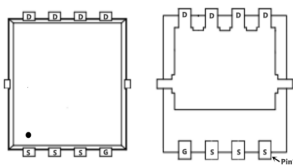


TMG100N10LNF

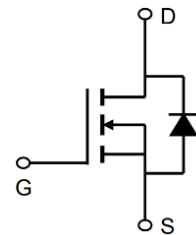
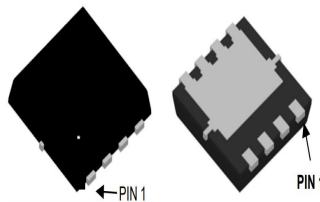
N-Channel Enhancement Mosfet

General Description • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant Applications • Load switch • PWM	General Features $V_{DS} = 100V$ $I_D = 100A$ $R_{DS(ON)} = 4.4 m\Omega (typ.) @ V_{GS} = 10V$ 100% UIS Tested 100% R_g Tested 
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NF:DFN5x6-8L



Marking:G100N10L



Absolute Maximum Ratings ($T_A = 25^\circ C$ Unless Otherwise Noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	$T_C = 25^\circ C$	A
		$T_C = 100^\circ C$	
Pulsed Drain Current ⁴	I_{DM}	380	A
Single Pulse Avalanche Energy ³	E_{AS}	205	mJ
Total Power Dissipation	P_D	$T_C = 25^\circ C$	113.6 W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction-to-Ambient ¹	$R_{\theta JA}$	58	$^\circ C/W$
Thermal Resistance from Junction-to-Case	$R_{\theta JC}$	1.1	$^\circ C/W$

TMG100N10LNF
N-Channel Enhancement Mosfet
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	100	-	-	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} =100V, V _{GS} = 0V	-	-	1	μA
	T _J =100°C			-	-	100	
Gate-Threshold Voltage		V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.8	2.5	V
Drain-Source on-Resistance ²		R _{DS(on)}	V _{GS} = 10V, I _D = 20A	-	4.4	6	mΩ
Dynamic Characteristics							
Input Capacitance		C _{iss}	V _{DS} = 50V, V _{GS} =0V, f =1MHz	-	3400	-	pF
Output Capacitance		C _{oss}		-	645	-	
Reverse Transfer Capacitance		C _{rss}		-	20	-	
Switching Characteristics							
Gate Resistance		R _g	V _{GS} = 0V, V _{DS} = 0V, f =1MHz	-	1.7	-	Ω
Total Gate Charge		Q _g	V _{GS} = 10V, V _{DS} = 50V, I _D =20A	-	75	-	nC
Gate-Source Charge		Q _{gs}		-	17	-	
Gate-Drain Charge		Q _{gd}		-	13	-	
Turn-on Delay Time		t _{d(on)}	V _{GS} =10V, V _{DS} =50V, R _G = 3Ω, I _D = 20A	-	15.4	-	ns
Rise Time		t _r		-	13	-	
Turn-off Delay Time		t _{d(off)}		-	34	-	
Fall Time		t _f		-	6.2	-	
Drain-Source Body Diode Characteristics							
Diode Forward Voltage ²		V _{SD}	I _F = 20A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current ^{1,5}		I _s	V _G =V _D =0V , Force Current	-	-	100	A
Body Diode Reverse Recovery Time		t _{rr}	I _F = 20A, dI/dt=100A/μs	-	55	-	ns
Body Diode Reverse Recovery Charge		Q _{rr}		-	101	-	nC

Notes:

Repetitive rating, pulse width limited by junction temperature T_{J(MAX)}=150°C.

The EAS data shows Max. rating. The test condition is V_{DD}=25V, V_{GS}=10V, L=0.4mH, I_{AS}=40A

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.

The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%.

This value is guaranteed by design hence it is not included in the production test..



