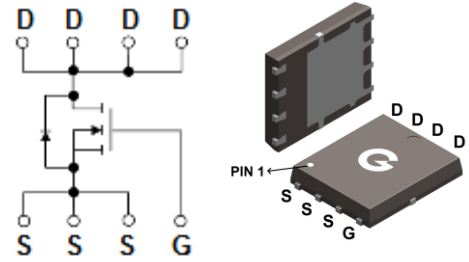


Features

- Super low gate charge
- Green device available
- Excellent C_{dv} / d_t effect decline
- Advanced high cell density trench technology
- JESD22-A114-B ESD rating of class 1C per human body model

HF



Mechanical Data

- Case: PDFN5x6-8L
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

PDFN5x6-8L

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL036N06-5DL8	PDFN5x6-8L	5000 pcs / Tape & Reel	036N06

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	60	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$)	I_D	110	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$)		70	A
Pulsed Drain Current	I_{DM}	440	A
Single Pulse Avalanche Energy ^{*3}	E_{AS}	101	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	83	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.5	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	45	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	$-55 \sim +150$	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	$-55 \sim +150$	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	60	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 60V, V _{GS} = 0V, T _C = 25°C	-	-	1	μA
		V _{DS} = 60V, V _{GS} = 0V, T _C = 55°C	-	-	5	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
R _{DS(ON)}	Drain-Source On-resistance *2	V _{GS} = 10V, I _D = 20A	-	3.2	3.6	mΩ
		V _{GS} = 4.5V, I _D = 15A	-	4.4	5.4	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	1.2	1.7	2.3	V
R _G	Gate Resistance	V _{GS} = 0V, f = 1MHz	-	1	-	Ω
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = 30V f = 1.0MHz	-	3450	-	pF
C _{OSS}	Output Capacitance		-	1196	-	
C _{RSS}	Reverse Transfer Capacitance		-	58	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time *4	V _{DD} = 30V V _{GS} = 10V R _G = 3.3Ω I _D = 10A	-	18	-	ns
t _r	Turn-on Rise Time *4		-	8	-	
t _{d(OFF)}	Turn-Off Delay Time *4		-	50	-	
t _f	Turn-Off Fall Time *4		-	10.5	-	
Q _G	Total Gate-Charge	V _{DD} = 30V V _{GS} = 4.5V I _D = 20A	-	33	-	nC
Q _{GS}	Gate to Source Charge		-	10.3	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	13	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	I _{SD} = 1A, V _{GS} = 0V, T _J = 25°C	-	0.7	1.2	V
t _{rr}	Reverse Recovery Time	I _{SD} = 20A, V _{GS} = 0V	-	57	-	ns
Q _{rr}	Reverse Recovery Charge	di/dt = 100A/μs	-	78	-	nC

Notes:

1. The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
2. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
3. The E_{AS} data shows Max. rating. The test condition is $V_{DD} = 25V, V_{GS} = 10V, L = 0.5mH$
4. Guaranteed by design, not subject to production

