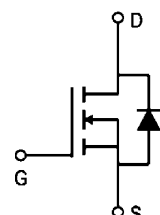
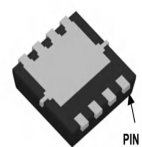
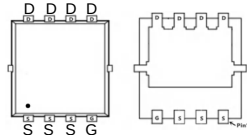


TMG100N10HNF

N-Channel Enhancement Mosfet

General Description • Low $R_{DS(ON)}$ • RoHS and Halogen-Free Compliant Applications • Load switch • PWM	General Features $V_{DS} = 100V$ $I_D = 100A$ $R_{DS(ON)} = 4.6m\Omega (typ.) @ V_{GS} = 10V$ 100% UIS Tested 100% R_g Tested 																																								
NF:DFN5x6-8L  Marking:G100N10																																									
Absolute Maximum Ratings ($T_C = 25^{\circ}C$ unless otherwise noted) <table><tr><th>Symbol</th><th>Parameter</th><th>Rating</th><th>Units</th></tr><tr><td>V_{DS}</td><td>Drain-Source Voltage</td><td>100</td><td>V</td></tr><tr><td>V_{GS}</td><td>Gate-Source Voltage</td><td>± 20</td><td>V</td></tr><tr><td>$I_D @ T_C = 25^{\circ}C$</td><td>Continuous Drain Current, $V_{GS} @ 10V$</td><td>100</td><td>A</td></tr><tr><td>$I_D @ T_C = 100^{\circ}C$</td><td>Continuous Drain Current, $V_{GS} @ 10V$</td><td>60</td><td>A</td></tr><tr><td>I_{DM}</td><td>Pulsed Drain Current</td><td>380</td><td>A</td></tr><tr><td>EAS</td><td>Single Pulse Avalanche Energy</td><td>245</td><td>mJ</td></tr><tr><td>$P_D @ T_C = 25^{\circ}C$</td><td>Total Power Dissipation</td><td>113.6</td><td>W</td></tr><tr><td>T_{STG}</td><td>Storage Temperature Range</td><td>-55 to 175</td><td>$^{\circ}C$</td></tr><tr><td>T_J</td><td>Operating Junction Temperature Range</td><td>-55 to 175</td><td>$^{\circ}C$</td></tr></table>		Symbol	Parameter	Rating	Units	V_{DS}	Drain-Source Voltage	100	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, $V_{GS} @ 10V$	60	A	I_{DM}	Pulsed Drain Current	380	A	EAS	Single Pulse Avalanche Energy	245	mJ	$P_D @ T_C = 25^{\circ}C$	Total Power Dissipation	113.6	W	T_{STG}	Storage Temperature Range	-55 to 175	$^{\circ}C$	T_J	Operating Junction Temperature Range	-55 to 175	$^{\circ}C$
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Thermal Data <table><tr><th>Symbol</th><th>Parameter</th><th>Typ.</th><th>Max.</th><th>Unit</th></tr><tr><td>$R_{\theta JA}$</td><td>Thermal Resistance Junction-Ambient</td><td>---</td><td>60</td><td>$^{\circ}C/W$</td></tr><tr><td>$R_{\theta JC}$</td><td>Thermal Resistance Junction-Case</td><td>---</td><td>1.1</td><td>$^{\circ}C/W$</td></tr></table>		Symbol	Parameter	Typ.	Max.	Unit	$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	60	$^{\circ}C/W$	$R_{\theta JC}$	Thermal Resistance Junction-Case	---	1.1	$^{\circ}C/W$																									
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TMG100N10HNF

N-Channel Enhancement Mosfet

Electrical Characteristics ($T_J = 25^\circ\text{C}$, 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	2	3	4	V
Drain-Source on-Resistance		R _{DS(on)}	V _{GS} = 10V, I _D = 20A	-	4.6	6	mΩ
Forward Transconductance		g _{fs}	V _{DS} =10V, I _D =20A	-	58	-	S
Dynamic Characteristics							
Input Capacitance		C _{iss}	V _{DS} = 50V, V _{GS} =0V, f =1MHz	-	5518	-	pF
Output Capacitance		C _{oss}		-	655	-	
Reverse Transfer Capacitance		C _{rss}		-	23	-	
Switching Characteristics							
Gate Resistance		R _g	V _{GS} = 0V, V _{DS} = 0V, f =1MHz	-	1.4	-	Ω
Total Gate Charge		Q _g	V _{GS} = 10V, V _{DS} = 50V, I _D =20A	-	81.8	-	nC
Gate-Source Charge		Q _{gs}		-	23.5	-	
Gate-Drain Charge		Q _{gd}		-	22.5	-	
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		V _{SD}	I _F = 20A, V _{GS} = 0V	-	-	1.2	V
Continuous Source Current		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