Typical Characteristics

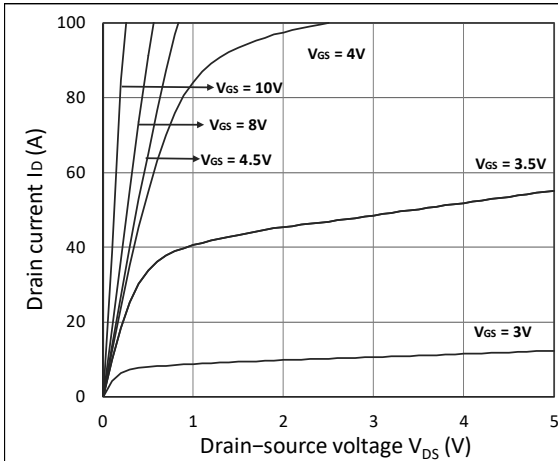


Figure 1. Output Characteristics

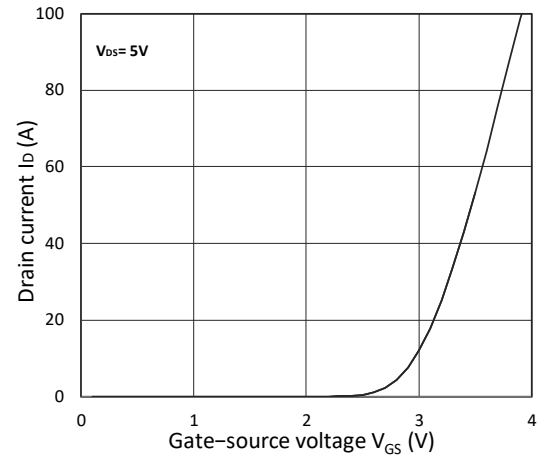


Figure 2. Transfer Characteristics

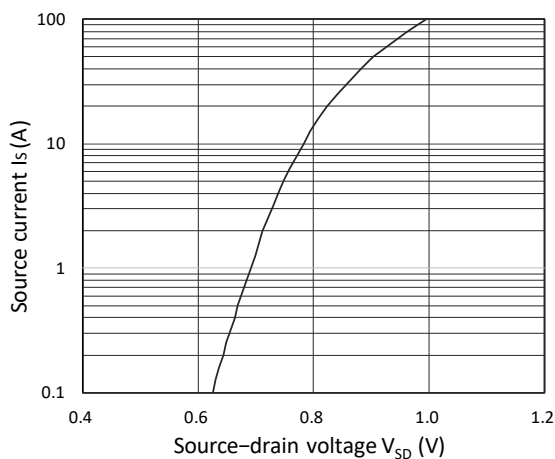
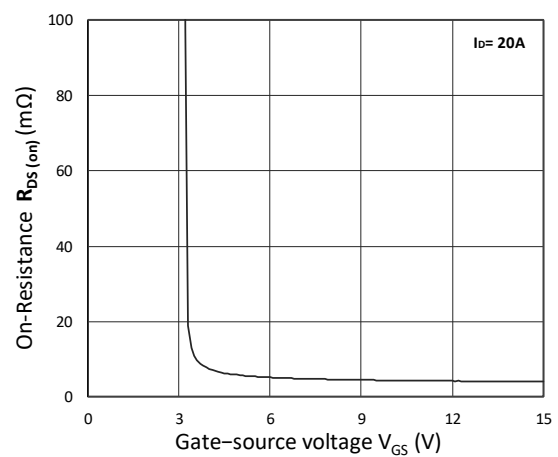
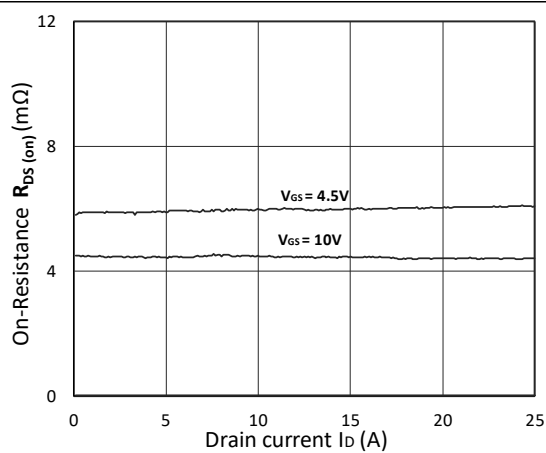
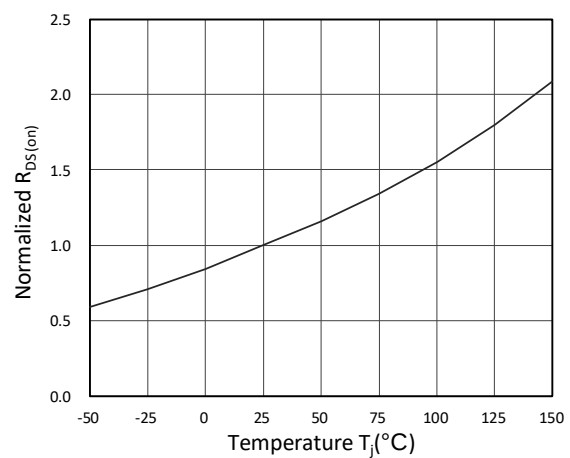


