S3M007075BK-A

TriQSiC™750V Silicon Carbide Power MOSFET G3 N Channel Enhancement

Features

- High speed switching
- Very low switching losses
- High blocking voltage with low on-resistance
- Temperature independent turn-off switching losses
- Halogen free, RoHS compliant

Benefits

- Cooling effort reduction
- Effic

Table of contents

Features 1
Benefits 1
Applications 1
Table of contents 2
1 Maximum ratings 3
2 Electrical characteristics 4
2.1 Static characteristics 4
2.2 Dynamic characteristics 4
2.3 Switching characteristics 5
3 Electrical characteristic diagrams 6
4 Mechanical parameters 9
4.1 Dimensions and metallization 9
4.2 Layout 9
5 Test conditions 10
Revision

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 = 100 μA	
$V_{GS,max}$	Gate source voltage	P@~ð•ŽaŽ8A(pu,ue4voltageB 0ð Ÿ P 5v!D••			

S3M009075LK

Datasheet

Q_{gs}	Gate sou[illegible]ge		-	80	-	nC	V_{DS} = 500V, V_{GS} = -4/+18V I_D = 96A	Fig.12
[illegible]d	G[illegible]		-	52	-			
Q_g	Gat[illegible]		-	262	-			

2.3 Switching characteristics

Table 6 Dynamic characteristics(Tc = 25°C unless otherwise specified,the data comes from TO-247-4L)

Symbol	Parameter	Min.	Typ.	Max.	Unit	Test Conditions	Note
E_{on}	Turn on switching energy	-	1605	-	μJ	V_{DS} = 500V, V_{GS} = -4/+18V I_D = 96A, Rg = 2.5Ω, L = 16.7μH	
E_{off}	Turn off switching energy	-	1256	-			
$t_{d\ on}$	Turn on delay time	-	30	-	ns		
t_r	[illegible]						