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N-Channel Enhancement Mosfet

Typical Characteristics

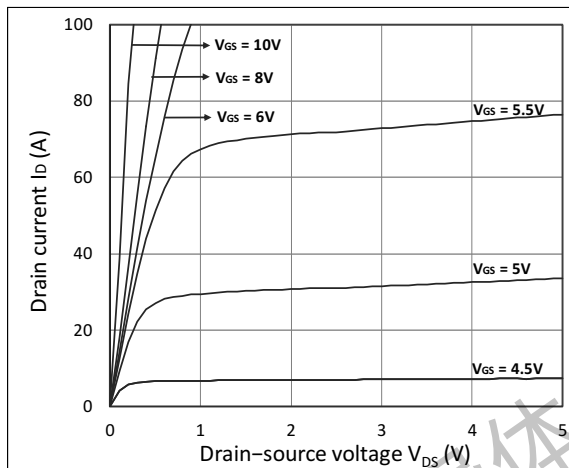


Figure 1. Output Characteristics

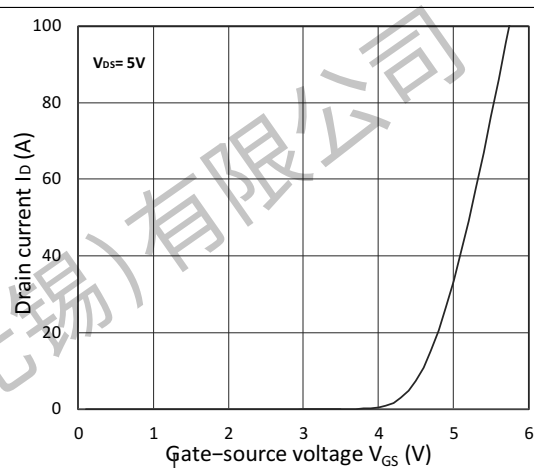


Figure 2. Transfer Characteristics

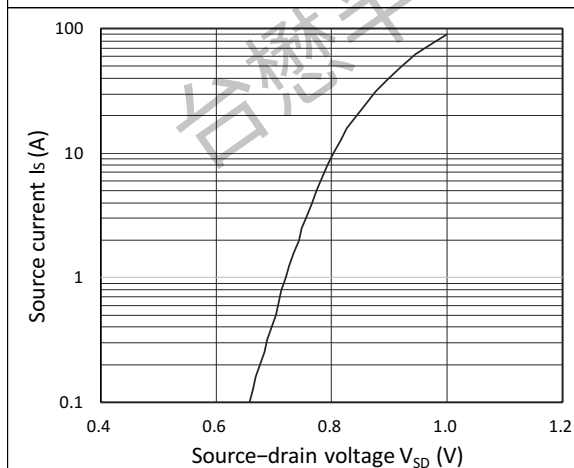


Figure 3. Forward Characteristics of Reverse

