TMG100N10LNF

N -Channel Enhancement Mosfet

General Description

- Low $R_{DS(ON)}$
- RoHS and Halogen-Free Compliant

Applications

- Load switch
- PWM

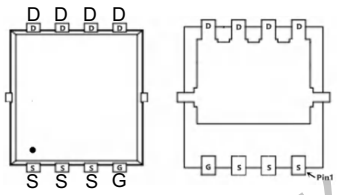
General Features

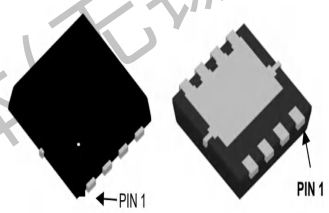
V_{DS} = 100V I_D =100A

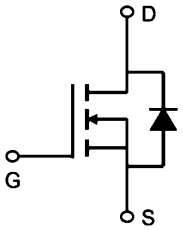
$R_{DS(ON)}$= 4.4 mΩ(typ.)@V_{GS}=10V

100% UIS Tested
100% R_g Tested

NF:DFN5x6-8L







Marking:G100N10L

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	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	60	A
I_{DM}	Pulsed Drain Current	380	A
EAS	Single Pulse Avalanche Energy	205	mJ
P_D@T_C=25℃	Total Power Dissipation	113.6	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	3.6	℃/W

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	1.0	1.5	2.0	V
Drain-Source on-Resistance[2]		$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	-	4.4	6	mΩ
			VGS=4.5V, I_D=10A	-	5.2	6.8	
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