Figure 3. Forward Characteristics of Reverse

Figure 4. $R_{DS(on)}$ vs. V_{GS} Figure 5. $R_{DS(on)}$ vs. I_D Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

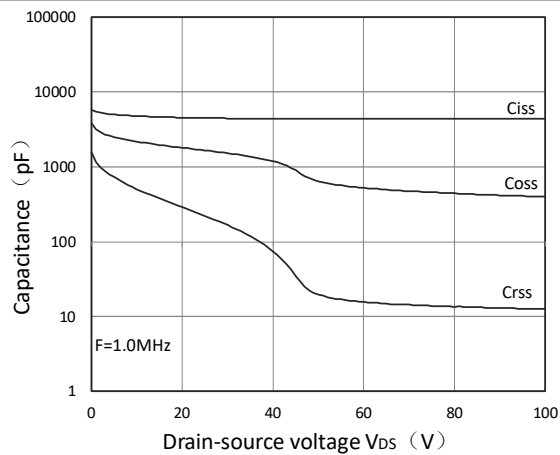


Figure 7. Capacitance Characteristics

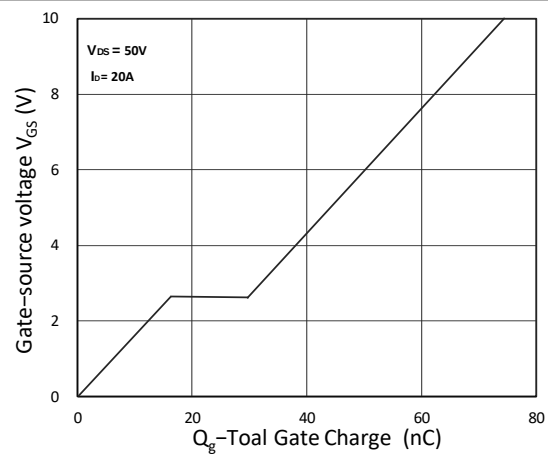


Figure 8. Gate Charge Characteristics