Ratings and Characteristics Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

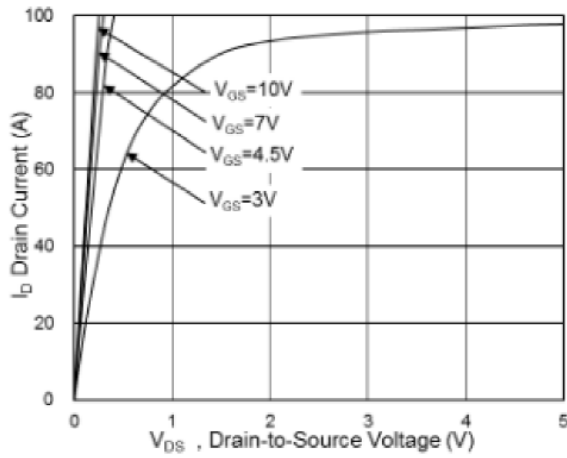


Fig.1 Typical Output Characteristics

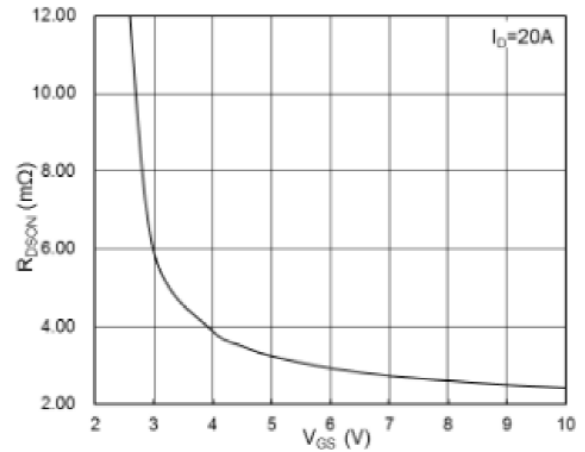


Fig.2 On-Resistance v.s Gate-Source

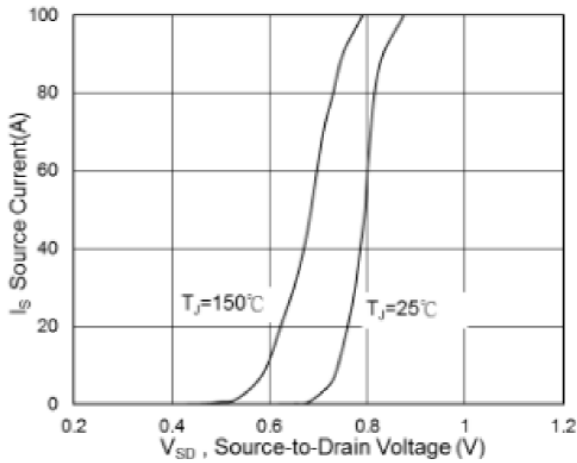


Fig.3 Forward Characteristics of Reverse diode

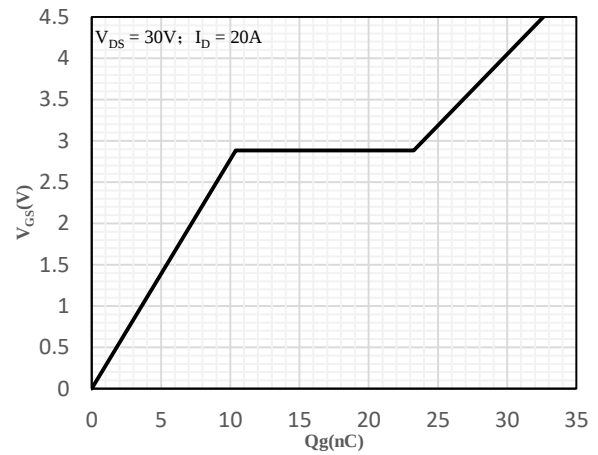


Fig.4 Gate-Charge Characteristics

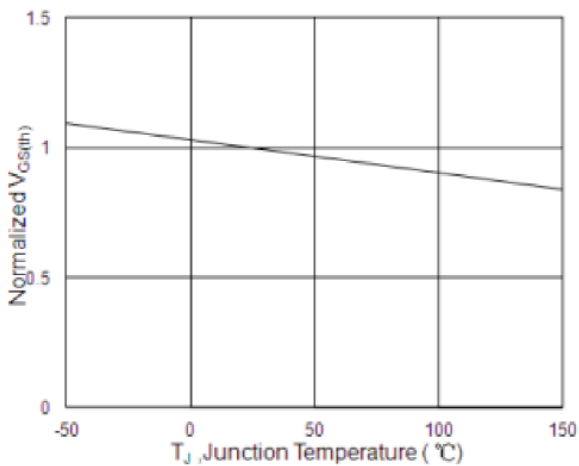


Fig.5 Normalized $V_{GS(th)}$ v.s T_J

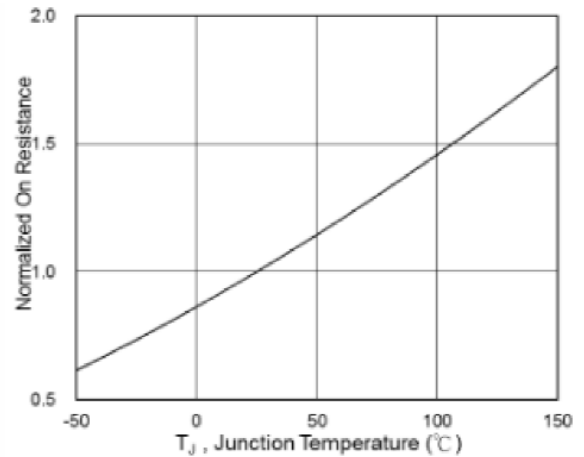


Fig.6 Normalized $R_{DS(on)}$ v.s T_J

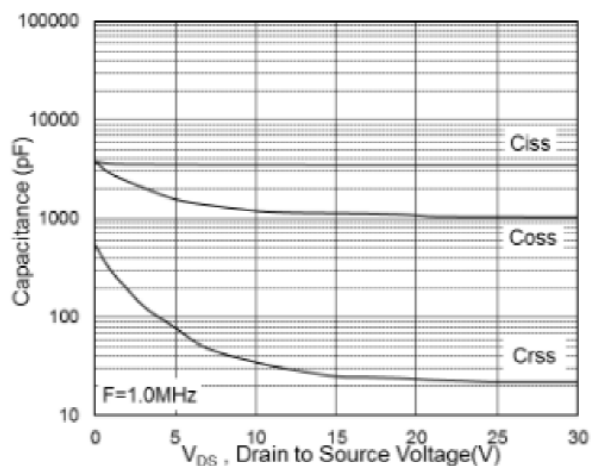


