FRD Chip

Die In Wafer Form

1200V
I_F=150A
V_F typ=2.2V@IF(150A)@25℃
150mm Wafer

Applications

- Industrial Motor Drive
- UPS
- Welding
- Solar Inverter

Features

- Reduced Power Loss In Diode And Switching Transistor
- Positive Temperature Coefficient, Excellent Current Sharing In Parallel Operation
- High Frequency Operation
- Reduced EMI

Chip Type	I_F	V_R	Die size	Wafer size
SYF150FD120MR	150A	1200V	6.8*10.8 mm^2	6 inch

Mechanical Parameters

Die size	6.8*10.8 mm^2
Anode pad size	5.6*9.6 mm^2
Silicon thickness	230um
Wafer size	150mm
Maximum possible chips per wafer	158pcs
Passivation frontside	polyimide
Pad metal	4000nm AlSiCu
Backside metal	Ti - Ni - Ag, (2kA - 5kA - 10kA) suitable for epoxy and soft solder die bonding
Die bond	electrically conductive glue or solder
Wire bond	Al, ≤500um
Reject ink dot size	∅ 0.65mm; max. 1.2mm
Storage environment (<6 months) for original and sealed MBB bags	Ambient atmosphere air, temperature 17°C – 25°C
Storage environment (<6 months) for open MBB bags	Store in original container, in dry nitrogen, <6 months at an ambient temperature of 23℃

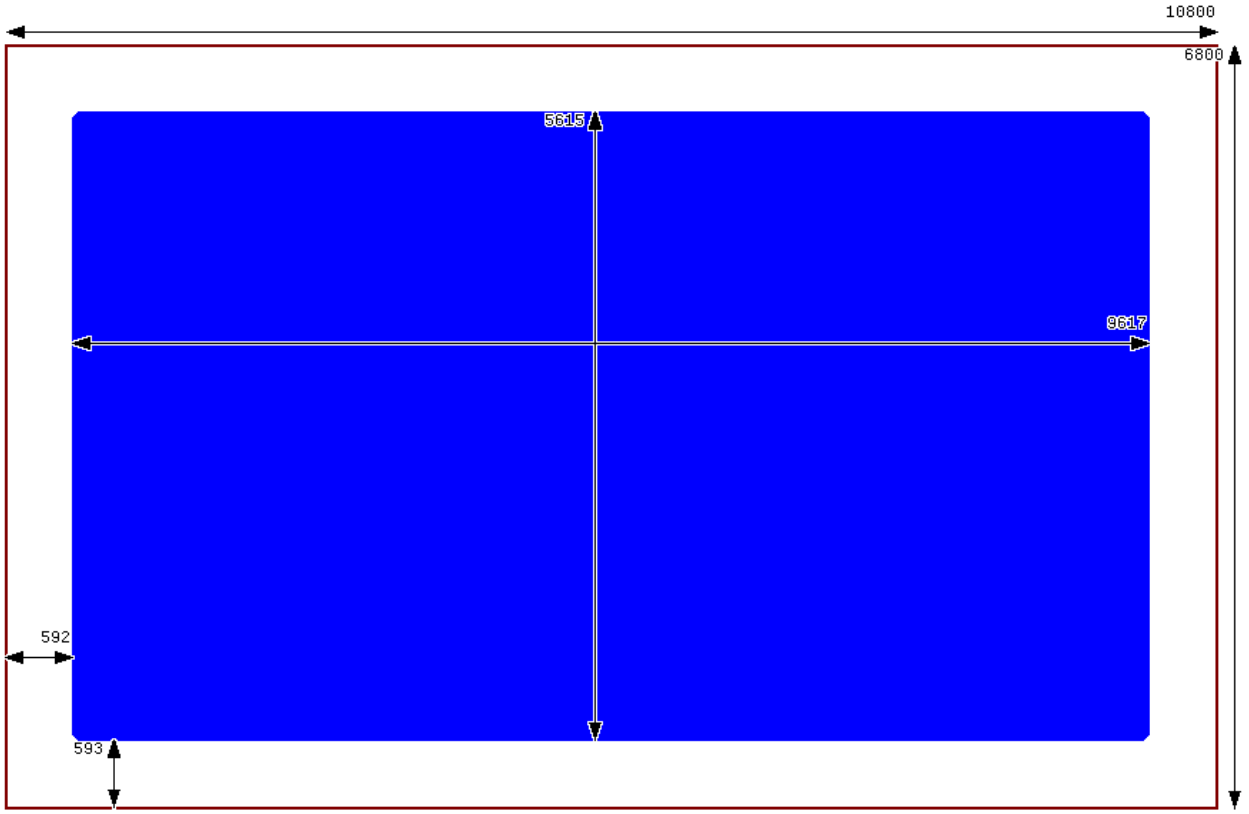
Maximum Ratings

Parameter	Symbol	Value	Unit
Minimum reverse breakdown voltage, Tj=25°C	V_{RRM}	1200	V
Maximum continue forward current, Tj=150°C	I_{FM}	150	A
Maximum reverse leakage current, Tj=25°C	I_{RM}	20	uA
Maximum forward voltage, I_F=150A, Tj=25°C	V_{FM}	2.2	V
Operating junction temperature range	Tj	-55~+150	℃

Electrical Characteristics (tested on chip)

Parameter	Symbol	Conditions	Value			Unit
			Min.	Typ.	Max.	
Breakdown voltage	V_{BR}	IR=200μA	1200			
Forward voltage	V_F	Tj=25°C, I_F=150A	-	2.2	-	V
Forward voltage	V_F	Tj=150°C, I_F=150A	-	2.4	-	V
Reverse leakage current	I_R	V_R=1200V, Tj =25℃			20	uA
Reverse recovery time	T_{RR}	Tj =125℃, I_F=150A d_{IF}/d_t=600A/us V_R=600V		350		nS
Reverse recovery energy	E_{RR}	Tj =125℃, I_F=150A d_{IF}/d_t =600A/us V_R=600V		6.5		mJ

1. Depending on thermal properties of assembly.
2. Not subject or production test - verified by design/characterization.



Not to Scale(unit:um)

Notes:

1. Controlling dimension: millimeters
2. Die width and length tolerance:<0.05

Bare Die Product Specifics

Test coverage at wafer level cannot cover all application conditions. Therefore it is recommended to test all characteristics which are relevant for the application at package level, including RBSOA and SCSOA.

Revision History

Revision	Subjects(major changes since last revision)	Date
1.0	Initial version as reference	2022.02.06
1.1	Change specification name and company address	2022.11.17
1.2	Change name M to MR	2023.2.10
1.3	Update Backside metal thickness Change VF from 2 to 2.2	2023.12.19