



Description

The SISS26DN-T1-GE3 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

General Features

$V_{DS} = 60V$ $I_D = 100A$

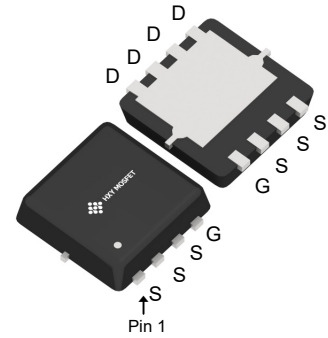
$R_{DS(ON)} < 4 m\Omega @ V_{GS}=20V$

Application

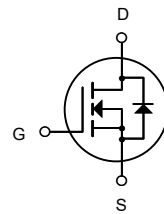
Battery protection

Load switch

Uninterruptible power supply



DFN3X3-8L



N-Channel MOSFET

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
SISS26DN-T1-GE3	DFN3X3-8L	HXY MOSFET	5000

Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	100	A
$I_D@T_C=100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	64	A
I_{DM}	Pulsed Drain Current	385	A
EAS	Single Pulse Avalanche Energy	80	mJ
I_{AS}	Avalanche Current	22	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	73.5	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	51	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case	1.7	$^\circ C/W$



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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit	
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60	-	-	V	
Gate-body Leakage Current	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA	
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, V _{GS} = 0V	T _J =25°C	-	-	1	μA
			T _J =100°C	-	-		
Gate-Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.7	2.5	V	
Drain-Source On-Resistance ⁴	R _{DS(on)}	V _{GS} = 10V, I _D = 21A	-	4.0	4.8	mΩ	
		V _{GS} = 4.5V, I _D = 10A	-	5.2	6.6		
Forward Transconductance ⁴	g _{fs}	V _{DS} = 10V, I _D = 21A	-	89	-	S	
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz	-	2180	-	pF	
Output Capacitance	C _{oss}		-	735	-		
Reverse Transfer Capacitance	C _{rss}		-	42	-		
Gate Resistance	R _g	f = 1MHz	-	1.8	-	Ω	
Total Gate Charge	Q _g	V _{GS} = 10V, V _{DS} = 30V, I _D = 21A	-	35	-	nC	
Gate-Source Charge	Q _{gs}		-	6.6	-		
Gate-Drain Charge	Q _{gd}		-	8.4	-		
Turn-On Delay Time	t _{d(on)}	V _{GS} = 10V, V _{DD} = 30V, R _G = 3Ω, I _D = 21A	-	9.4	-	ns	
Rise Time	t _r		-	8.4	-		
Turn-Off Delay Time	t _{d(off)}		-	32.5	-		
Fall Time	t _f		-	12.5	-		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 20A, dI/dt = 100A / μs	-	50	-	ns	
Body Diode Reverse Recovery Charge	Q _{rr}		-	20	-	nC	
Diode Forward Voltage ⁴	V _{SD}	I _S = 21A, V _{GS} = 0V	-	-	1.2	V	
Continuous Source Current	I _S	T _C = 25°C	-	-	100	A	

Notes:

1. Repetitive rating, pulse width limited by junction temperature T_{J(MAX)} = 150°C
2. The EAS data shows Max. rating. The test condition is V_{DD} = 25V, V_{GS} = 10V, L = 0.1mH, I_{AS} = 40A.
3. The data tested by surface mounted on a 1 inch² FR-4 board with 20Z 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.