Fig.7 Capacitance

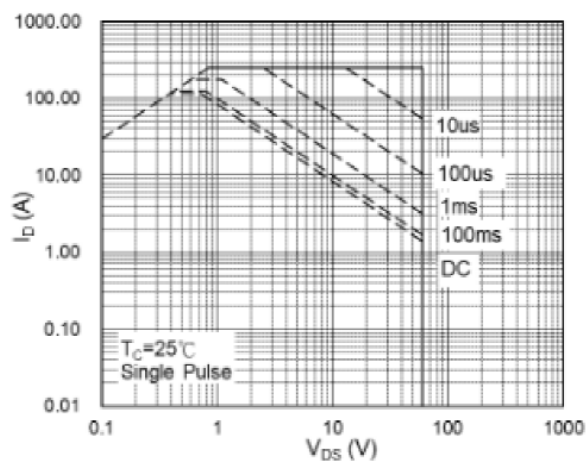


Fig.8 Safe Operating Area

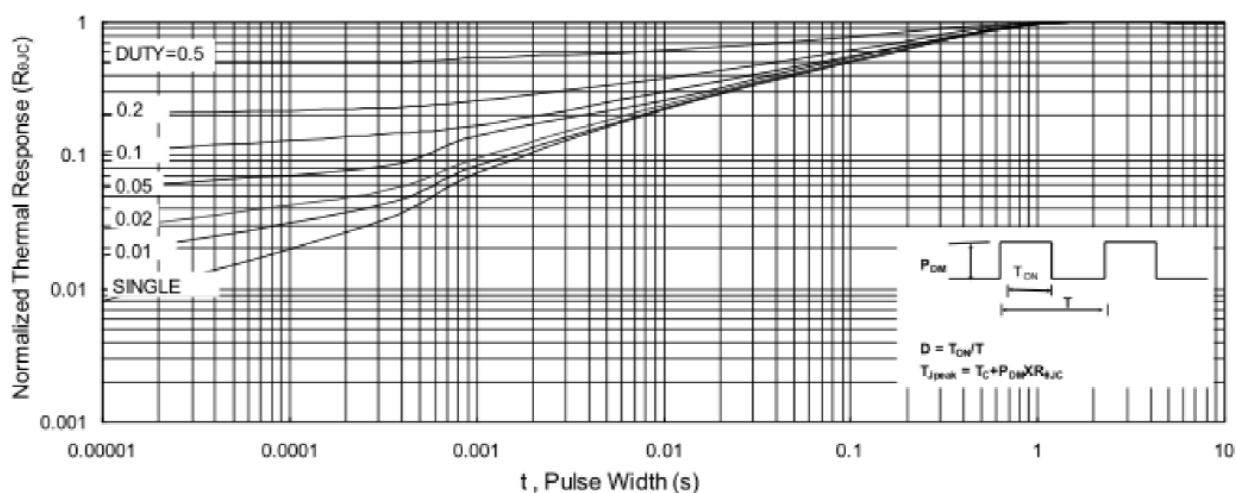
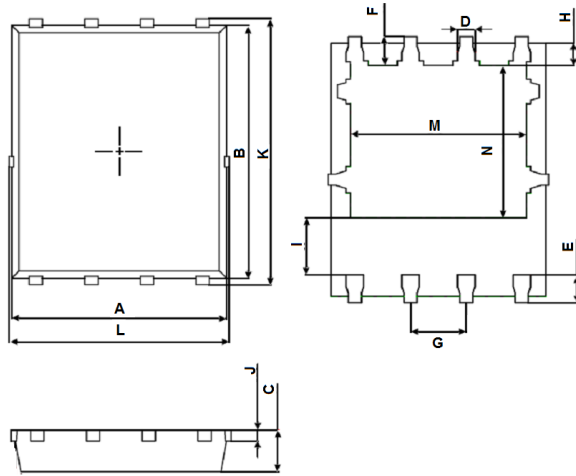


Fig.9 Normalized Maximum Transient Thermal Impedance

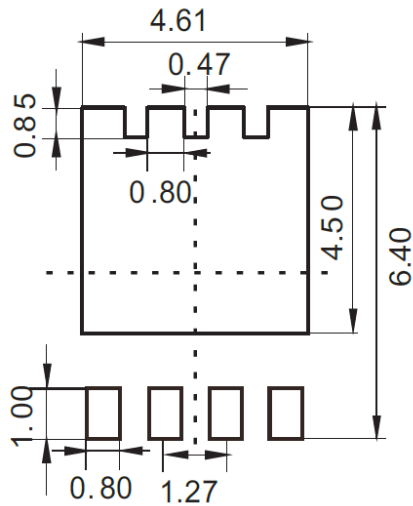
Package Outline Dimensions (Unit: mm)



PDFN5×6-8L		
Dimension	Min.	Max.
A	4.824	4.976
B	5.674	5.826
C	0.900	1.000
D	0.350	0.450
E	0.559	0.711
F	0.574	0.726
G	1.250	1.290
H	0.424	0.576
I	1.190	1.390
J	0.154	0.354
K	5.974	6.126
L	4.944	5.096
M	3.910	4.110
N	3.375	3.575

Mounting Pad Layout (Unit: mm)

PDFN5×6-8L



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