TMG25H06DF

N+N-Channel Enhancement Mosfet

General Description

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

Applications

- Load switch
- PWM

General Features

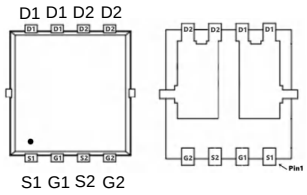
V_{DS} = 60V I_D=25A

$R_{DS(ON)}$ =11 mΩ(Typ.) @ V_{GS}=10V

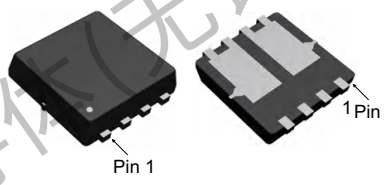
100% UIS Tested

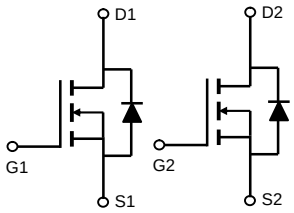
100% R_g Tested

Green Product



DF:DFN3x3-8L





Marking:25V06

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

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current, V_{GS} @ 10V	25	A
I_D@T_C=100℃	Continuous Drain Current, V_{GS} @ 10V	18	A
I_{DM}	Pulsed Drain Current	136	A
EAS	Single Pulse Avalanche Energy	33.8	mJ
I_{AS}	Avalanche Current	---	A
P_D@T_C=25℃	Total Power Dissipation	27	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	---	55	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-Case	---	4.6	℃/W

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Electrical Characteristics (T_J=25 ℃, 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	60	-	-	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} = 65V, V_{GS} = 0V	-	-	1	μA
	T_J=100°C			-	-	100	
Gate-Threshold Voltage		$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250ÿA	1.0	2.0	3.0	V
Drain-Source on-Resistance		$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	-	11	15	mΩ
			V_{GS} = 4.5V, I_D = 10A	-	14	21	
Forward Transconductance		g_{fs}	V_{DS} = 10V, I_D = 20A	-	42	-	S
Dynamic Characteristics							
Input Capacitance		C_{iss}	V_{DS} = 30V, V_{GS} =0V, f =1MHz	-	738	-	pF
Output Capacitance		C_{oss}		-	225	-	
Reverse Transfer Capacitance		C_{rss}		-	13.5	-	
Gate Resistance		R_G	f =1MHz	-	1.2	-	Ω
Switching Characteristics							
Total Gate Charge		Q_g	V_{GS} = 10V, V_{DS} = 30V, I_D= 20A	-	14	-	nC
Gate-Source Charge		Q_{gs}		-	2.6	-	
Gate-Drain Charge		Q_{gd}		-	2.9	-	
Turn-on Delay Time		$t_{d(on)}$	V_{GS} =10V, V_{DD}= 30V, R_G = 3Ω, I_D= 20A	-	5.7	-	ns
Rise Time		t_r		-	5.1	-	
Turn-off Delay Time		$t_{d(off)}$		-	14.8	-	
Fall Time		t_f		-	4.6	-	
Body Diode Reverse Recovery Time		t_{rr}	I_F = 20A, dI/dt = 100A/μs	-	24	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}		-	9.6	-	nC
Drain-Source Body Diode Characteristics							
Diode Forward Voltage		V_{SD}	I_S = 20A, V_{GS} = 0V	-	-	1.2	V
Continuous Source Current	T_C=25°C	I_S	-	-	-	25	A