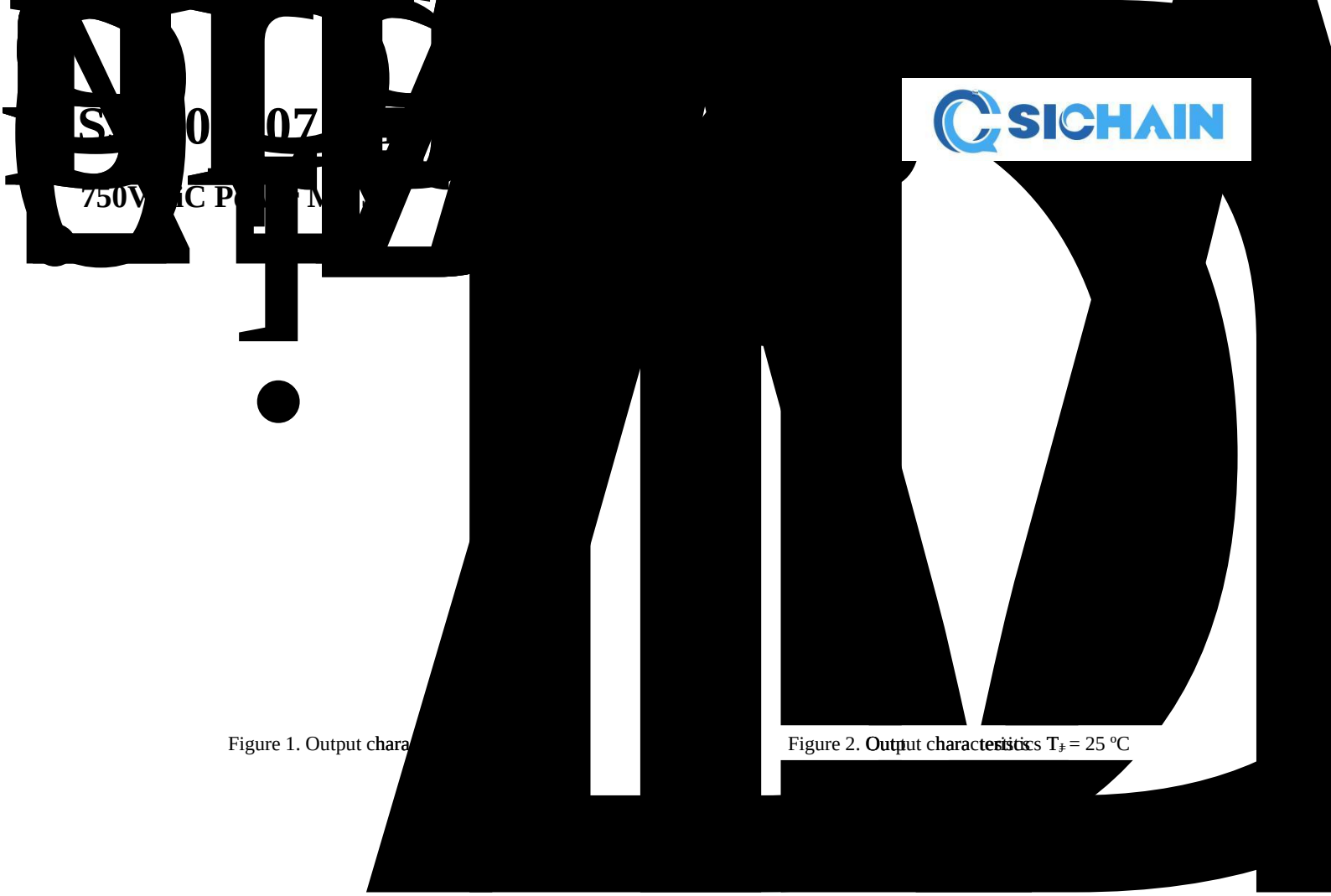


Figure 1. Output characteristics T_J = 25 ºC

Figure 2. Output characteristics T_J = 25 ºC

Figure 7. Transfer characteristic for various junction temperatures

Figure 8. Body diode characteristic at T_J = -55 ºC

Figure 9. Body diode characteristic at T_J = 25 ºC

Figure 10. Body diode characteristic at T_J = 175ºC

Figure 11. Threshold voltage vs. temperature

Figure 12. Gate c harge

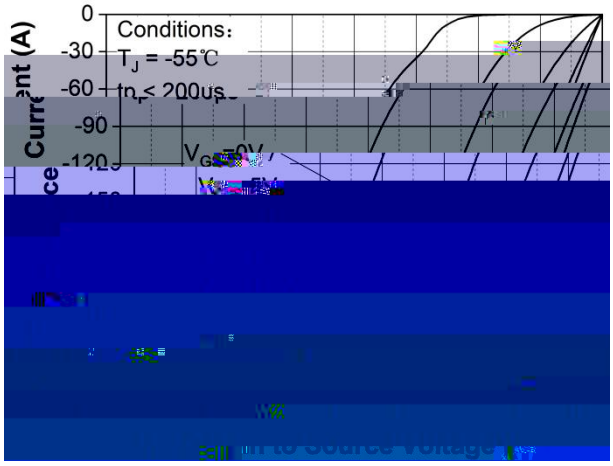


Figure 13. 3rd quadrant characteristic at T_J = -55 ºC

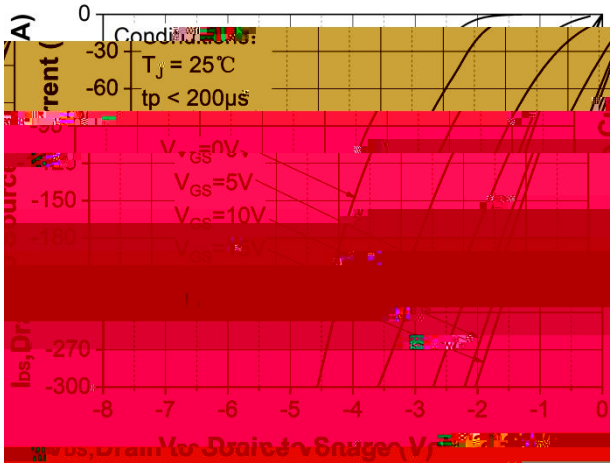


Figure 14. 3rd quadrant characteristic at T_J = 25 ºC

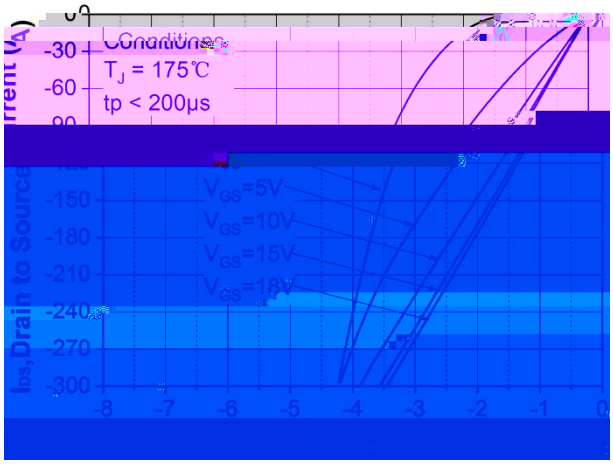


Figure 15. 3rd quadrant characteristic at T_J = 175 ºC

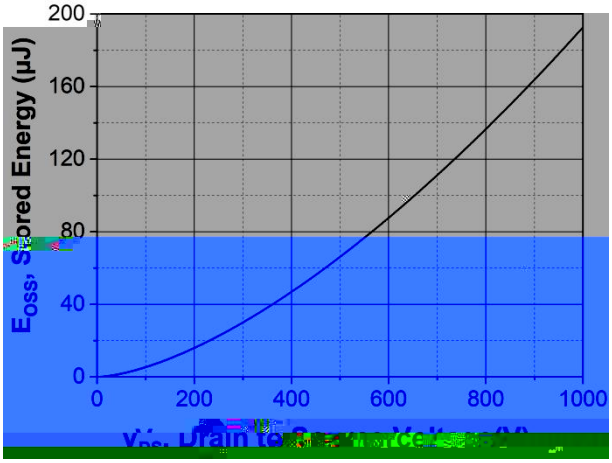


Figure 16. Output capacitor stored energy

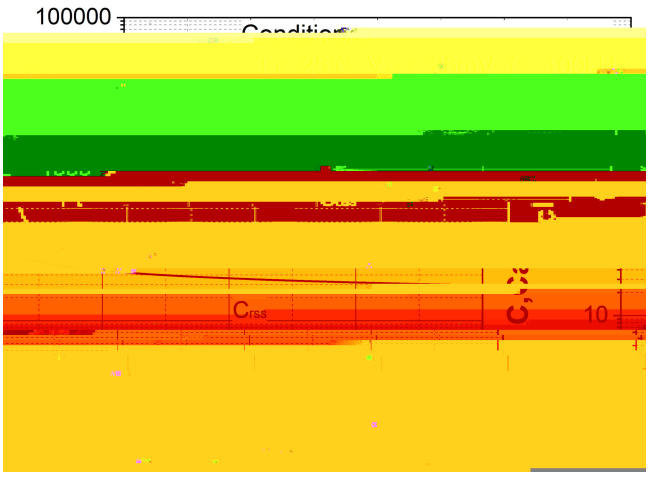


Figure 17. Capacitances vs. drain-source voltage (0 - 200V)

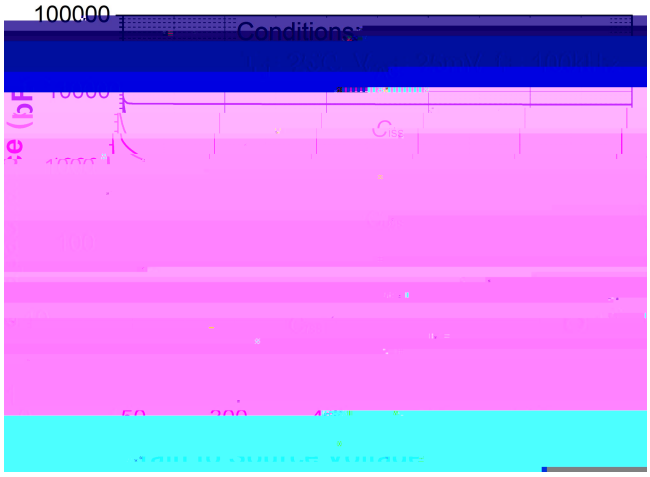


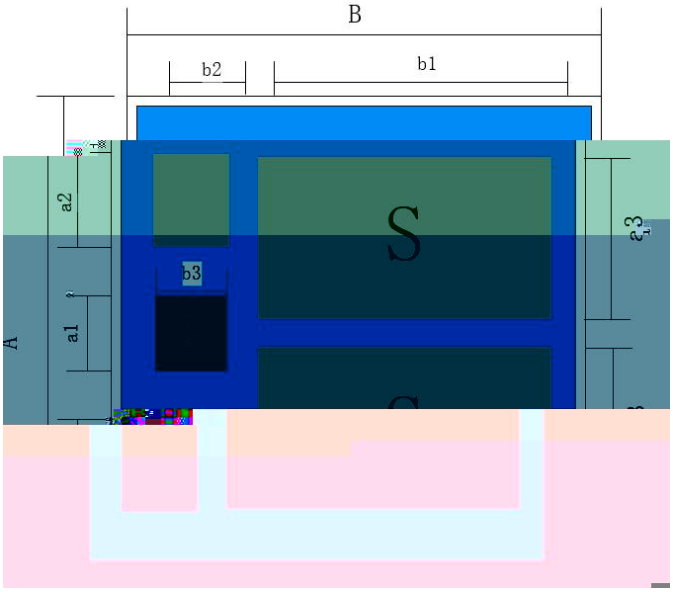
Figure 18. Capacitances vs. drain-source voltage (0 - 750V)

4 Mechanical parameters

4.1 Dimensions and metallization

Parameter	Typical value	Unit	Metallization
Die size W x L	4.80 * 6.30	mm	
Gate pad size W x L	0.78 * 0.68	mm	
Source pad size W x L	1.80 * 4.40	mm	
Kelvin pad size W x L	0.70 * 1.15	mm	
Die thickness	130 ± 20	μm	
Top side source gate metallization	4	μm	AlCu
Back side drain metallization	1	μm	Ag

4.2 Layout



Symbol	Dimension / mm
B	6.40
b1	4.40
b2	0.70
b3	0.68
A	4.80
a1	0.78
a2	1.15
a3	1.80

Revision history

Document version	Date of release	Document stage	Description of changes
V01_00	2026-06-26	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.

3. With respect to information regarding the application of the product, Sichain hereby disclaims any and all warranties and liabilities of any kind, including without limitation warranties of non-infringement of intellectual property rights of any third party.

4. Any information given in this documents subject to customer's compliance with its obligations and any applicable legal requirements, norms and standards concerning any use of the product of Sichain in any customer's applications.

5. Specifications of any and all products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance,characteristics,and functions of the described products as mounted in the customer's products or equipment.

6. Due [illegible]