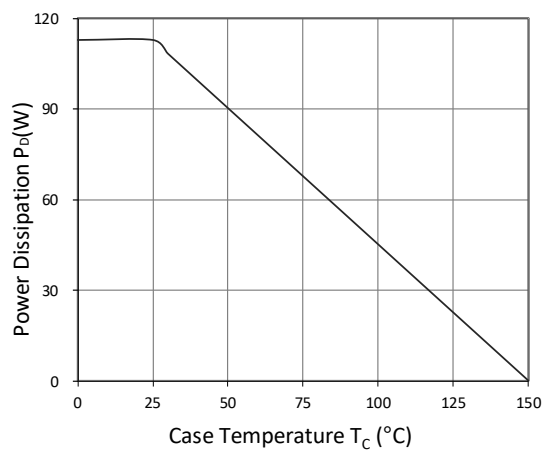


Figure 9. Power Dissipation

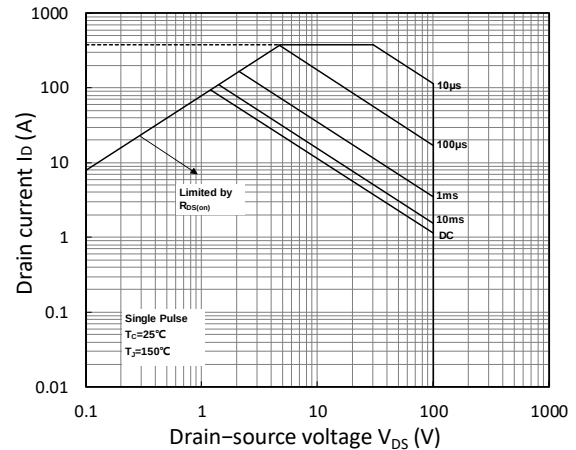


Figure 10. Safe Operating Area

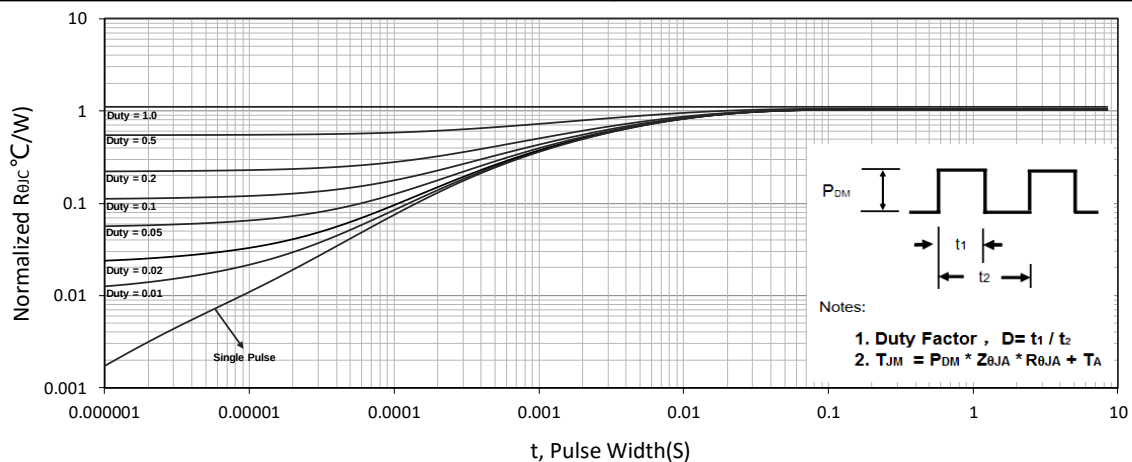


Figure 11. Normalized Maximum Transient Thermal Impedance

Test circuits and waveforms

Test Circuit

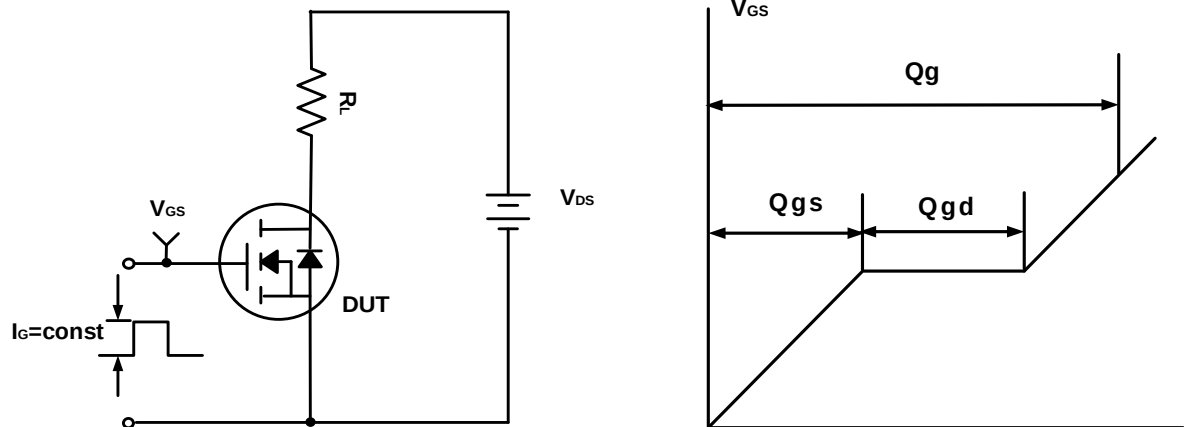


Figure A. Gate Charge Test Circuit & Waveforms

