N-Channel Enhancement-Mode MOSFET (30V, 37 A)

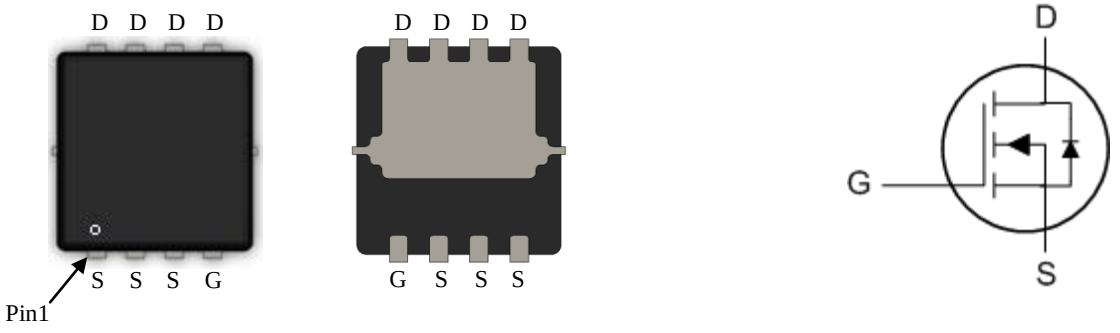
PRODUCT SUMMARY		
V_{DSS}	I_D	$R_{DS(on)}$ (mΩ) Max
30V	37A	16.5 @ V_{GS} = 4.5V,I_D=10A
		12 @ V_{GS} = 10V,I_D=15A

Features

- Super high dense cell trench design for low $R_{DS(on)}$.
- Green Device Available
- Advanced high cell density Trench technology
- Ordering information: GR7430 (Lead (Pb) - free and halogen-free)
- 100% EAS Guaranteed
- Super Low Gate Charge
- Excellent CdV/dt effect decline

RoHS+HF

PDFN3.3*3.3-8L



Absolute Maximum Ratings (T_A=25℃, unless otherwise noted)

Symbol	Parameter	Ratings	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	Continuous Drain Current [a] @T_C=25℃	37	A
I_D	Continuous Drain Current [a] @T_C=100℃	24	A
I_{DM}	Drain Current (Pulsed) [b]	75	A
E_{AS}	Single Pulse Avalanche Energy [c] @L=0.1mH	24.2	mJ
I_{AS}	Single Pulse Avalanche Current @L=0.1mH	22	A
P_D	Total Power Dissipation [d] @T_A=25℃	1.67	W
T_j, T_{stg}	Operating Junction and Storage Temperature Range	-55 to +150	℃
$R_{\theta JA}$	Thermal Resistance Junction to Ambient (Steady State) [a]	75	℃/W

Electrical Characteristics (T_A=25℃, unless otherwise noted)

Symbol	Characteristic	Test Conditions	Min.	Typ.	Max.	Unit
•Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250μA	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=24V, V_{GS}=0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
•On Characteristics [c]						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250μA	1.0	-	2.5	V
$R_{DS(on)}$	Drain-Source On-State Resistance [b]	V_{GS}=10V, I_D=15A	-	8.5	12	mΩ
		V_{GS}=4.5V, I_D=10A	-	12.5	16.5	
g_{fs}	Forward Transconductance	V_{DS}=5V, I_D=15A	-	24.4	-	S
•Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, f=1MHz	-	896	-	pF
C_{oss}	Output Capacitance		-	126	-	
C_{rss}	Reverse Transfer Capacitance		-	108	-	
•Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}=15V, I_D=12A, V_{GS}=4.5V	-	9.82	-	nC
Q_{gs}	Gate-Source Charge		-	2.24	-	
Q_{gd}	Gate-Drain Charge		-	5.54	-	
$t_{d(on)}$	Turn-on Delay Time	V_{DD}=15V, I_D=20A, V_{GS}=10V, R_G=1.5Ω	-	6.4	-	nS
t_r	[b] Turn-on Rise Time		-	39	-	
$t_{d(off)}$	Turn-off Delay Time		-	21	-	
t_f	Turn-off Fall Time		-	4.7	-	
•Drain-Source Diode Characteristics						
V_{SD}	Drain-Source Diode Forward Voltage [b]	V_{GS}=0V, I_S=-1.0A	-	-	1	V
I_S	Continuous Source Current [a,e]	V_G=V_D=0V , Force Current	-	-	37	A
I_{SM}	Pulsed Source Current [b,e]		-	-	75	