Typical Characteristics

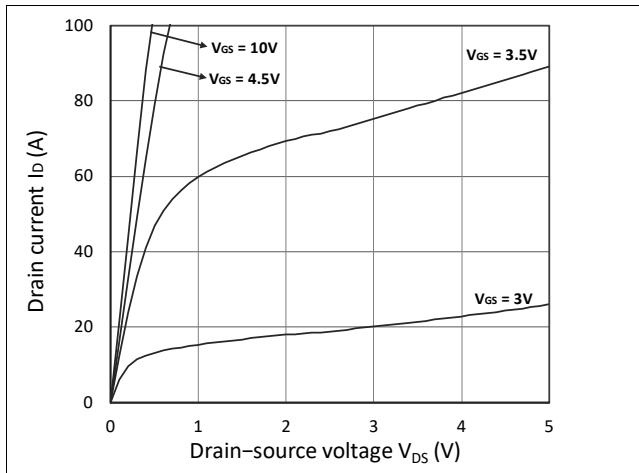


Figure 1. Output Characteristics

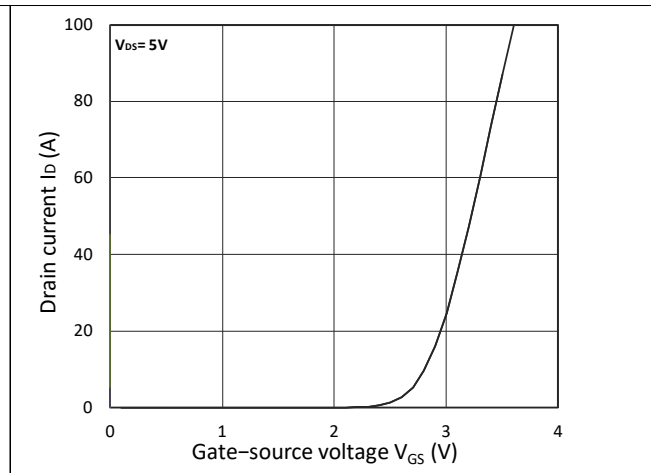


Figure 2. Transfer Characteristics

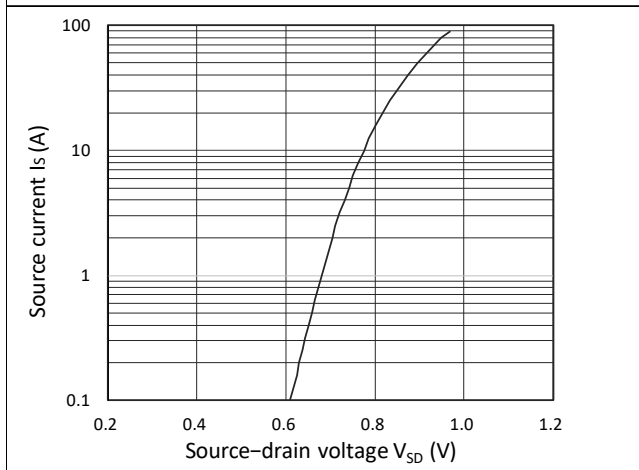


Figure 3. Forward Characteristics of Reverse

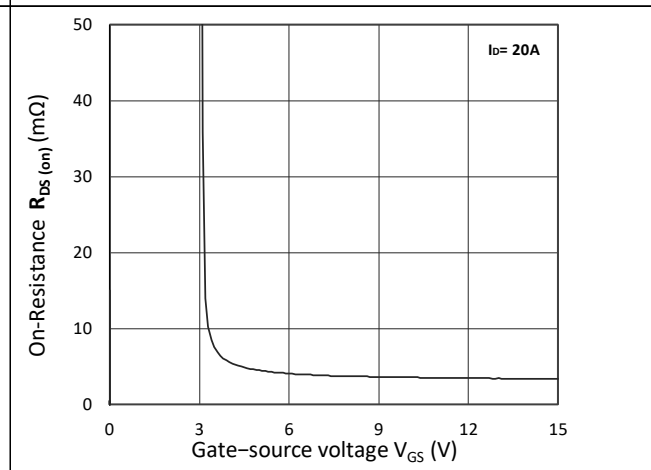


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

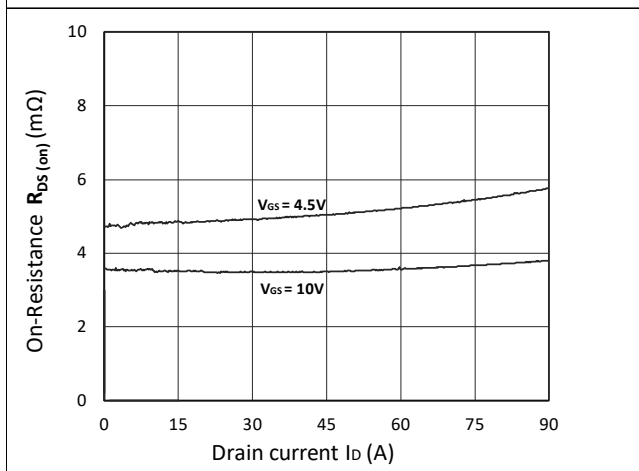