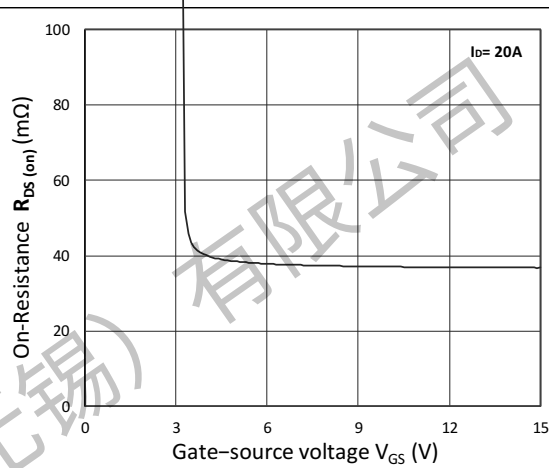


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

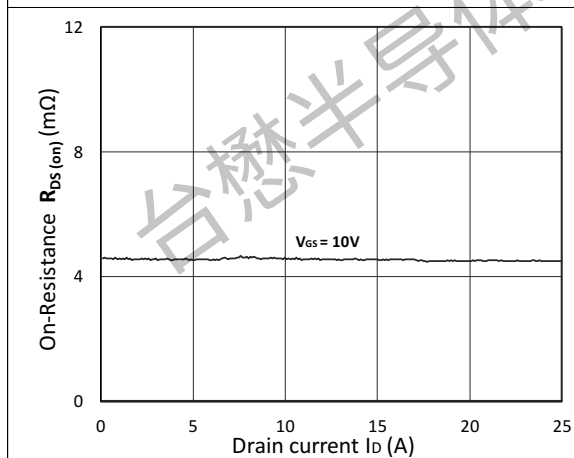


Figure 5. $R_{DS(ON)}$ vs. I_D

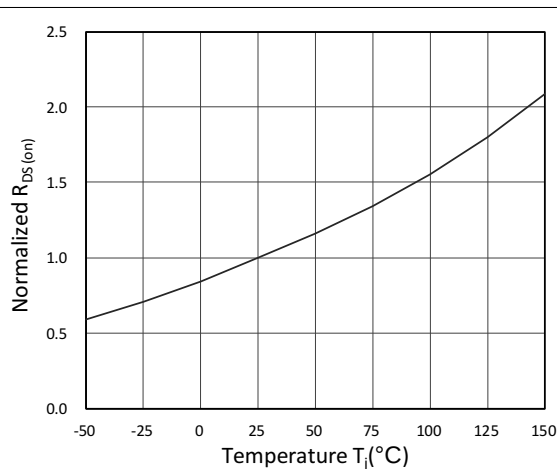


Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

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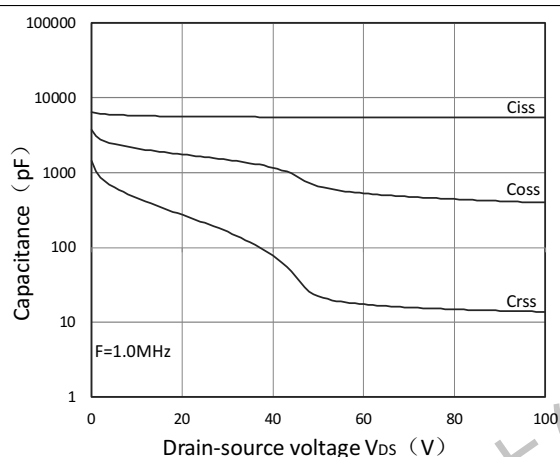