Note :
a. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
b. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
c. The E_{AS} data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=22A
d. The power dissipation is limited by 175℃ junction temperature
e. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Characteristics Curve

Figure.1 Output Characteristics

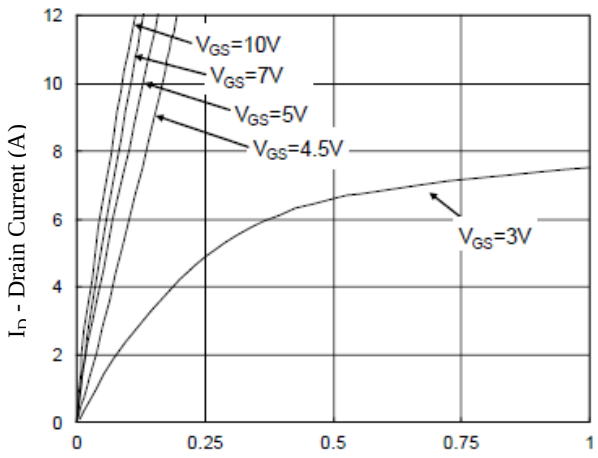


Figure.2 On Resistance vs Gate Source Voltage

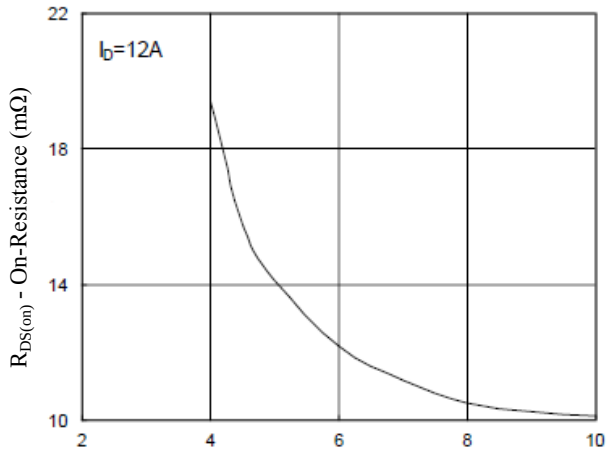


Figure.3 Forward Characteristics of Reverse

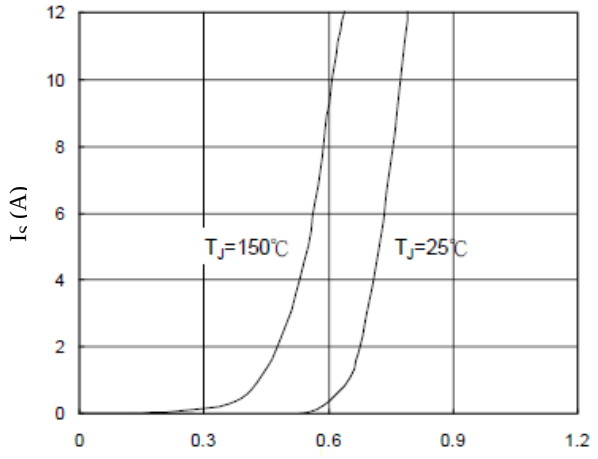


Figure.4 Gate Charge Characteristics

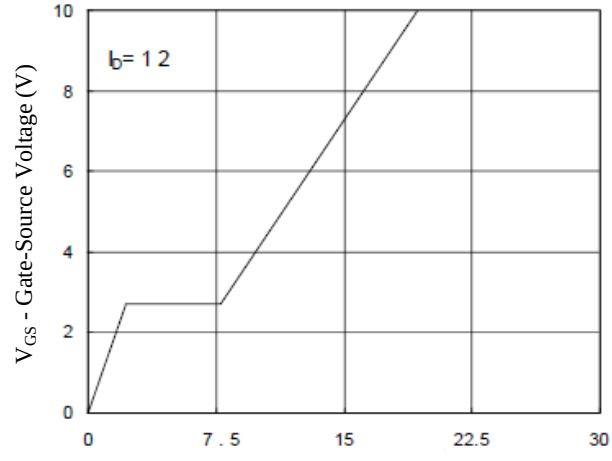


Figure.5 Normalized $V_{GS(th)}$ vs. T_J

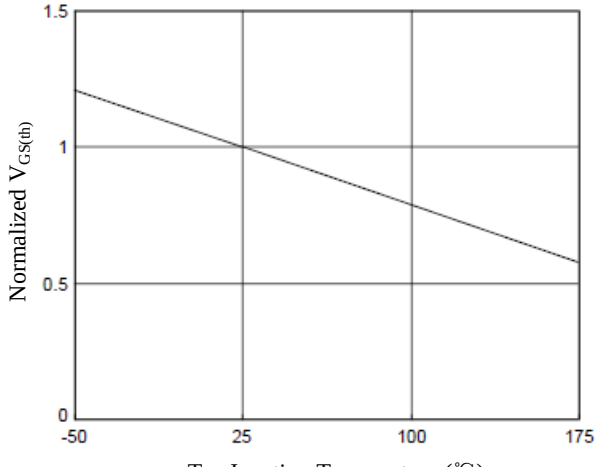
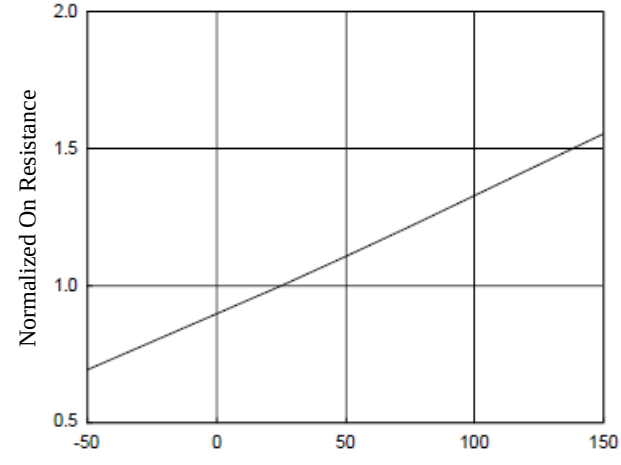