Typical Characteristics

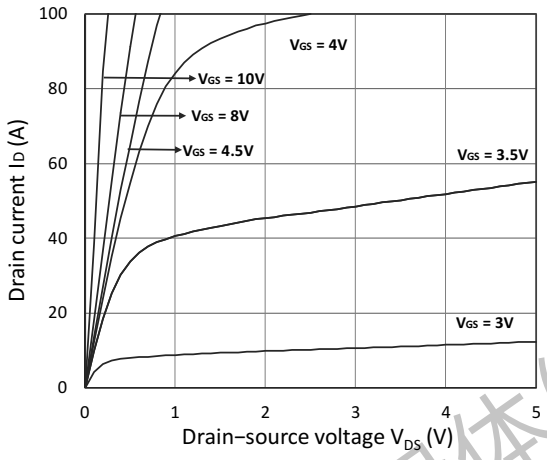


Figure 1. Output Characteristics

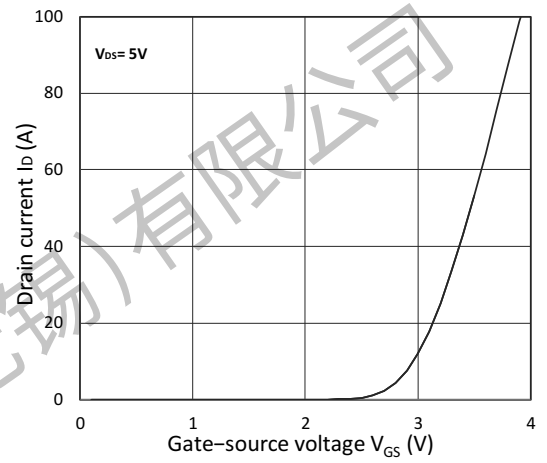


Figure 2. Transfer Characteristics

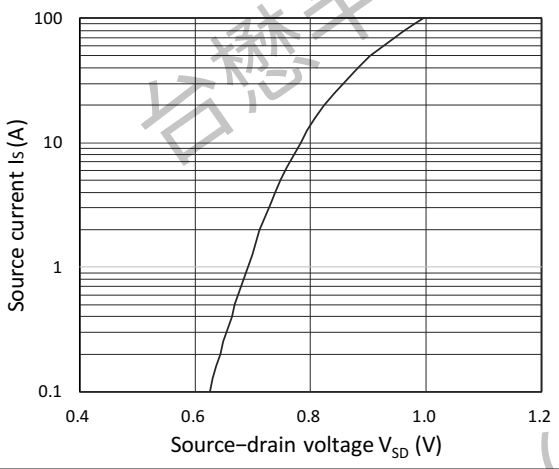


Figure 3. Forward Characteristics of Reverse

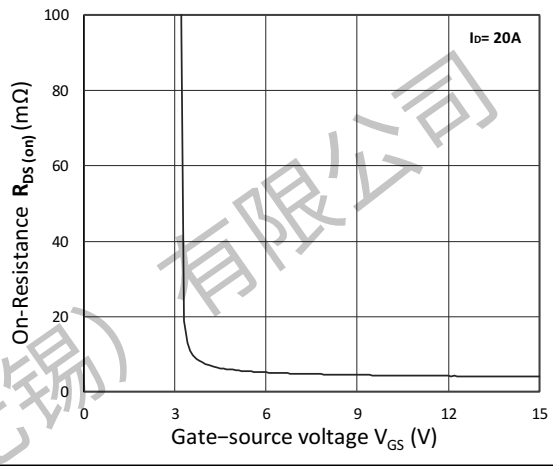


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

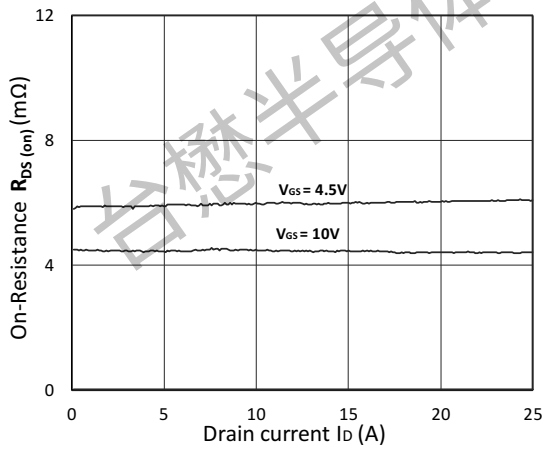


Figure 5. $R_{DS(ON)}$ vs. I_D

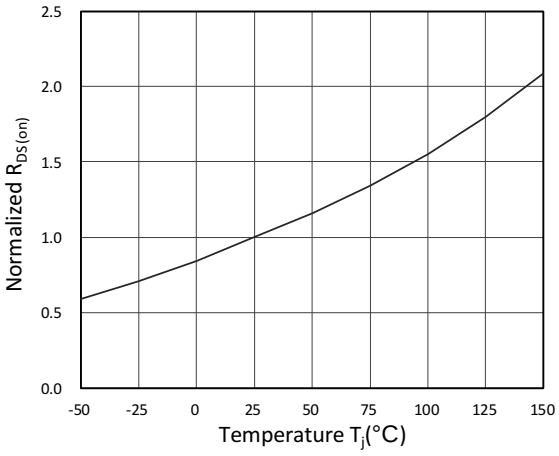


