thyristor

Types N0465WN140 to N0465WN160

Absolute Maximum Ratings

	VOLTAGE RATINGS	MAXIMUM LIMITS	UNITS
V_{DRM}	Repetitive peak off-state voltage, (note 1)	1400-1600	V
V_{DSM}	Non-repetitive peak off-state voltage, (note 1)	1500-1700	V
V_{RRM}	Repetitive peak reverse voltage, (note 1)	1400-1600	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	1500-1700	V

	OTHER RATINGS		MAXIMUM LIMITS	UNITS
$I_{T(AV)M}$	Maximum average on-state current, T_{sink}=55°C, (note 2)		465	A
$I_{T(AV)M}$	Maximum average on-state current. T_{sink}=85°C, (note 2)		315	A
$I_{T(AV)M}$	Maximum average on-state current. T_{sink}=85°C, (note 3)		180	A
$I_{T(RMS)M}$	Nominal RMS on-state current, T_{sink}=25°C, (note 2)		920	A
$I_{T(d.c.)}$	D.C. on-state current, T_{sink}=25°C, (note 4)		790	A
I_{TSM}	Peak non-repetitive surge t_p=10ms, V_{rm}=60%V_{RRM}, (note 5)		4500	A
I_{TSM2}	Peak non-repetitive surge t_p=10ms, V_{rm}≤10V, (note 5)		5000	A
I^2t	I^2t capacity for fusing t_p=10ms, V_{rm}=60%V_{RRM}, (note 5)		101×10^3	A^2s
I^2t	I^2t capacity for fusing t_p=10ms, V_{rm}≤10V, (note 5)		125×10^3	A^2s
$(di/dt)_{cr}$	Critical rate of rise of on-state current (note 6)	(continuous, 50Hz)	75	A/µs
		(repetitive, 50Hz, 60s)	125	
		(non-repetitive)	250	
V_{RGM}	Peak reverse gate voltage		5	V
$P_{G(AV)}$	Mean forward gate power		3	W
P_{GM}	Peak forward gate power		30	W
$T_{j\ op}$	Operating temperature range		-60 to +125	°C
T_{stg}	Storage temperature range		-60 to +125	°C

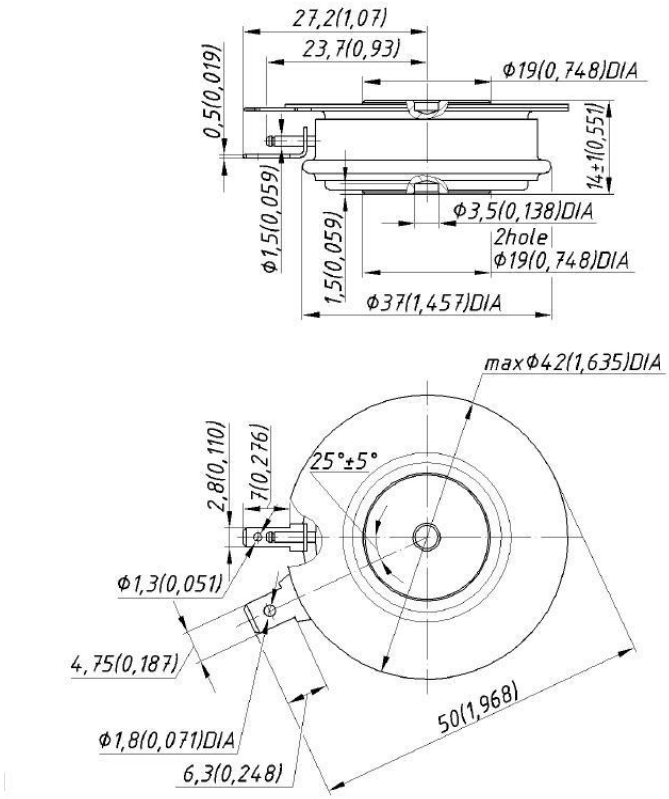
Notes:-
1) De-rating factor of 0.13% per °C is applicable for T_j below 25°C.
2) Double side cooled, single phase; 50Hz, 180° half-sinewave.
3) Anode side cooled, single phase; 50Hz, 180° half-sinewave.
4) Double side cooled.
5) Half-sinewave, 125°C T_j initial.
6) V_D=67% V_{DRM}, I_{TM}=600A, I_{FG}=2A, t_r≤0.5µs, T_{case}=125°C.

Characteristics

	PARAMETER	MIN.	TYP.	MAX.	TEST CONDITIONS (Note 1)	UNITS
V_{TM}	Maximum peak on-state voltage	-	-	1.30	I_{TM}=465A	V
V_{T0}	Threshold voltage	-	-	0.90		V
r_T	Slope resistance	-	-	0.85		mΩ
$(dv/dt)_{cr}$	Critical rate of rise of off-state voltage	1000	-	-	V_D=67% V_{DRM}, linear ramp, gate o/c	V/µs
I_{DRM}	Peak off-state current	-	-	50	Rated V_{DRM}	mA
I_{RRM}	Peak reverse current	-	-	50	Rated V_{RRM}	mA
V_{GT}	Gate trigger voltage	-	-	2.50	T_j=25°C V_D=10V, I_T=3A	V
I_{GT}	Gate trigger current	-	-	250		mA
V_{GD}	Gate non-trigger voltage	-	-	0.25	Rated V_{DRM}	V
I_H	Holding current	-	-	250	T_j=25°C	mA
t_{gd}	Gate-controlled turn-on delay time	-	-	2.0	V_D=67% V_{DRM}, I_T=300A, di/dt=10A/µs, I_{FG}=2A, t_r=0.5µs, T_j=25°C	µs
t_q	Turn-off time	-	-	125	I_{TM}=300A, t_p=500µs, di/dt=10A/µs, V_r=100V, V_{dr}=67%V_{DRM}, dV_{dr}/dt=50V/µs	µs
R_{thJK}	Thermal resistance, junction to heatsink	-	-	0.080	Double side cooled	K/W
		-	-	0.174	Anode side cooled	K/W
		-	-	0.146	Cathode side cooled	K/W
F	Mounting force	5	-	7	Note 2.	kN
W_t	Weight	-	70	-		g

Notes:-
1) Unless otherwise indicated T_j=125°C.
2) For other clamp forces, please consult factory.

Outline Drawing & Ordering Information



ORDERING INFORMATION		(Please quote 10 digit code as below)	
N0465	**WN**	**♦♦**	**0**
Fixed Type Code	Fixed outline code	Voltage code V_{DRM}/100 14-16	Fixed turn-off time code

Order code: N0465WN160 – 1600V V_{DRM}, V_{RRM}, 14mm clamp height capsule.

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