Figure 5. $R_{DS(ON)}$ vs. I_D

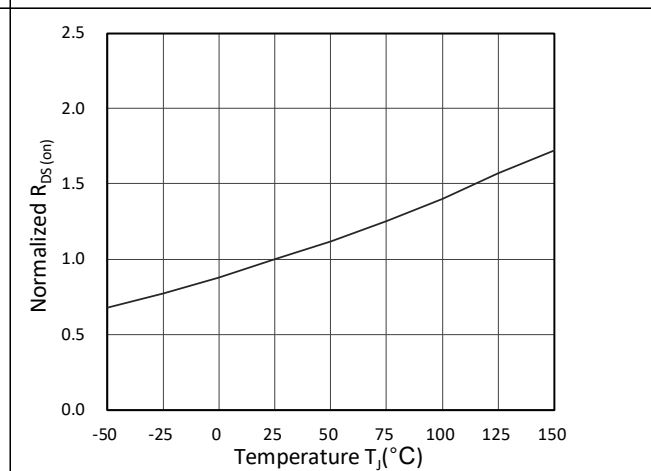


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

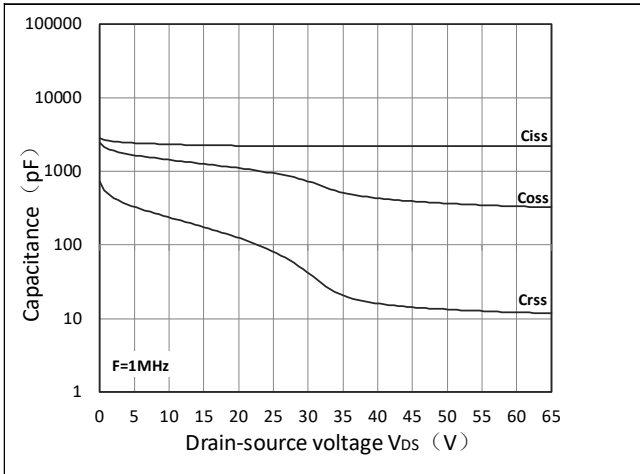


Figure 7. Capacitance Characteristics

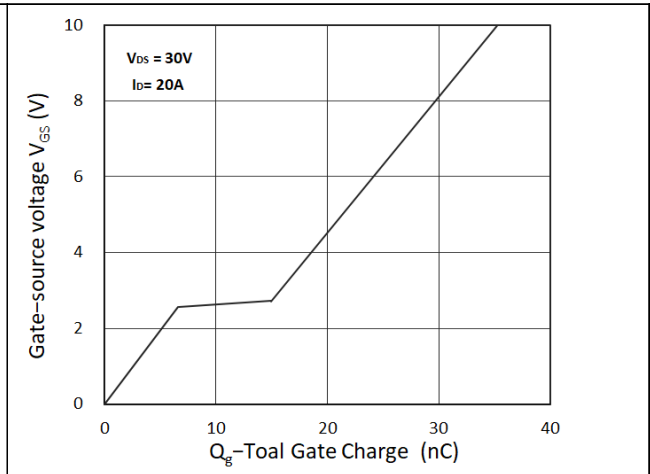


Figure 8. Gate Charge Characteristics

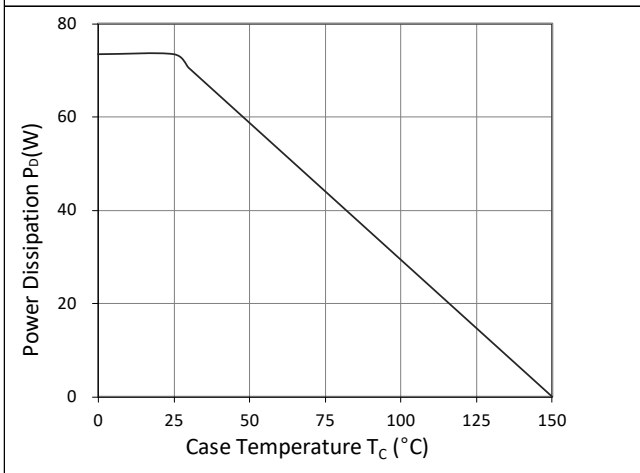


Figure 9. Power Dissipation

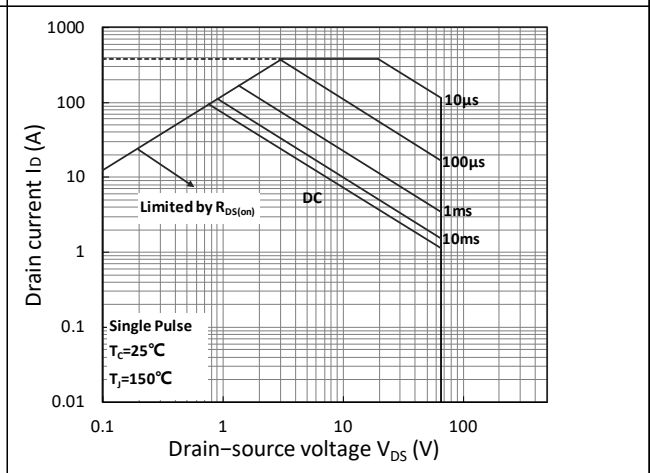