Typical Characteristics

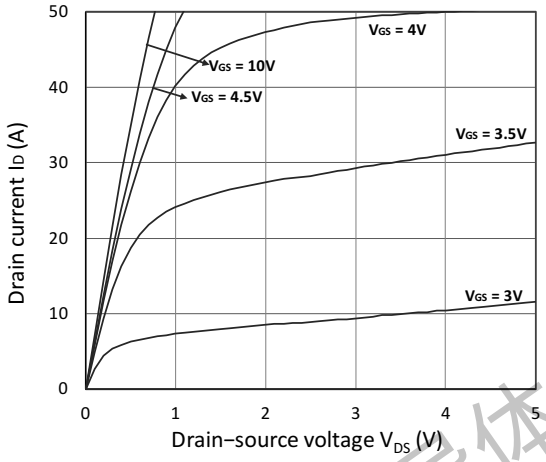


Figure 1. Output Characteristics

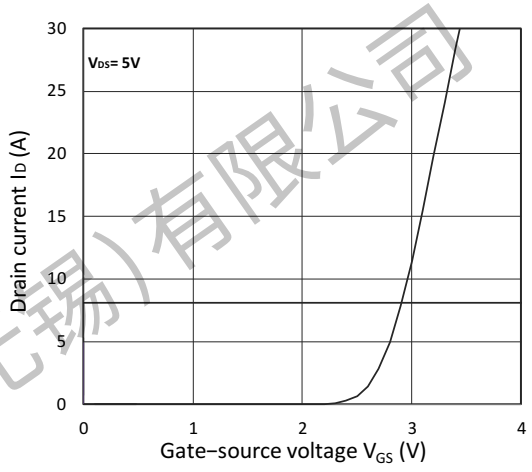


Figure 2. Transfer Characteristics

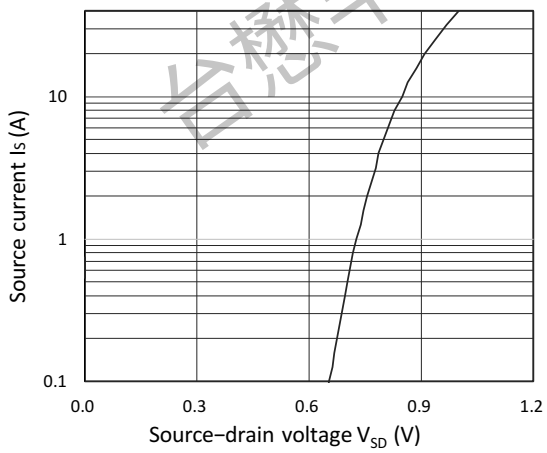


Figure 3. Forward Characteristics of Reverse

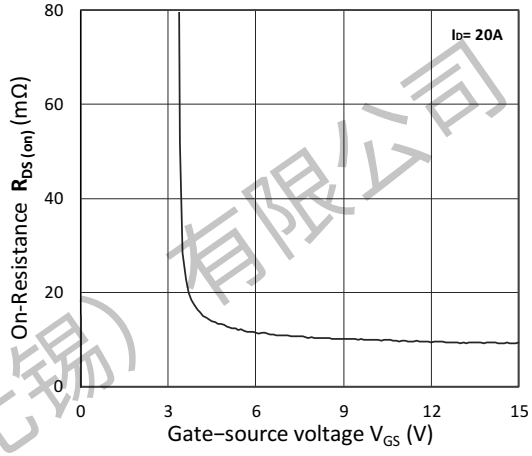


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

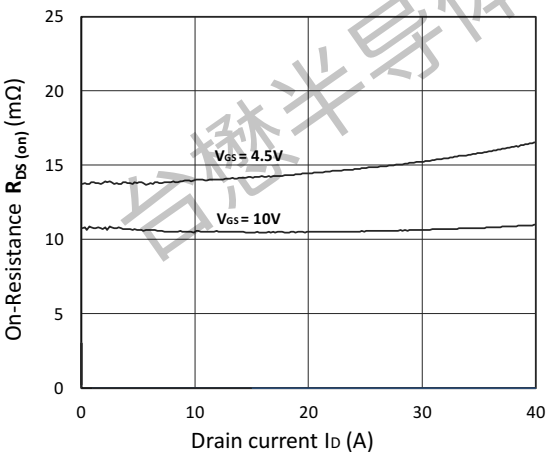


Figure 5. $R_{DS(ON)}$ vs. I_D

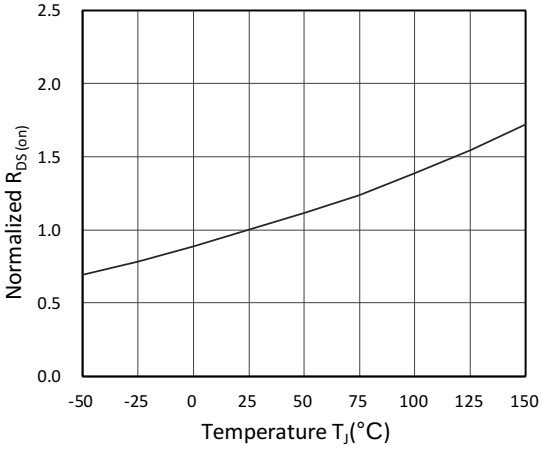


