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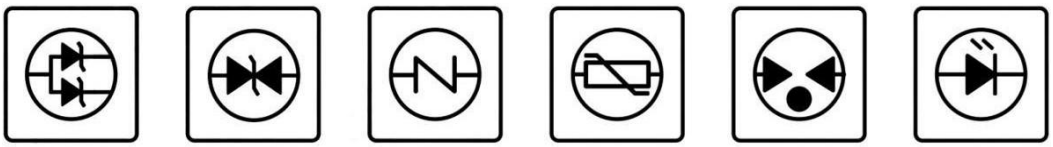


BSC072N08NS5-MS

Product specification

Description

The BSC072N08NS5-MS use advanced SGT MOSFET technology to provide low $R_{DS(ON)}$, low gate charge, fast switching and excellent avalanche characteristics. This device is specially designed to get better ruggedness and suitable.

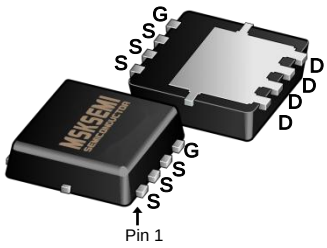
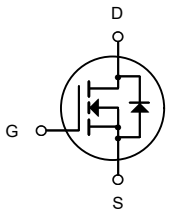
Features

- V_{DS} = 85V I_D= 100A
- $R_{DS(ON)}$ < 5.6mΩ V_{GS}= 10V

Application

- Consumer electronic power supply Motor control
- Synchronous-rectification Isolated DC
- Synchronous-rectification applications

Reference News

DFN5X6-8L	N-Channel MOSFET	Marking
		MSKSEMI 072N08N N85

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	85	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	100	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	63.3	A
I_{DM}	Pulsed Drain Current[2]	400	A
EAS	Single Pulse Avalanche Energy[3]	273.8	mJ
P_D@T_C=25℃	Total Power Dissipation[4]	107.8	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
$R_{\theta JC}$	Thermal Resistance from Junction-to-Ambient[3]	1.16	℃/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	60	℃/W

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Electrical Characteristics (T_J = 25°C, unless otherwise noted)

Parameter		Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics							
Drain-Source Breakdown Voltage		$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	85	-	-	V
Gate-body Leakage current		I_{GSS}	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	T_J=25°C	I_{DSS}	V_{DS} = 85V, V_{GS} = 0V	-	-	1	μA
	T_J=100°C			-	-	100	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	2	3	4	V
Drain-Source on-Resistance[4]		$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	-	4.3	5.6	mΩ
Forward Transconductance[4]		g_{fs}	V_{DS} = 5V, I_D =20A	-	57.8	-	S
Dynamic Characteristics[5]							
Input Capacitance		C_{iss}	V_{DS} = 40V, V_{GS} =0V, f =1MHz	-	4645	-	pF
Output Capacitance		C_{oss}		-	673	-	
Reverse Transfer Capacitance		C_{rss}		-	41	-	
Gate Resistance		R_g	f=1MHz	-	2.0	-	Ω
Switching Characteristics[5]							
Total Gate Charge		Q_g	V_{GS} = 10V, V_{DS} = 40V, I_D= 20A	-	61.3	-	nC
Gate-Source Charge		Q_{gs}		-	21	-	
Gate-Drain Charge		Q_{gd}		-	11	-	
Turn-on Delay Time		$t_{d(on)}$	V_{GS} =10V, V_{DD} = 40V, R_G = 3Ω, I_D= 20A	-	16.5	-	ns
Rise Time		t_r		-	51.8	-	
Turn-off Delay Time		$t_{d(off)}$		-	37.1	-	
Fall Time		t_f		-	8.2	-	
Body Diode Reverse Recovery Time		t_{rr}	I_F=20A, di/dt = 100A/μS	-	69	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}		-	141	-	nC
Drain-Source Body Diode Characteristics							
Diode Forward Voltage[4]		V_{SD}	I_S = 20A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current	T_C=25°C	I_S	-	-	-	100	A

Notes:

1. Repetitive rating, pulse width limited by junction temperature TJ(MAX)=150°C
2. The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=0.4mH, I_{AS}=37A
3. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper, The value in any given application depends on the user's specific board design.
4. The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
5. This value is guaranteed by design hence it is not included in the production test.

