SG2M025075BJ

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1 Maximum ratings

Table 2 Maximum rating (Tc = 25°C unless otherwise specified)

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{DS,max}$	Drain source voltage	750	V	V_{GS} = 0V, I_D = 100μA	
$V_{GS,max}$	Gate source voltage	-8 /+22	V	Absolute maximum values	Note1
$V_{GSpulse}$	Gate-source voltage,max. transient voltage	-10 /+25	V	$t_p \leq 0.5\mu s$, D 0.01	
V_{GSop}	Gate source voltage	-4 /+18	V	Recommended operational values	
I_D	Continuous drain current	92	A	V_{GS} = 18V, T_C = 25˚C	
		65		V_{GS} = 18V, T_C = 100˚C	
$I_{D(pulse)}$	Pulsed drain current	256	A	Pulse width t_P =100μs limited by $T_{J,max}$	
T_J , T_{stg}	Operating Junction and storage temperature	-55 to +175	˚C		

Note 1 when using MOSFET Body Diode $V_{GS,max}$ = -4 / +22V

2 Electrical characteristics

2.1 Static characteristics

Table 4 Static characteristics (Tc = 25°C unless otherwise specified)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
$V_{(BR)DSS}$	Drain-source breakdown voltage	750	-	-	V	V_{GS} = 0V, I_D = 100μA	
$V_{GS(th)}$	Gate threshold voltage	2.3	2.8	3.6	V	V_{DS} = V_{GS}, I_D = 11mA	Fig.11
		-	2.2	-	V	V_{DS} = V_{GS}, I_D = 11mA T_J = 175°C	
I_{DSS}	Zero gate voltage drain current	-	1	10	μA	V_{DS} = 750V, V	

Q_{gs} Gate so

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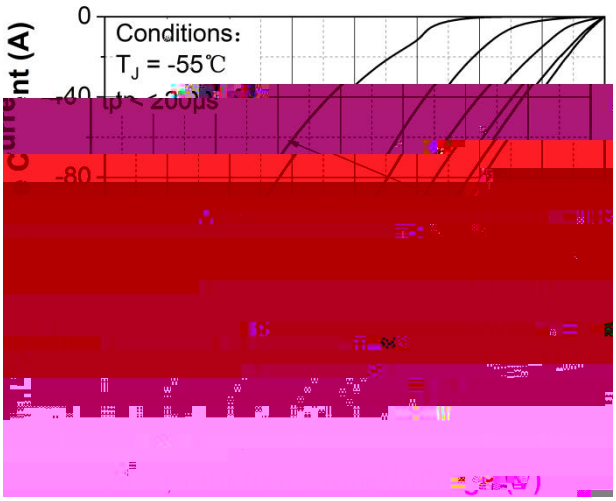