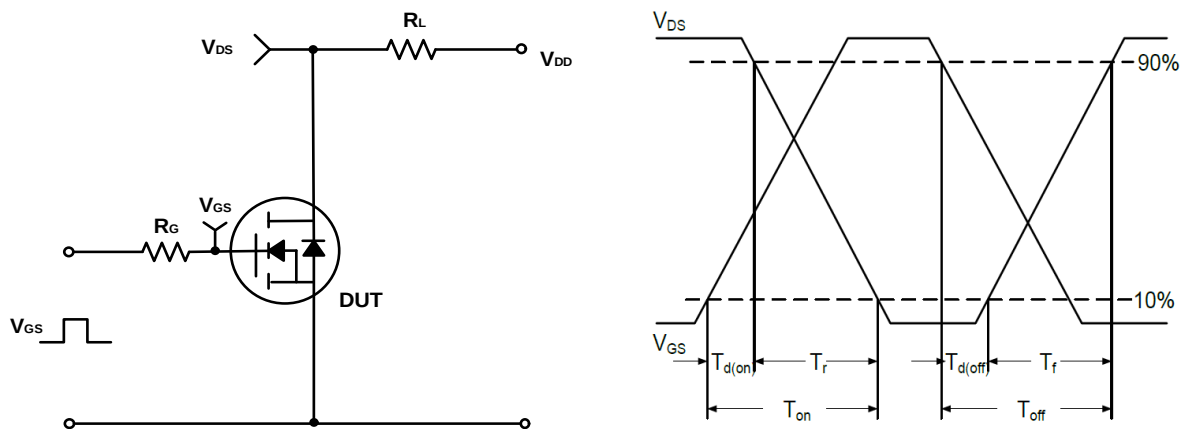


Figure B. Switching Test Circuit & Waveforms

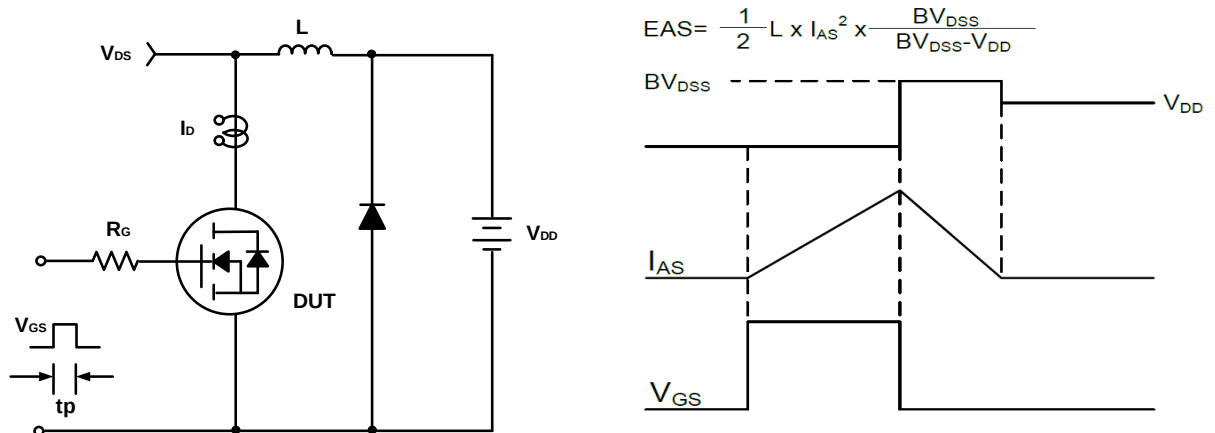
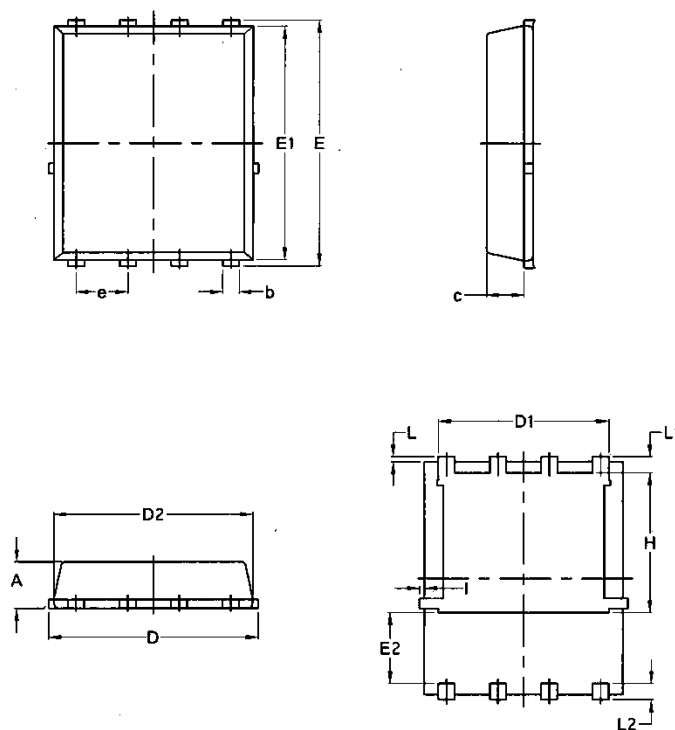


Figure C. Unclamped Inductive Switching Circuit & Waveforms

Package Mechanical Data:DFN5x6-8L



Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070