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Typical Characteristics

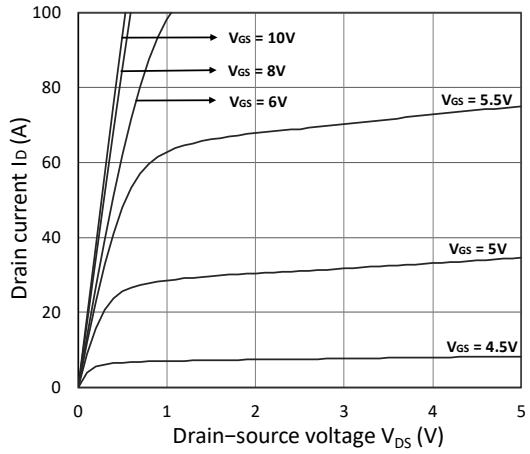

Figure 1. Output Characteristics

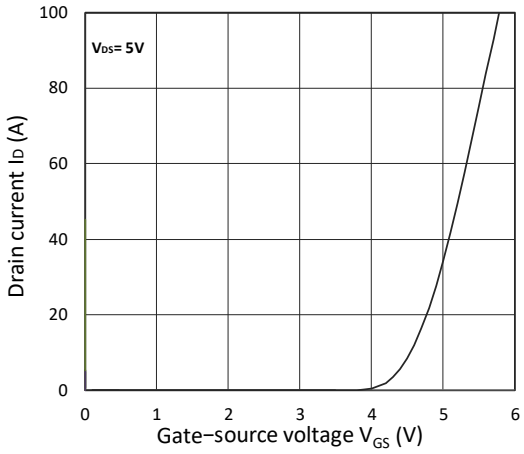

Figure 2. Transfer Characteristics

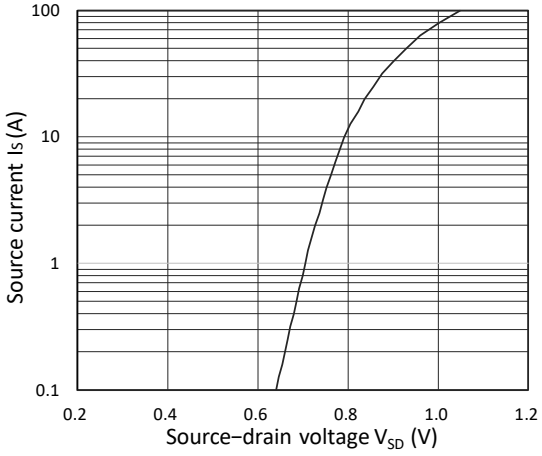

Figure 3. Forward Characteristics of Reverse

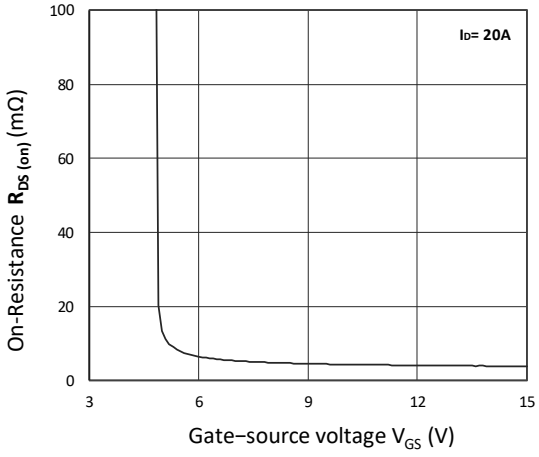

Figure 4. $R_{DS(ON)}$ vs. V_{GS}

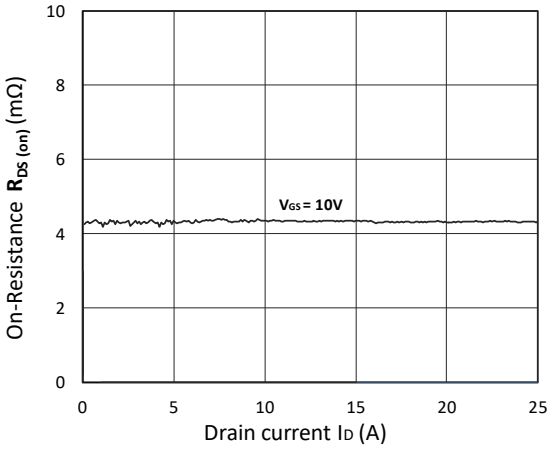

Figure 5. $R_{DS(ON)}$ vs. I_D

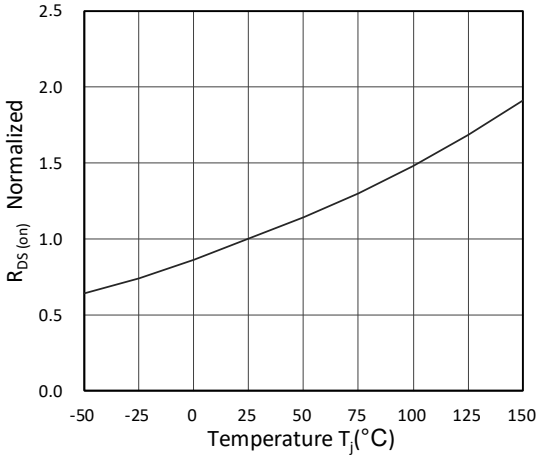

Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

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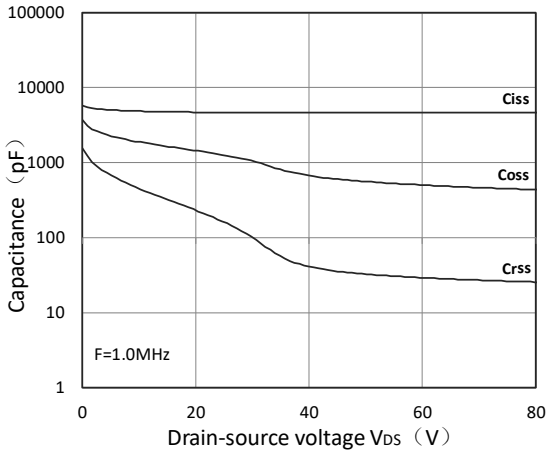