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

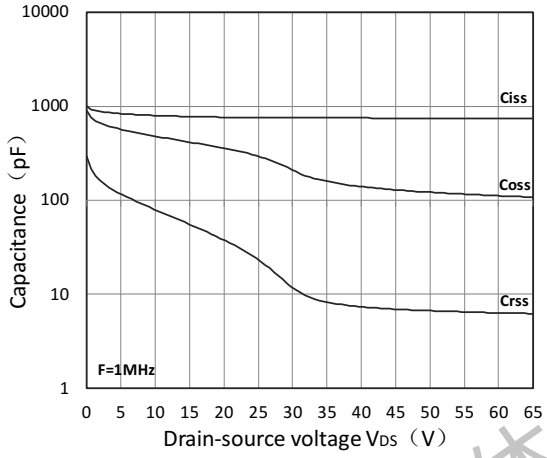


Figure 7. Capacitance Characteristics

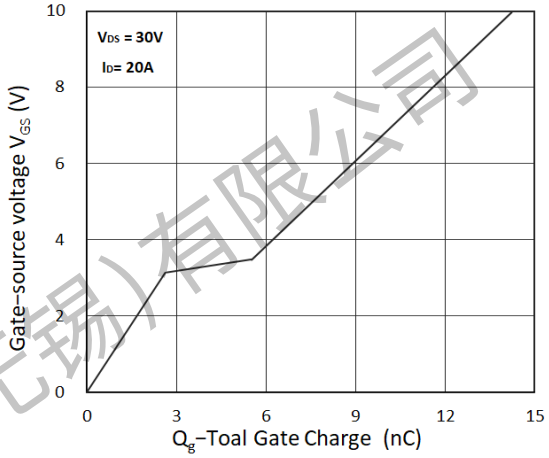


Figure 8. Gate Charge Characteristics

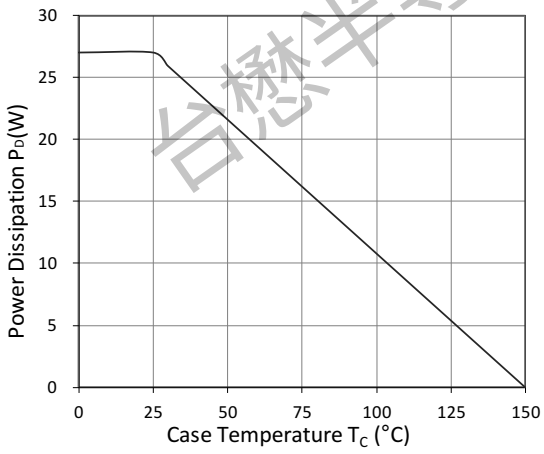


Figure 9. Power Dissipation

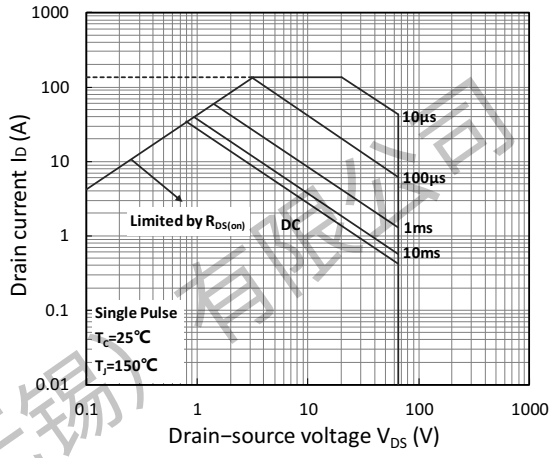


Figure10. Safe Operating Area

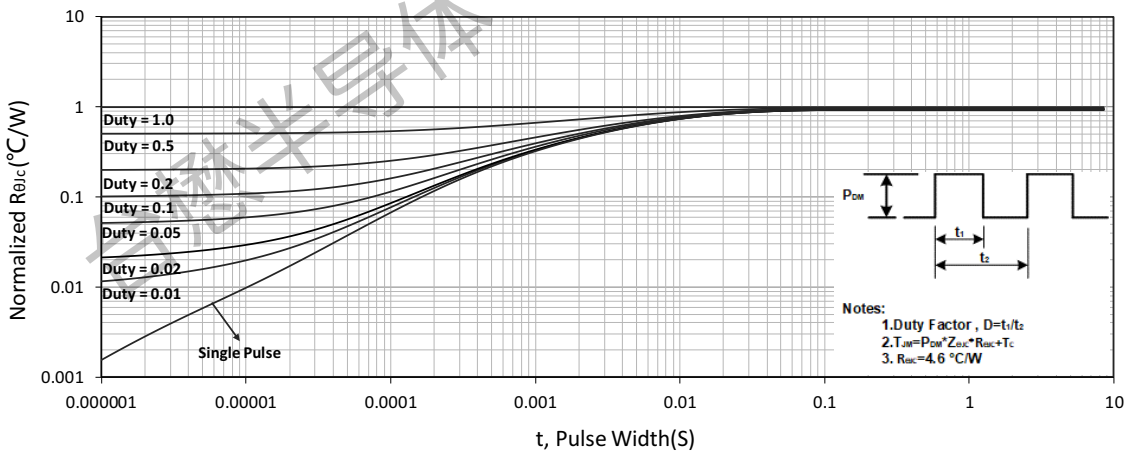
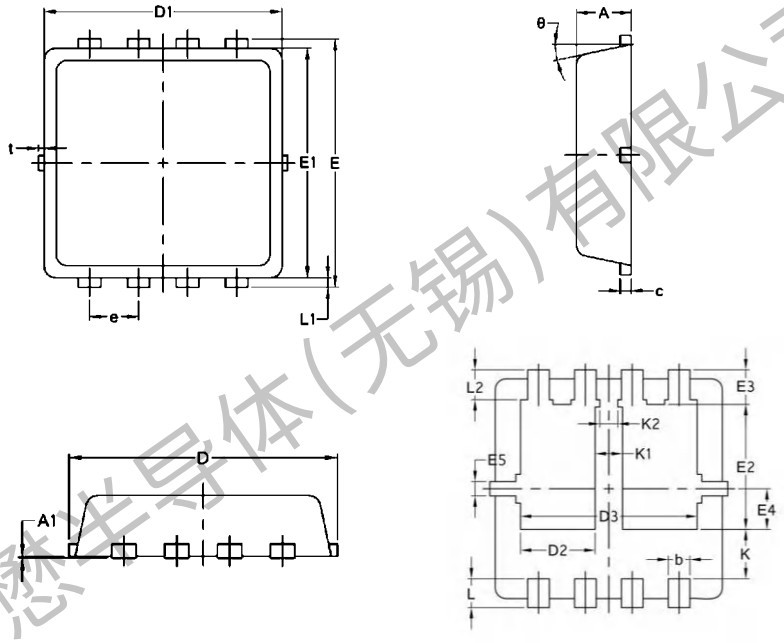


Figure 11. Normalized Maximum Transient Thermal Impedance

Package Mechanical Data:DFN3x3-8L



Symbol	Common		
	Mm		
	Min	Nom	Max
A	0.70	0.75	0.85
A1	/	/	0.05
b	0.25	0.30	0.39
c	0.14	0.152	0.20
D	3.20	3.30	3.45
D1	3.05	3.15	3.25
D2	0.84	1.04	1.24
D3	2.30	2.45	2.60
E	3.20	3.30	3.40
E1	2.95	3.05	3.15
E2	1.60	1.74	1.90
E3	0.28	0.48	0.65
E4	0.37	0.57	0.77
E5	0.10	0.20	0.30
e	0.60	0.65	0.70
K	0.50	0.69	0.80
K1	0.30	0.38	0.53
K2	0.15	0.25	0.35
L	0.30	0.40	0.50
L1	0.06	0.125	0.20
L2	0.27	0.42	0.57
t	0	0.075	0.13
Φ	10°	12°	14°