Figure 7. Capacitance Characteristics

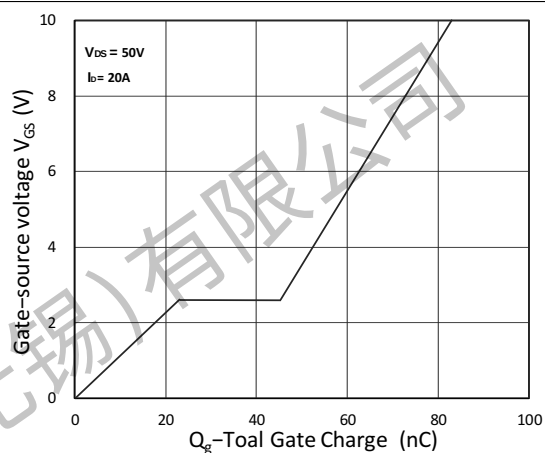


Figure 8. Gate Charge Characteristics

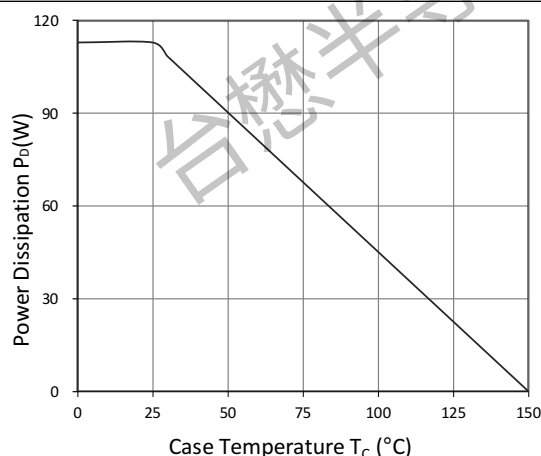


Figure 9. Power Dissipation

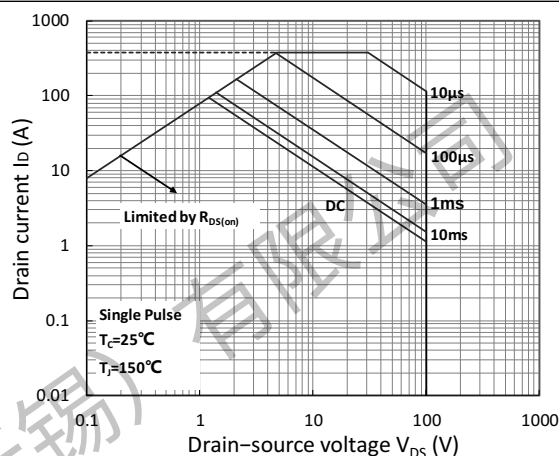


Figure 10. Safe Operating Area

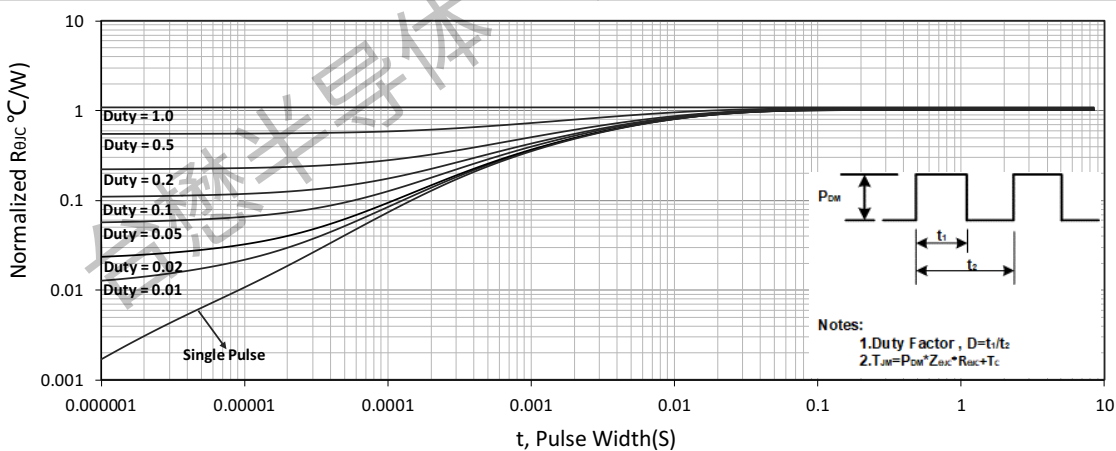
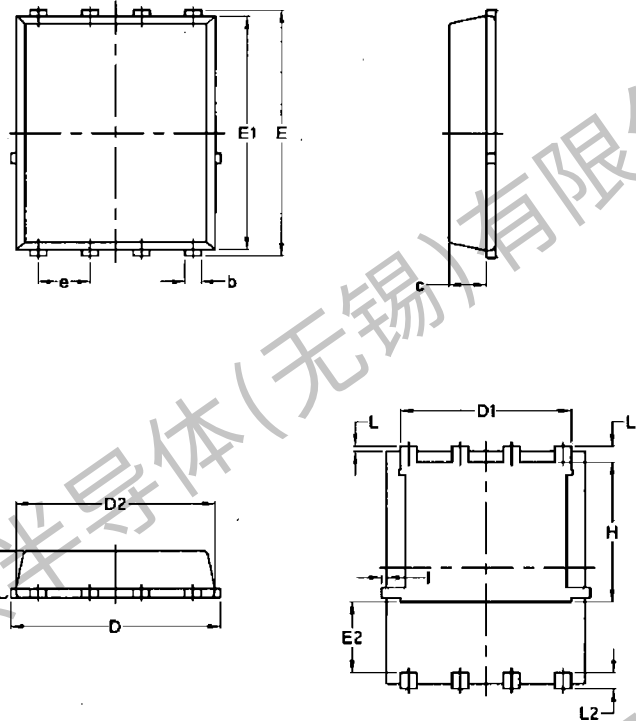