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

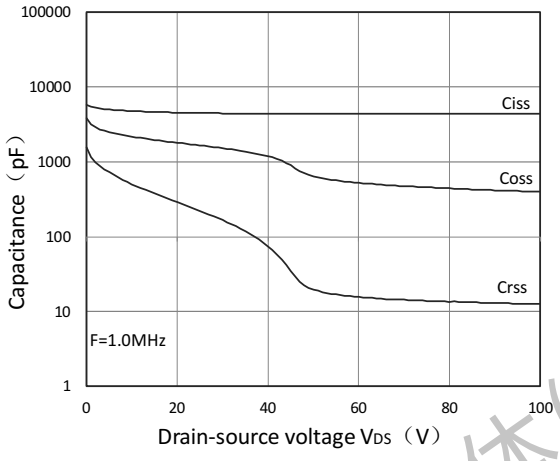


Figure 7. Capacitance Characteristics

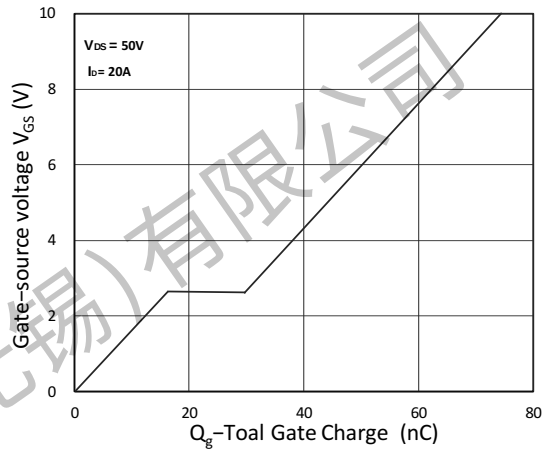


Figure 8. Gate Charge Characteristics

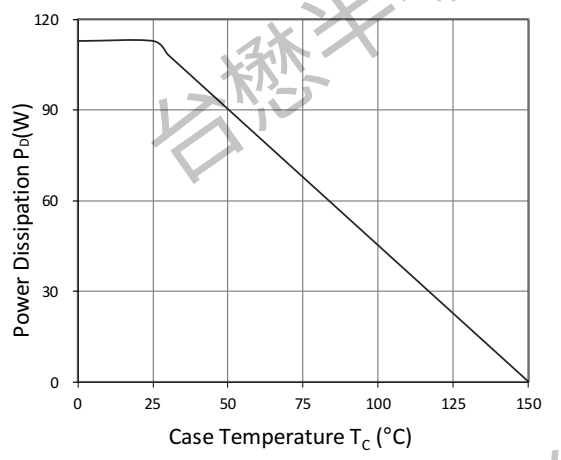


Figure 9. Power Dissipation

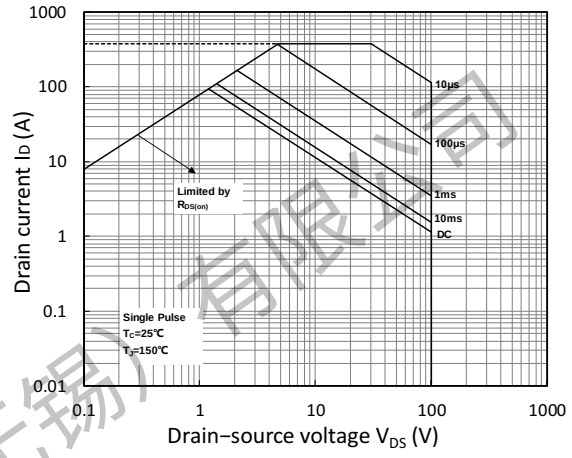


Figure10. Safe Operating Area

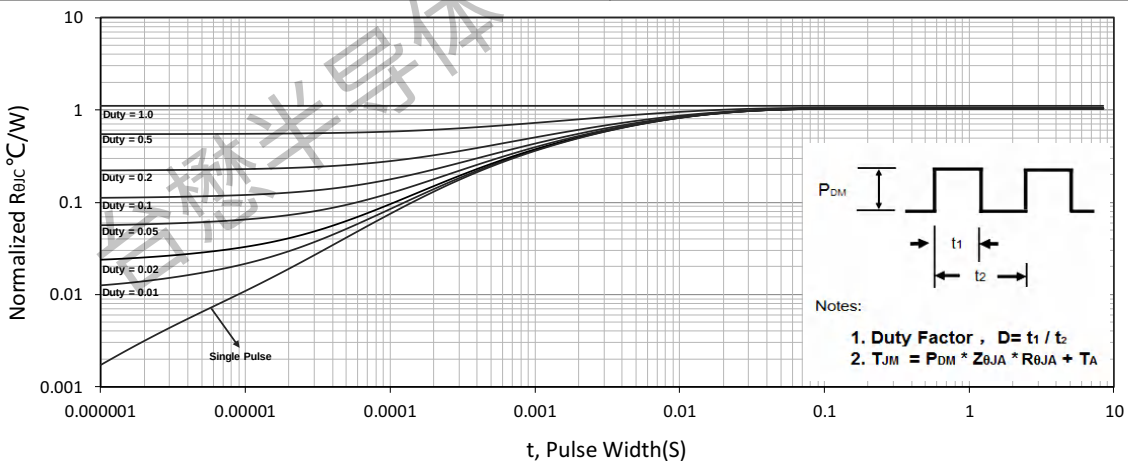
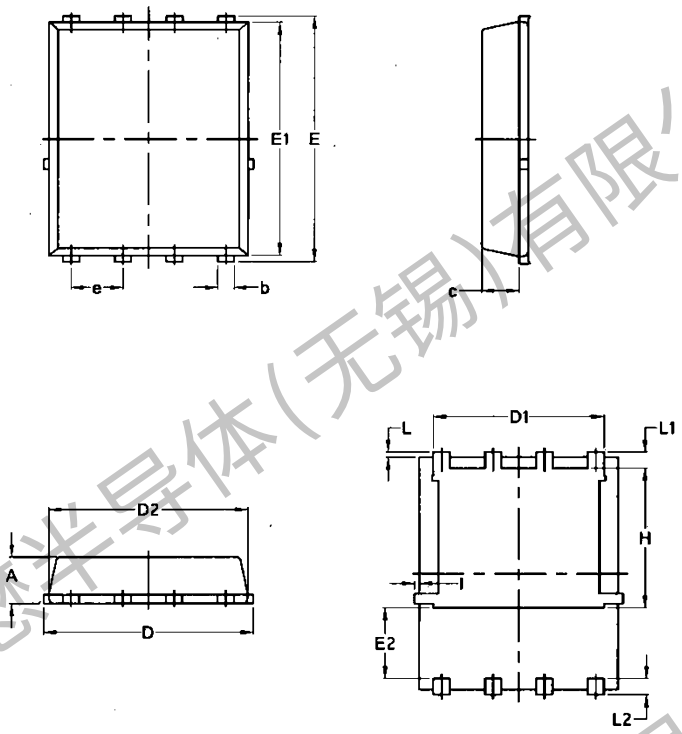