Figure 7. Capacitance Characteristics

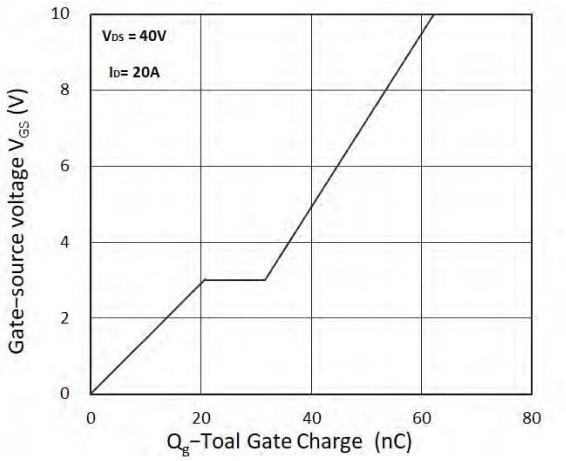

Figure 8. Gate Charge Characteristics

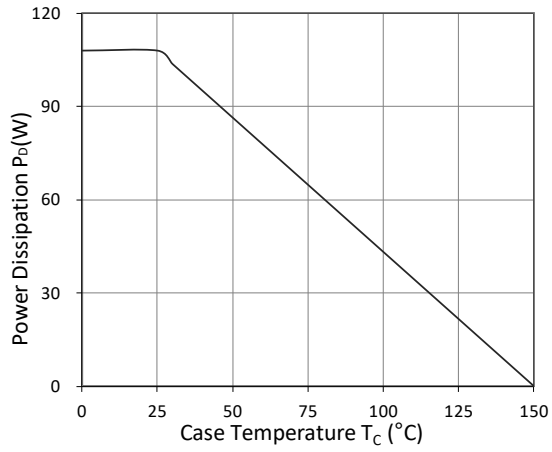

Figure 9. Power Dissipation

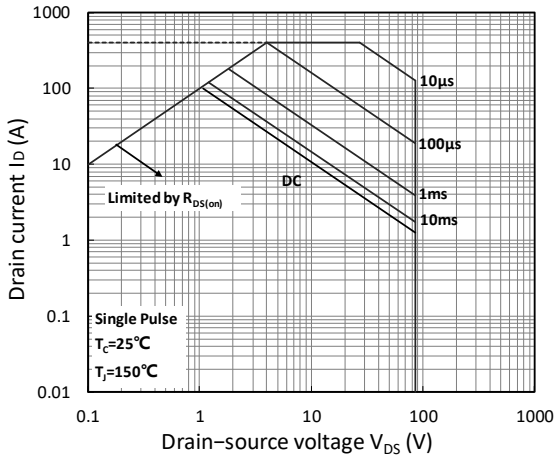

Figure10. Safe Operating Area

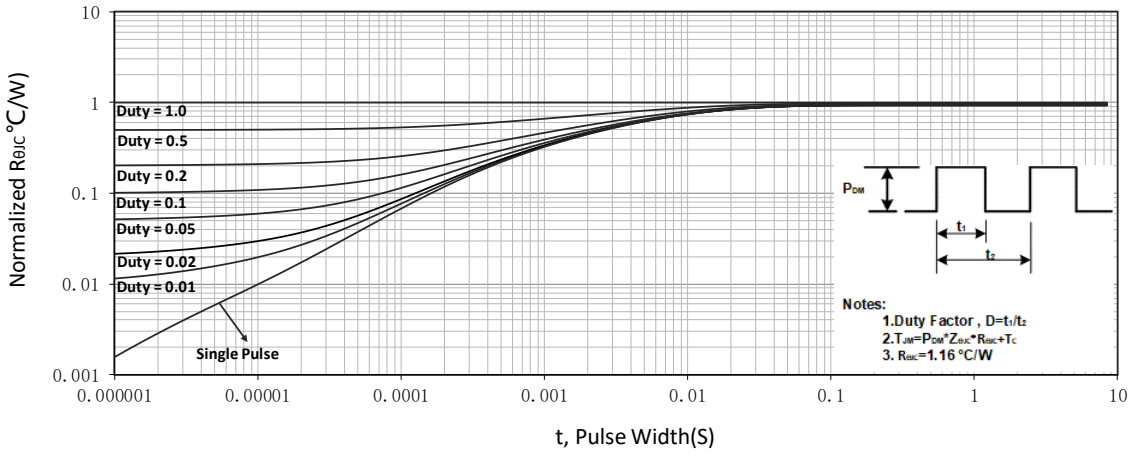

