IXYS UK WESTCODE

Date:- 10th November, 2017

Data Sheet Issue:- A1

Fast Recovery Diode

Types M2505MC200 & M2505MC250

Development part number MX499MC250

Absolute Maximum Ratings

	VOLTAGE RATINGS	MAXIMUM LIMITS	UNITS
V_{RRM}	Repetitive peak reverse voltage, (note 1)	2000-2500	V
V_{RSM}	Non-repetitive peak reverse voltage, (note 1)	2100-2600	V

	OTHER RATINGS	MAXIMUM LIMITS	UNITS
$I_{F(AV)M}$	Maximum average forward current, T_{sink}=55°C, (note 2)	2505	A
$I_{F(AV)M}$	Maximum average forward current. T_{sink}=100°C, (note 2)	1210	A
$I_{F(AV)M}$	Maximum average forward current. T_{sink}=100°C, (note 3)	670	A
$I_{F(RMS)M}$	Nominal RMS forward current, T_{sink}=25°C, (note 2)	4970	A
$I_{F(d.c.)}$	D.C. forward current, T_{sink}=25°C, (note 4)	4250	A
I_{FSM}	Peak non-repetitive surge t_p=10ms, V_{rm}=60%V_{RRM}, (note 5)	27	kA
I_{FSM2}	Peak non-repetitive surge t_p=10ms, V_{rm}≤10V, (note 5)	30	kA
I^2t	I^2t capacity for fusing t_p=10ms, V_{rm}=60%V_{RRM}, (note 5)	3.65×10^6	A^2s
I^2t	I^2t capacity for fusing t_p=10ms, V_{rm}≤10V, (note 5)	4.50×10^6	A^2s
$T_{j\,op}$	Operating temperature range	-40 to +125	°C
T_{stg}	Storage temperature range	-55 to +150	°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) Cathode side cooled, single phase; 50Hz, 180° half-sinewave.
4) Double side cooled.
5) Half-sinewave, 125°C T_j initial.

Characteristics

	PARAMETER	MIN.	TYP.	MAX.	TEST CONDITIONS (Note 1)	UNITS
V_{FM}	Maximum peak forward voltage	-	-	1.50	I_{FM}=3000A	V
V_{FM}	Maximum peak forward voltage	-	-	2.18	I_{FM}=7515A	V
V_{T0}	Threshold voltage	-	-	0.991		V
r_T	Slope resistance	-	-	0.162		mΩ
I_{RRM}	Peak reverse current	-	-	100	Rated V_{RRM}	mA
Q_{rr}	Recovered charge	-	600	800	I_{TM}=1000A, t_p=1000µs, di/dt=10A/µs, V_r=100V	µC
Q_{ra}	Recovered charge, 50% Chord	-	375	-		µC
I_{rm}	Reverse recovery current	-	75	80		A
t_{rr}	Reverse recovery time, 50% chord	-	10	-		µs
Q_{rr}	Recovered charge	-	1950	-	I_{TM}=2000A, t_p=1000µs, di/dt=60A/µs, V_r=300V	µC
Q_{ra}	Recovered charge, 50% Chord	-	1350	-		µC
I_{rm}	Reverse recovery current	-	355	-		A
t_{rr}	Reverse recovery time, 50% chord	-	7.6	-		µs
E_r	Reverse recovery energy	-	600	-		mJ
R_{thJK}	Thermal resistance, junction to heatsink	-	-	0.0140	Double side cooled	K/W
		-	-	0.0265	Anode side cooled	K/W
		-	-	0.0297	Cathode side cooled	K/W
F	Mounting force	25	-	31	Note 2	kN
W_t	Weight		530			g