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Mechanical Data:DFN5x6-8L

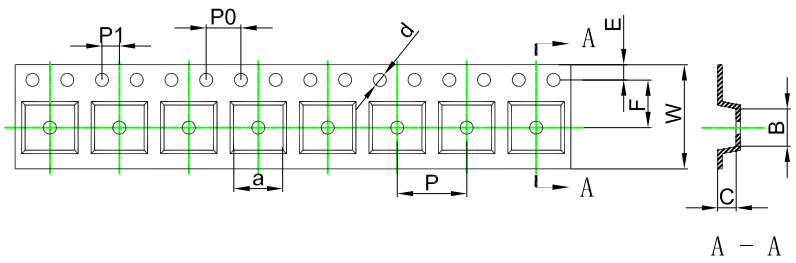


Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	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

TMG100N10LNF

N -Channel Enhancement Mosfet

PDFN5×6-8L Embossed Carrier Tape



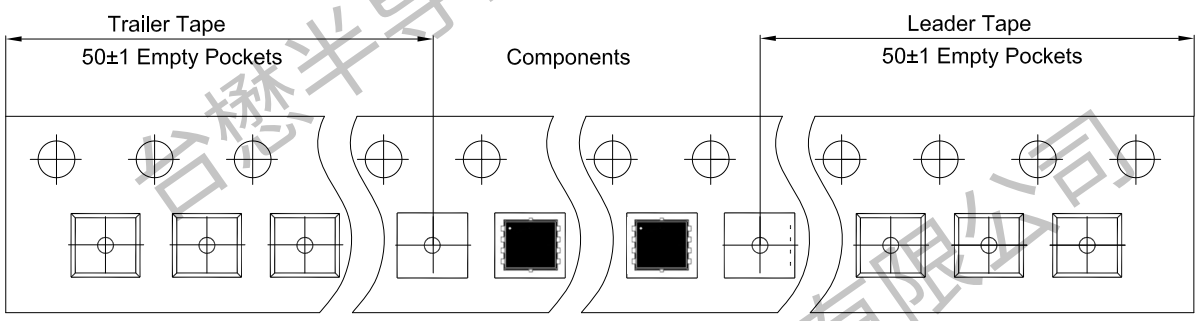
Packaging Description:

SOP-8L parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 2,500 units per 13" or 33cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

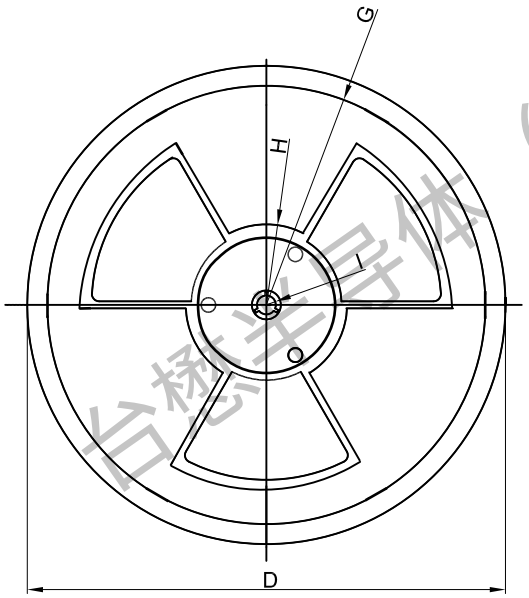
ALL DIM IN mm

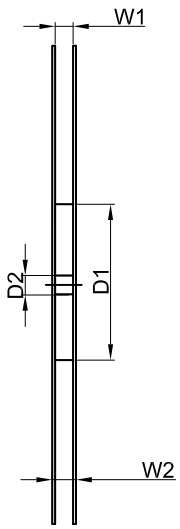
Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
PDFN5×6-8L	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN5×6-8L Tape Leader and Trailer



PDFN5×6-8L Reel





Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13"Dia	Ø330.00	100.00	13.00	R135.00	R55.00	R6.50	12.00	14.00

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
5,000 pcs	13 inch	10,000 pcs	370×355×52	50,000 pcs	400×360×368	

Important Notices and Disclaimers

- Tritech-MOS Technology Corp.reserves the right to change thisdocument, its products, and specifications at any time without prior notice.
- Before final design, purchase, or use, customers should obtain and confirm the latest product information and specifications.

- Tritech-MOS Technology Corp. makes no warranties, representations or warranties regarding the suitability of its products for any specific purpose, and Tritech-MOS Technology Corp. does not assume any responsibility for application assistance or customer product design.

- Tritech-MOS Technology Corp. does not guarantee or assume any responsibility for the purchase or use of any unexpected or unauthorized products.
- Any intellectual property rights of Tritech-MOS Technology Corp. are not licensed through implicate or other means.

- Products of Tritech-MOS Technology Corp. are not included as critical components in life support equipment or systems without explicit written approval from Tritech-MOS Technology Corp.

Revision history:

Date	Rev	Description	Page
2024.06.07	24.06	Original	