Figure.6 Normalized $R_{DS(on)}$ vs. T_J



Characteristics Curve

Figure.7 Capacitance

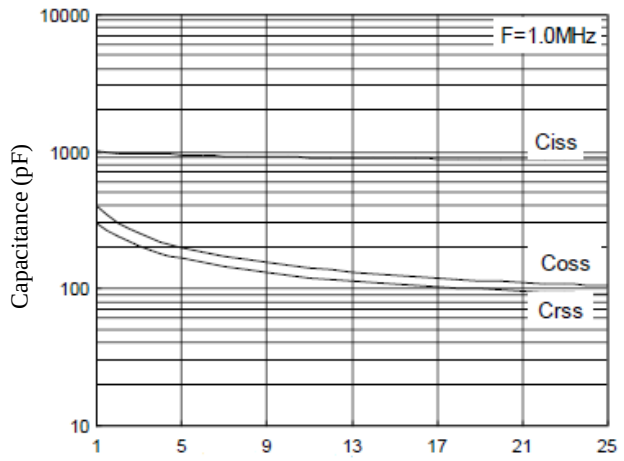


Figure.8 Safe Operating Area

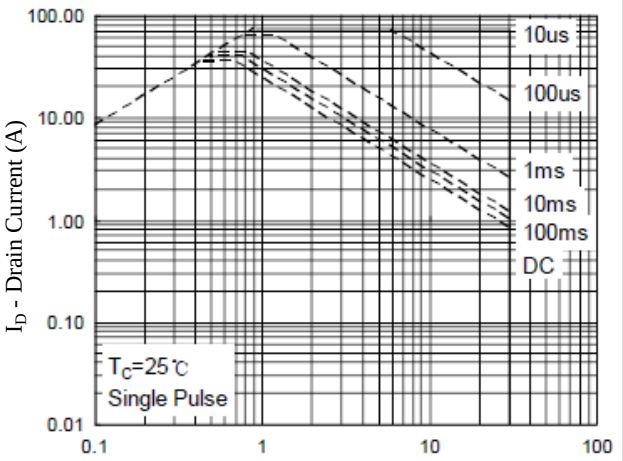
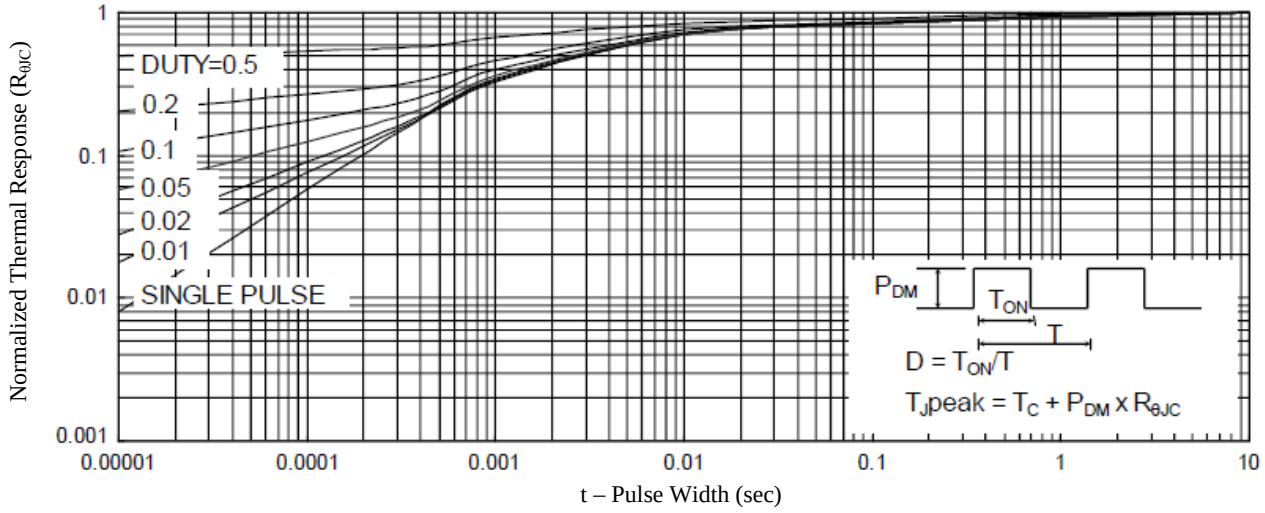