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

Curves

Figure 1 – Forward characteristics of Limit device

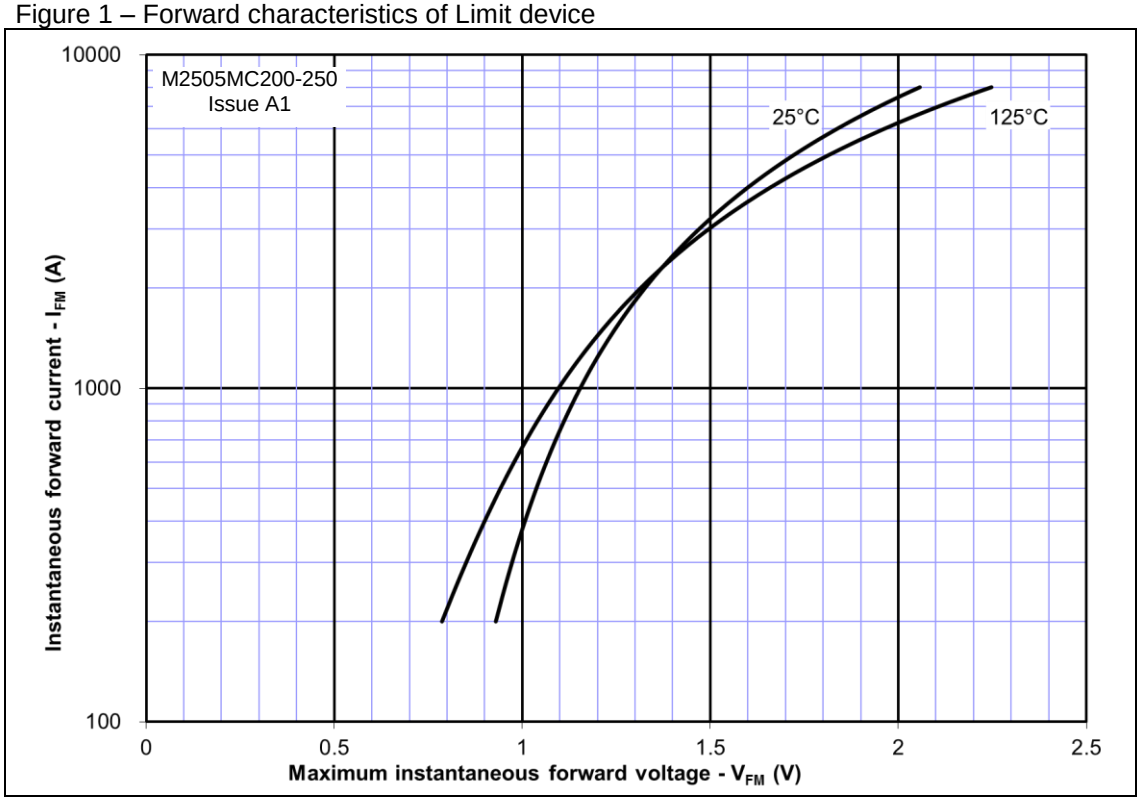


Figure 2 – Transient thermal impedance

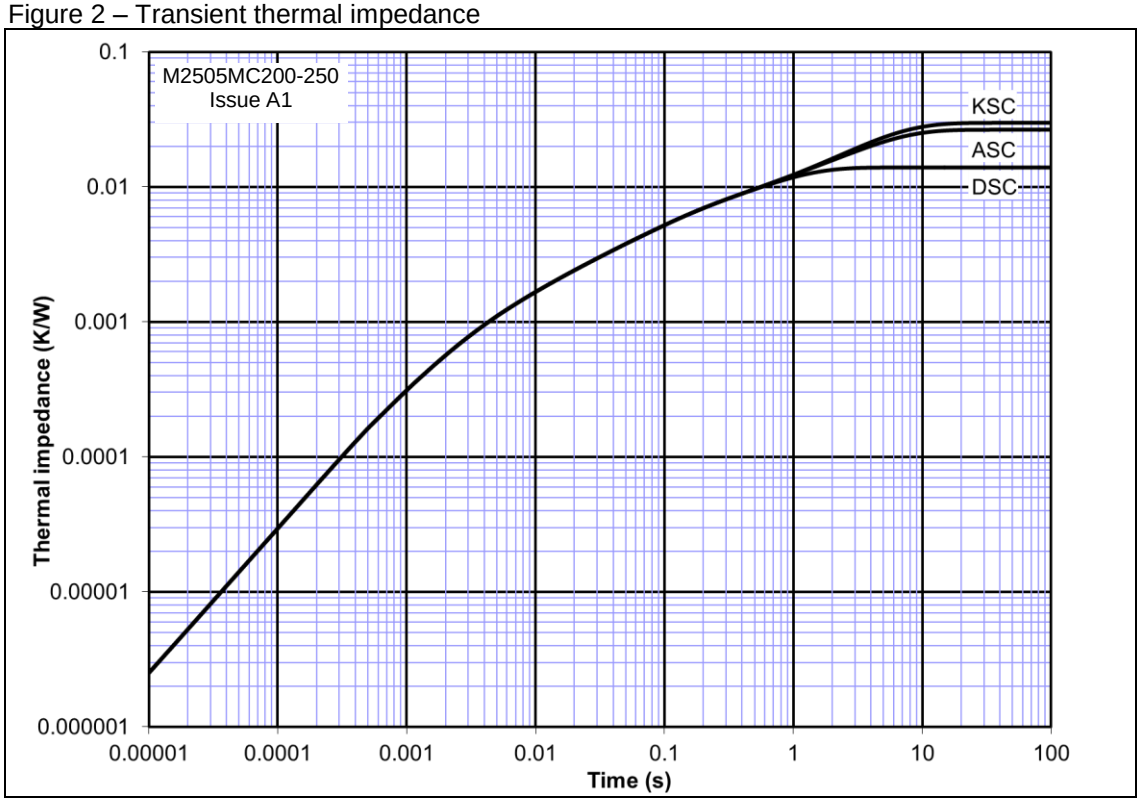
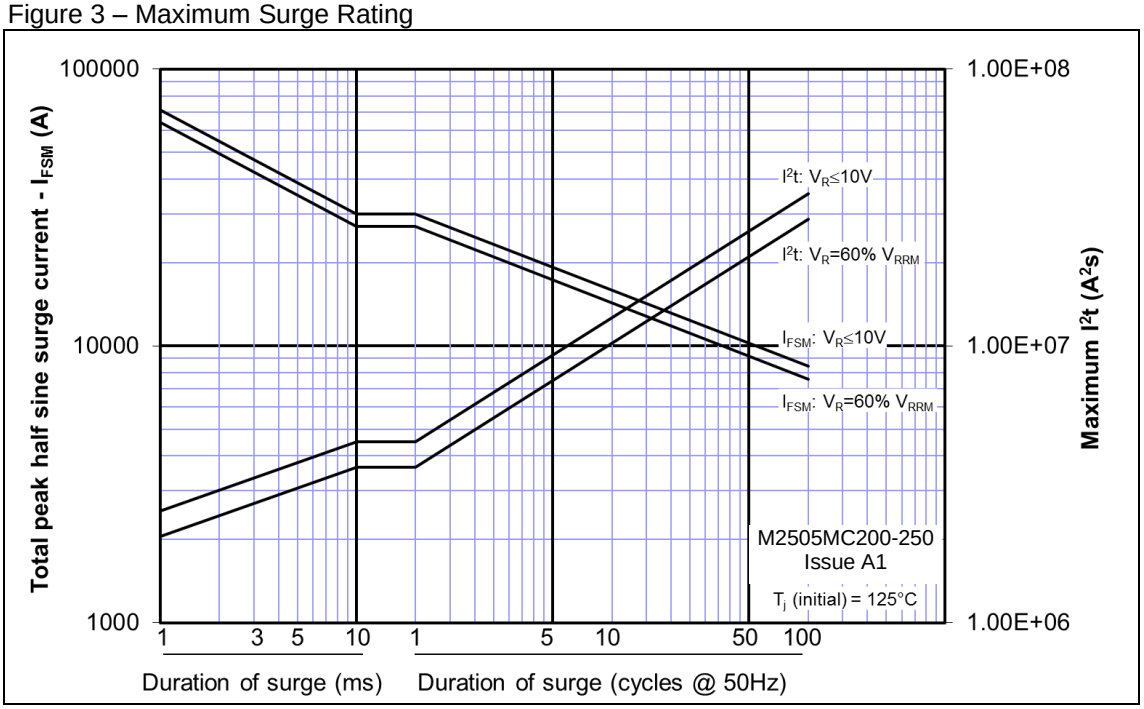
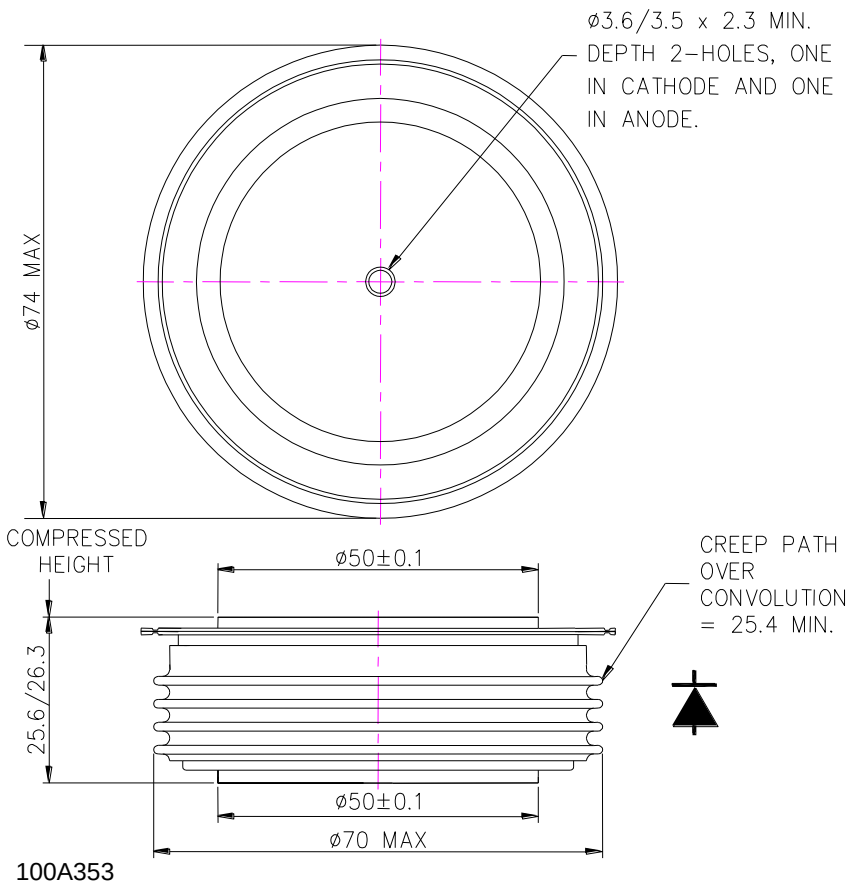


Figure 3 – Maximum Surge Rating



Outline Drawing & Ordering Information



ORDERING INFORMATION		(Please quote 10 digit code as below)	
M2505	**MC**	**25**	**0**
Fixed Type Code	Fixed Outline Code	Voltage code V_{RRM}/100 25	Fixed code

Order code: W2505MC250 – 2500V V_{RRM}, 26.3mm clamp height capsule.

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