Figure 11. Normalized Maximum Transient Thermal Impedance

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N-Channel Enhancement Mosfet

Package Mechanical Data:DFN5x6-8L

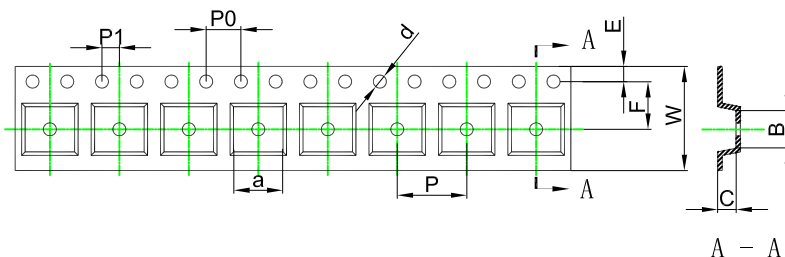


Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L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

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PDFN5×6-8L Embossed Carrier Tape



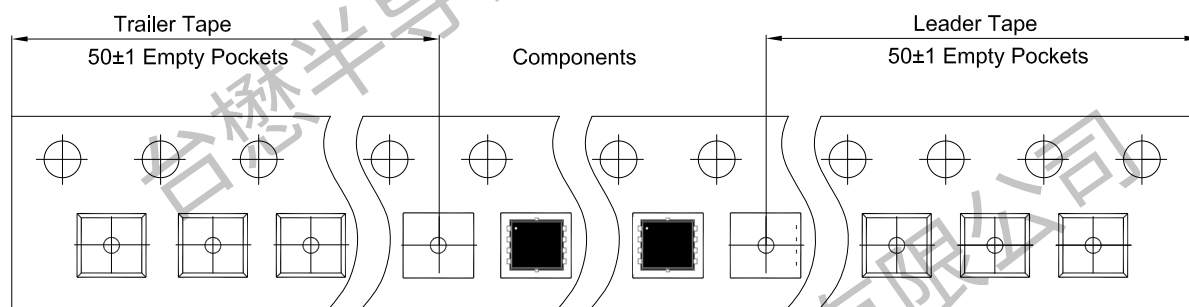
Packaging Description:

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).

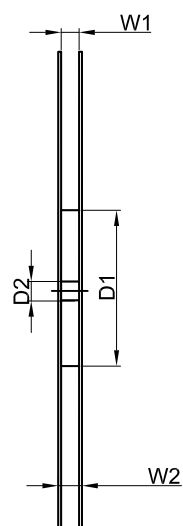
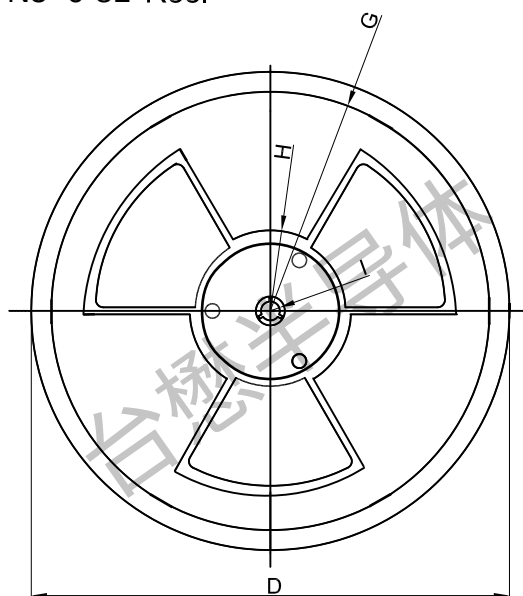
ALL DIM IN mm

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	

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Revision history:

Date	Rev	Description	Page
2023.09.19	23.09	Original	