Figure 13. 3rd quadrant characteristic at T_J = -55 ºC

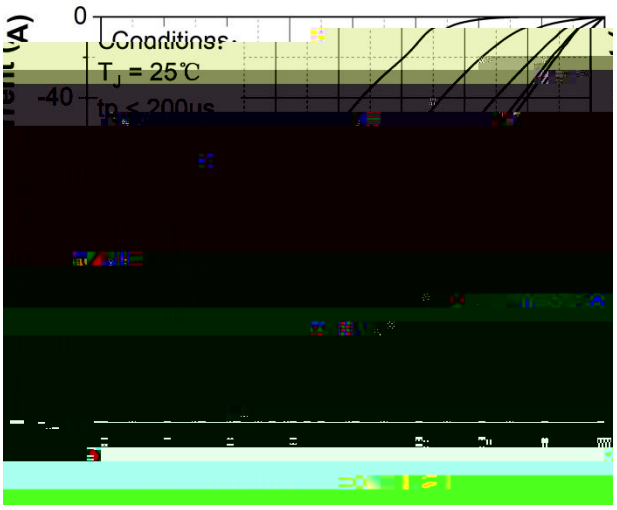


Figure 14. 3rd quadrant characteristic at T_J = 25 ºC

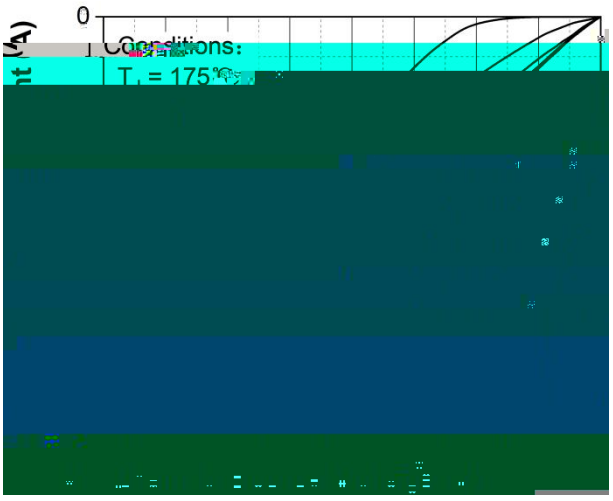


Figure 15. 3rd quadrant characteristic at T_J = 175 ºC

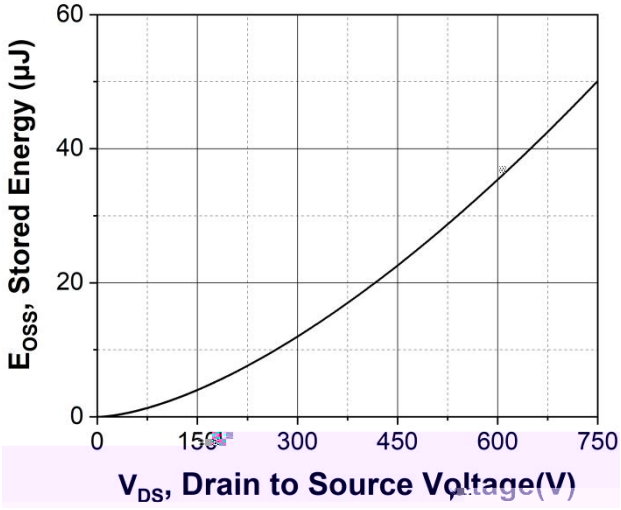


Figure 16. Output capacitor stored energy

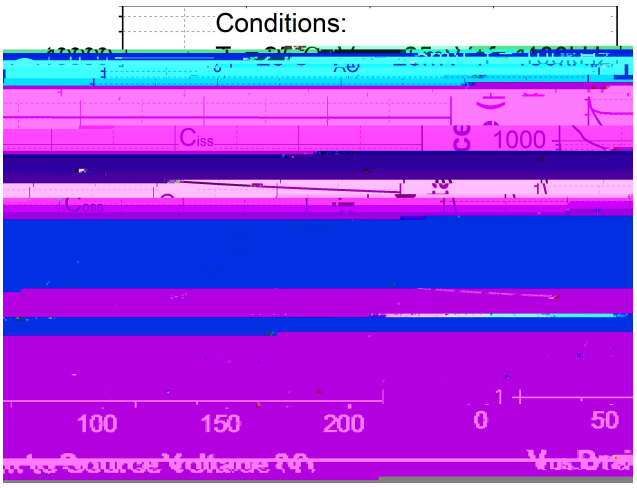


Figure 17. Capacitances vs. drain-source voltage (0 - 200V)