Figure 11. Normalized Maximum Transient Thermal Impedance

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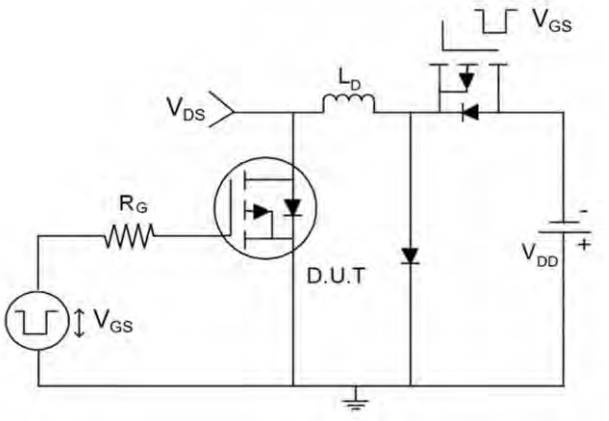
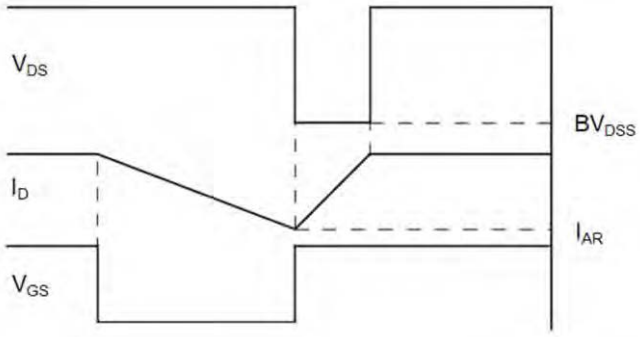
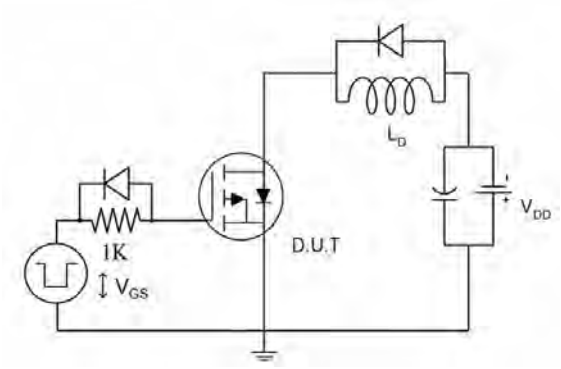
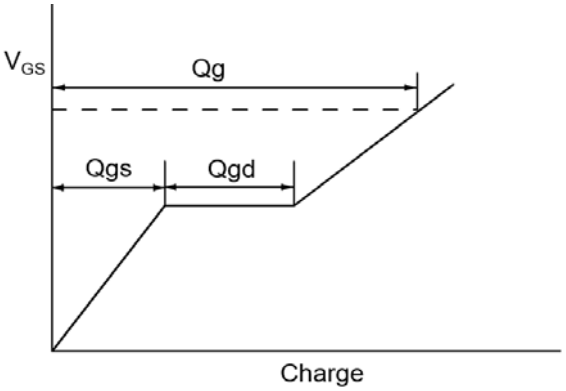
1) E_{AS} Test Circuits