Figure.9 Normalized Maximum Transient Thermal Impedance



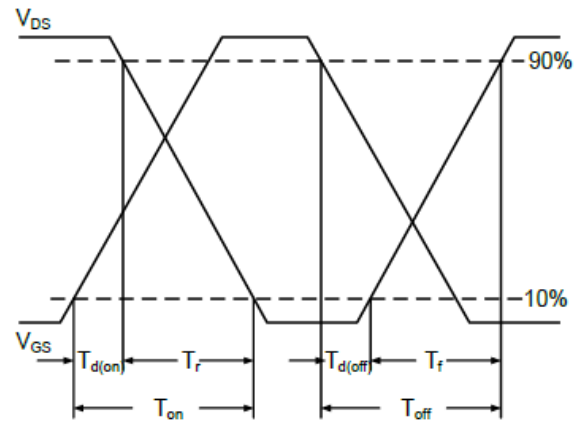


Figure.10 Switching Time Waveform

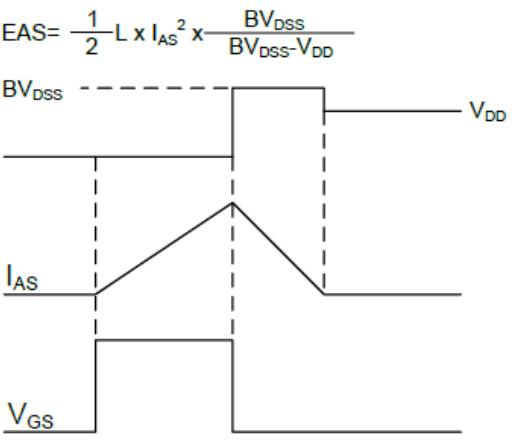
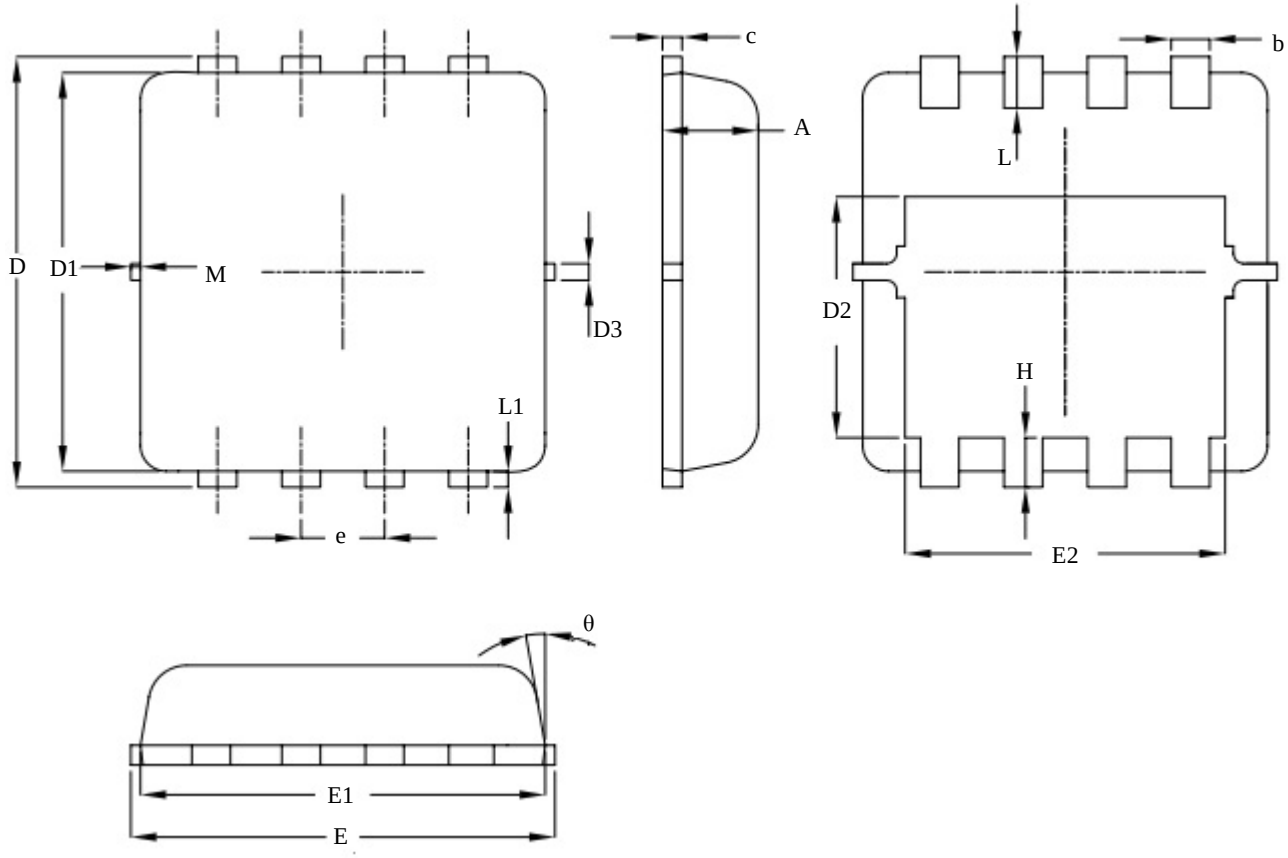


Figure.11 Unclamped Inductive Switching Waveform

PDFN3.3*3.3-8L PACKAGE OUTLINE DIMENSIONS



Symbol	MM			INCH		
	MIN	TYP	MAX	MIN	TYP	MAX
A	0.70	0.75	0.80	0.028	0.030	0.031
b	0.25	0.30	0.35	0.010	0.012	0.014
c	0.10	0.15	0.25	0.004	0.006	0.010
D	3.25	3.35	3.45	0.128	0.132	0.136
D1	3.00	3.10	3.20	0.118	0.122	0.126
D2	1.78	1.88	1.98	0.070	0.074	0.078
D3	-	0.13	-	-	0.005	-
E	3.20	3.30	3.40	0.126	0.130	0.134
E1	3.00	3.15	3.20	0.118	0.124	0.126
E2	2.39	2.49	2.59	0.094	0.098	0.102
e	0.65BSC			0.026BSC		
H	0.30	0.39	0.50	0.012	0.015	0.020
L	0.30	0.40	0.50	0.012	0.016	0.020
L1	-	0.13	-	-	0.005	-
θ	-	10^{o}	12^{o}	-	10^{o}	12^{o}
M	-	-	0.15	-	-	0.006

Notice

1. Specification of the products displayed herein is subject to change without notice. Continuous development may necessitate changes in technical data without notice. GEMMICRO or anyone on its behalf assumes no responsibility or liability for any errors or inaccuracies.
2. Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.