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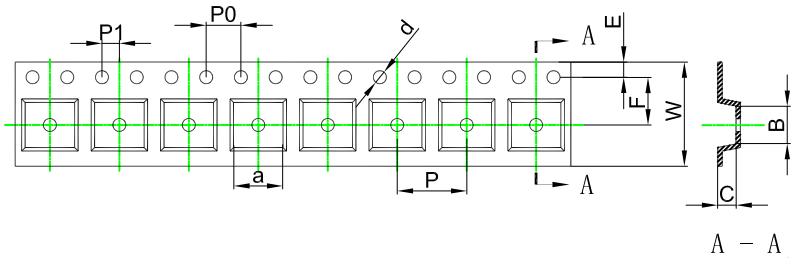
PDFN3×3-8L Embossed Carrier Tape



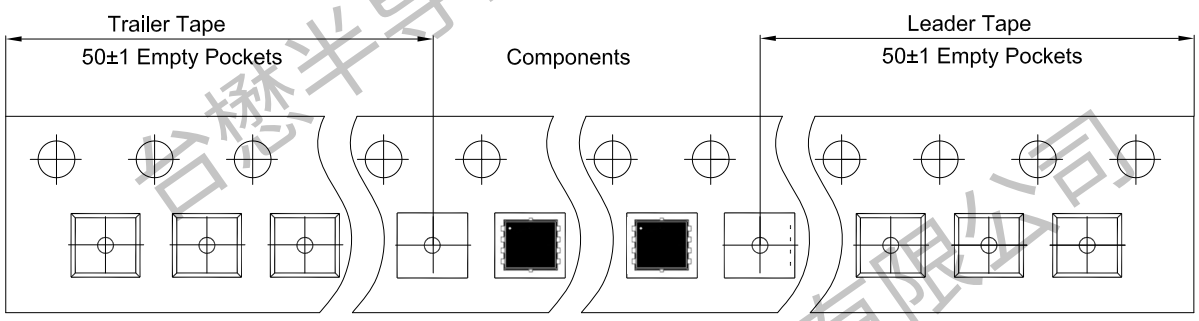
Packaging Description:

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).

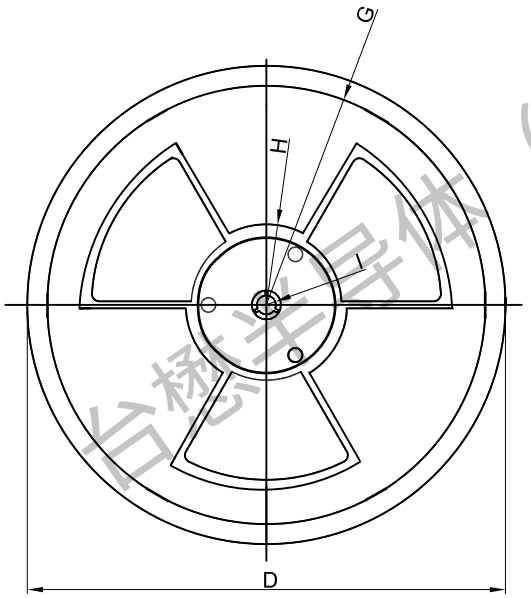
ALL DIM IN mm

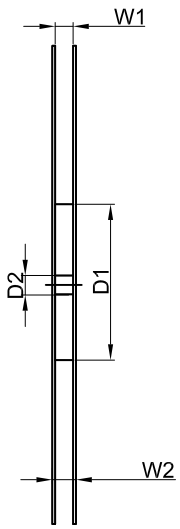
Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
PDFN3×3-8L	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

PDFN3×3-8L Tape Leader and Trailer



PDFN3×3-8L 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
2023.05.14	23.05	Original	