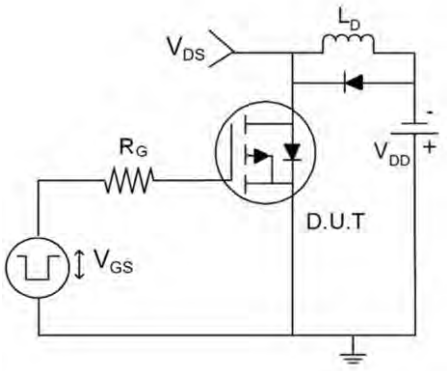


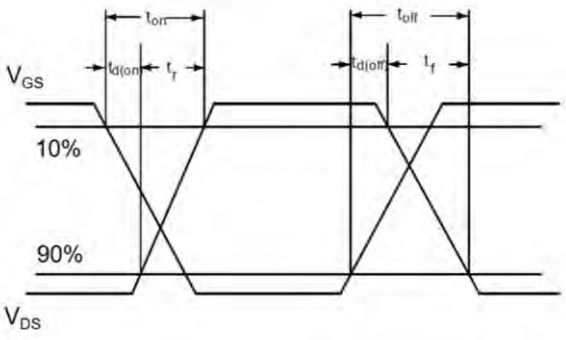
2) Gate Charge Test Circuit





3) Switch Time Test Circuit





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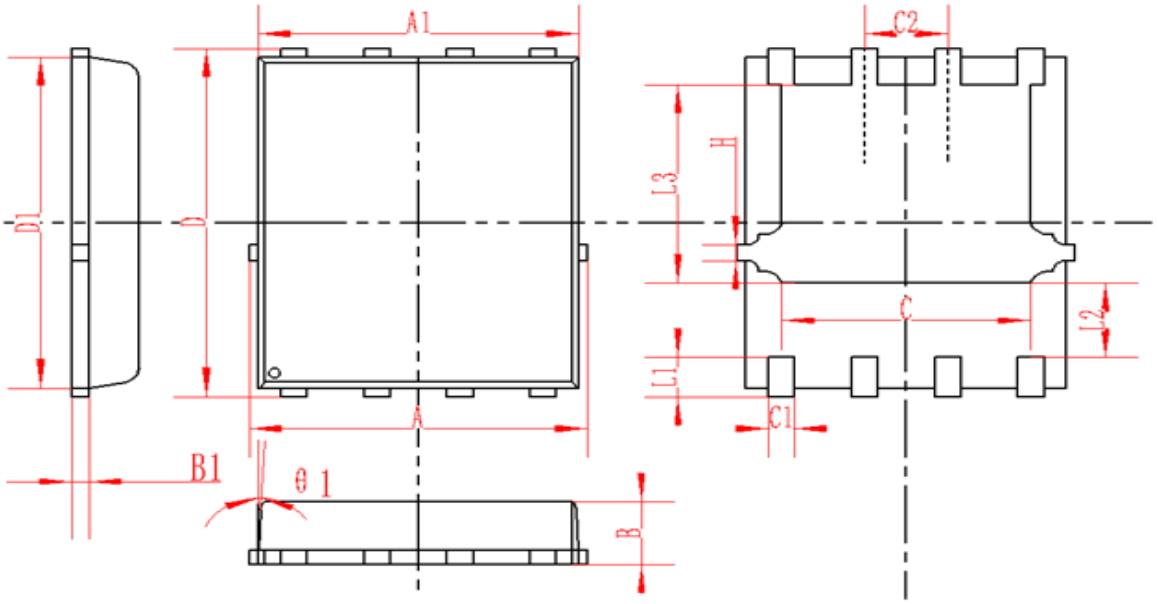
DFN5X6-8L Package Information



SYMBOL	MM			INCH		
	MIN	NOM	MAX	MIN	NOM	MAX
A	4.95	5	5.05	0.195	0.197	0.199
A1	4.82	4.9	4.98	0.190	0.193	0.196
D	5.98	6	6.02	0.235	0.236	0.237
D1	5.67	5.75	5.83	0.223	0.226	0.230
B	0.9	0.95	1	0.035	0.037	0.039
B1	0.254REF			0.010REF		
C	3.95	4	4.05	0.156	0.157	0.159
C1	0.35	0.4	0.45	0.014	0.016	0.018
C2	1.27TYP			0.5TYP		
θ1	8°	10°	12°	8°	10°	12°
L1	0.63	0.64	0.65	0.025	0.025	0.026
L2	1.2	1.3	1.4	0.047	0.051	0.055
L3	3.415	3.42	3.425	0.134	0.135	0.135
H	0.24	0.25	0.26	0.009	0.010	0.010

REEL SPECIFICATION

P/N	PKG	QTY
BSC072N08NS5-MS	DFN5X6-8L	5000

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