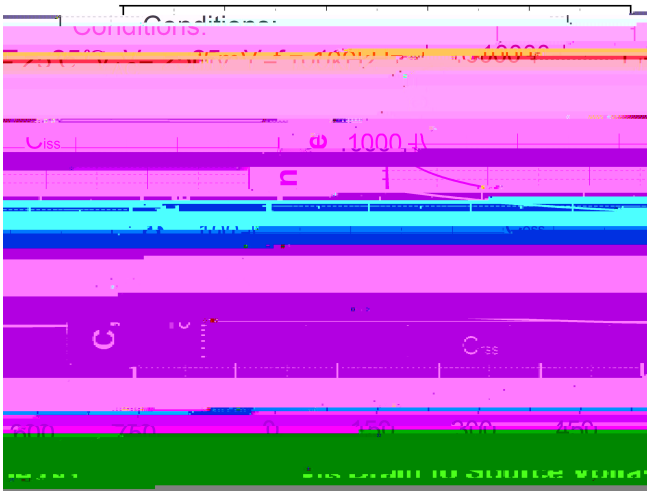


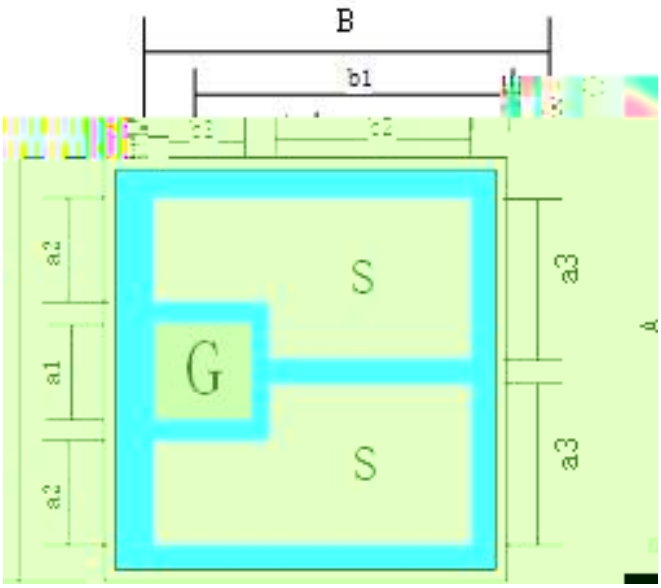
Figure 18. Capacitances vs. drain-source voltage (0 - 750V)

4 Mechanical parameters

4.1 Dimensions and metallization

Parameter	Typical value	Unit	Metallization
Die size W x L	3.000*4.600	mm	
Gate pad size W x L	0.800*0.800	mm	
Die thickness	175	μm	
Top side source gate metallization	4	μm	Al
Back side drain metallization	1	μm	Ag

4.2 Layout



Symbol	Dimension / mm
B	4.600
b1	3.960
b2	3.010
b3	0.800
A	3.000
a1	0.800
a2	0.630
a3	1.080

5 Test conditions

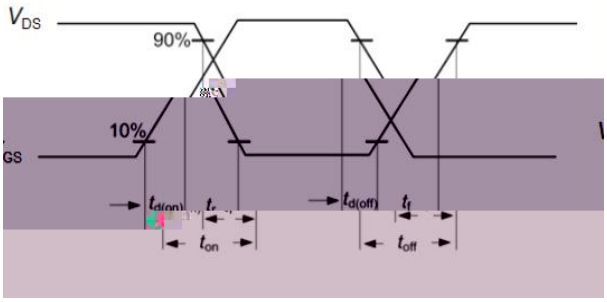


Figure A. Definition of switching times

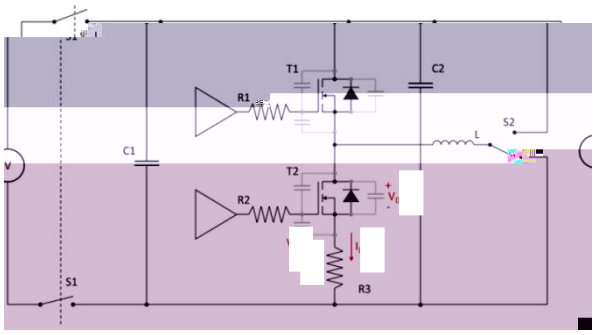


Figure B. Dynamic test circuit

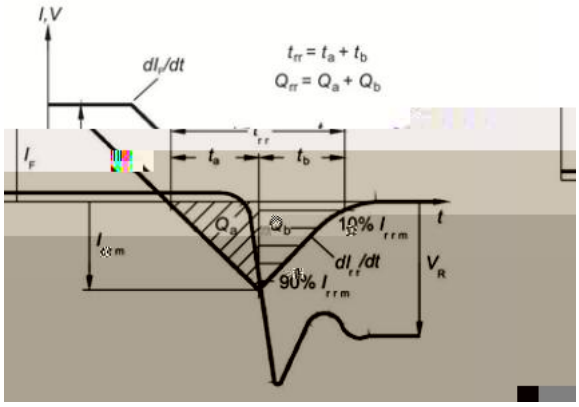


Figure C. Definition of body diode switching characteristics

Revision history

Document version	Date of release	Document stage	Description of changes
V01_00	2025-01-17	——	——
V02_00	2025-05-26	——	——
V02_01	2025-07-22	——	——
V02_02	2025-08-14	——	——
V03_00	2025-08-28	——	——
V03_01	2025-12-05	——	——
V03_02	2025-12-22	Final	——

Attention

1. **RoHS compliance**

The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU Directive 2011/65/ EC (RoHS2), as implemented January 2, 2013.

2. **REACH compliance**

REACh substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, please contact a Sichain representative to insure you get the most up-to-date REACh SVHC Declaration. REACh banned substance information (REACh Article 67) is also available upon request.

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6. Due to technical requirements products may contain dangerous substances. For information on the types in question please contact Sichain office.

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8. For use of our products in applications requiring a high degree of reliability (as exemplified below), please contact and consult with a Sichain representatives, for example but not limited to: transportation equipment,primary communication equipment,traffic lights,fire/crime prevention, safety equipment, medical systems, and power transmission systems.