Figure 10. Safe Operating Area

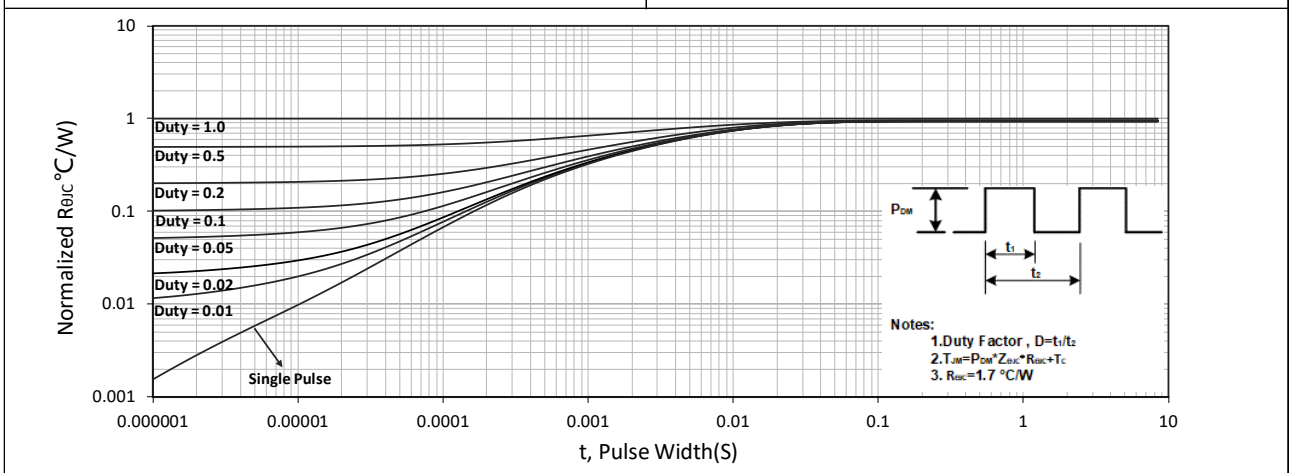


Figure 11. Normalized Maximum Transient Thermal Impedance



Test Circuit

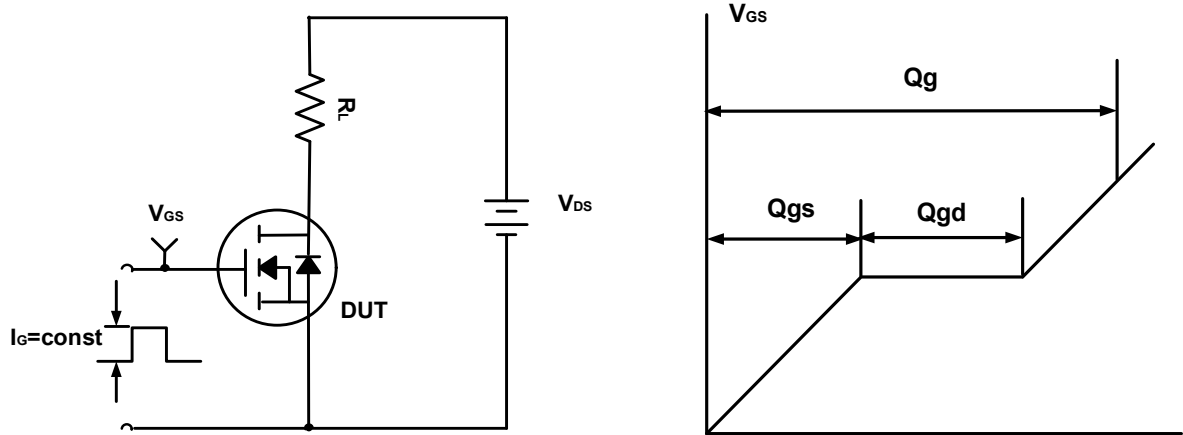


Figure A. Gate Charge Test Circuit & Waveforms

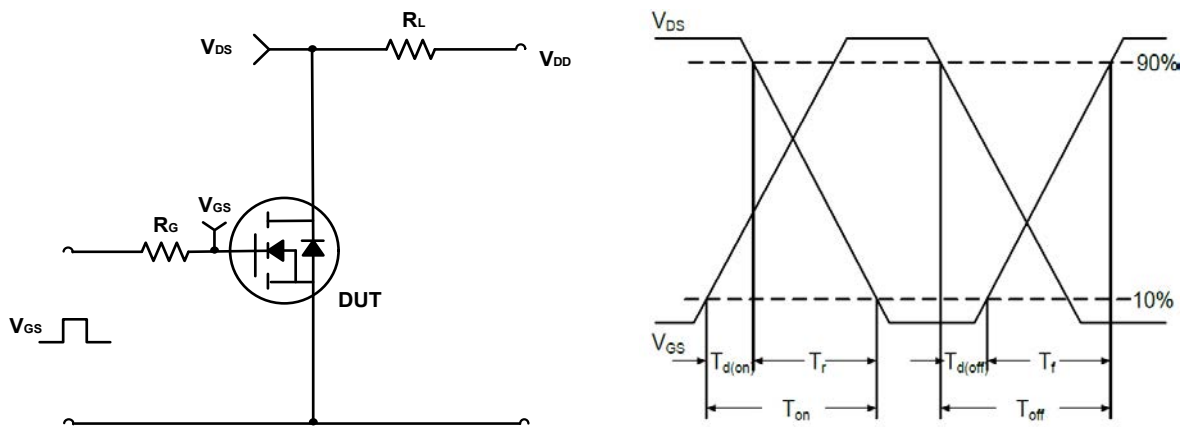


Figure B. Switching Test Circuit & Waveforms

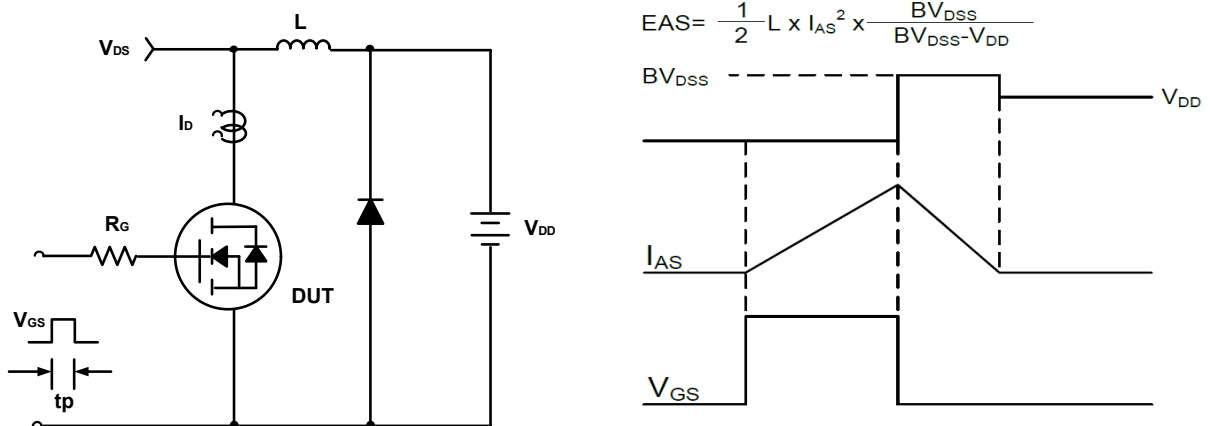
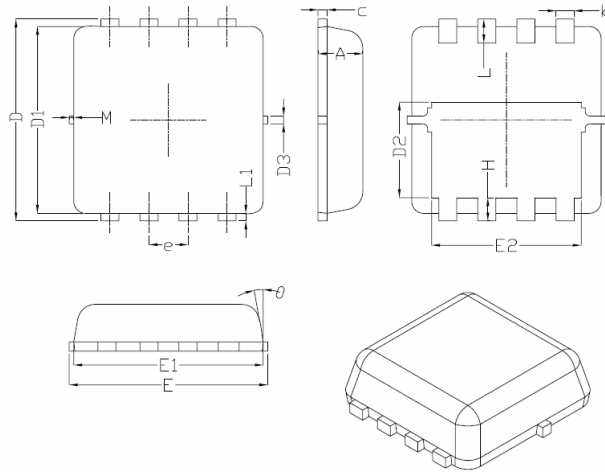


Figure C. Unclamped Inductive Switching Circuit & Waveforms



DFN3X3-8L Package Information



Symbol	Dimensions In Millimeters		
	Min.	Nom.	Max.
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.48	1.58	1.68
D3	-	0.13	-
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	-	0.13	-
M	*	*	0.15
θ		10°	12°



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