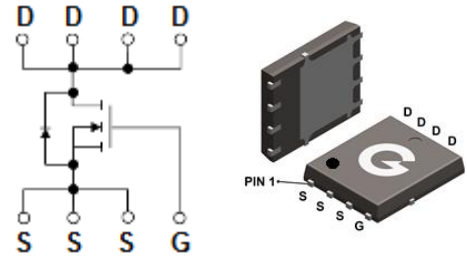


Features

- Super low $R_{DS(on)}$ and gate charge
- Advanced shielded-gate technology
- Green device available
- Excellent C_{dV} / d_t effect decline

HF



PDFN5x6-8L

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

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL027N04T-5DL8	PDFN5x6-8L	5000 pcs / Tape & Reel	027N04T

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	40	V
Gate-to-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$) ^{*1}	I_D	130	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$) ^{*1}		82	A
Pulsed Drain Current ^{*2}	I_{DM}	240	A
Single Pulse Avalanche Energy ^{*3}	E_{AS}	102	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	73	W
Thermal Resistance Junction-to-Case ^{*1}	$R_{\theta JC}$	1.7	$^\circ\text{C}/\text{W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +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	$V_{GS} = 0V, I_D = 250\mu A$	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 40V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance ^{*2}	$V_{GS} = 10V, I_D = 50A$	-	2.2	2.7	m Ω
		$V_{GS} = 4.5V, I_D = 50A$	-	3.0	3.6	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.58	2.5	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$	-	2815	-	pF
C_{OSS}	Output Capacitance	$V_{DS} = 20V$	-	1100	-	
C_{RSS}	Reverse Transfer Capacitance	$f = 1.0MHz$	-	13	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 20V$	-	4	-	ns
t_r	Turn-on Rise Time	$V_{GS} = 10V$	-	5	-	
$t_{d(OFF)}$	Turn-Off Delay Time	$R_G = 3\Omega$	-	35	-	
t_f	Turn-Off Fall Time	$I_D = 20A$	-	11	-	
Q_G	Total Gate-Charge	$V_{DD} = 20V$	-	50	-	nC
Q_{GS}	Gate to Source Charge	$V_{GS} = 10V$	-	8.3	-	
Q_{GD}	Gate to Drain (Miller) Charge	$I_D = 20A$	-	8.2	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage ^{*2}	$I_{SD} = 1A, V_{GS} = 0V$	-	0.6	1.2	V
I_{SD}	Diode Continuous Forward Current ^{*1,4}		-	-	130	A
I_{SM}	Pulsed Source-Drain Current(Body Diode) ^{*2,4}		-	-	240	A
t_{rr}	Reverse Recovery Time	$I_F = 20A, V_R = 30V$	-	63	-	ns
Q_{rr}	Reverse Recovery Charge	$di/dt = 100A/\mu s$	-	73	-	nC

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
- The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- The E_{AS} data shows Max. rating. The test condition is $V_{DD} = 30V, V_{GS} = 10V, L = 0.1mH$
- The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation

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

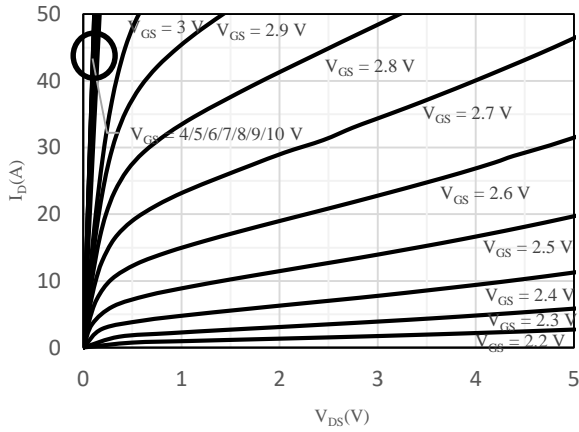


Fig 1 Output Characteristics

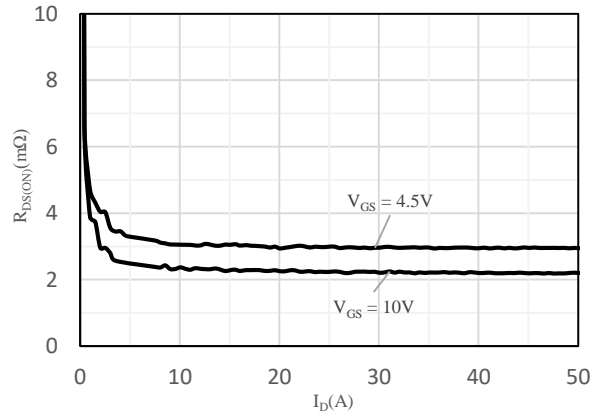


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

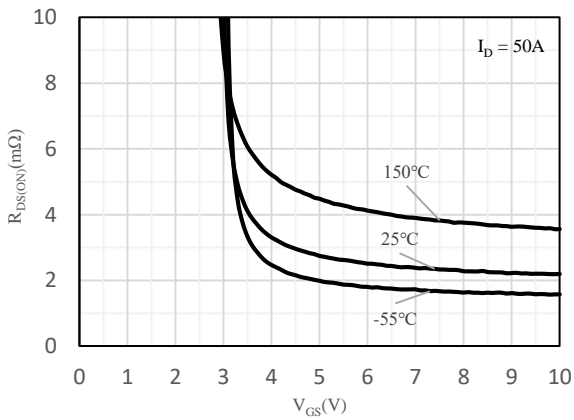


Fig 3 On-Resistance vs. Gate-Source Voltage

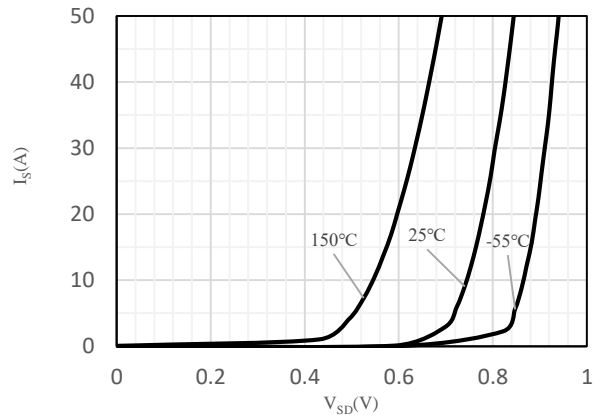


Fig 4 Body-Diode Characteristics

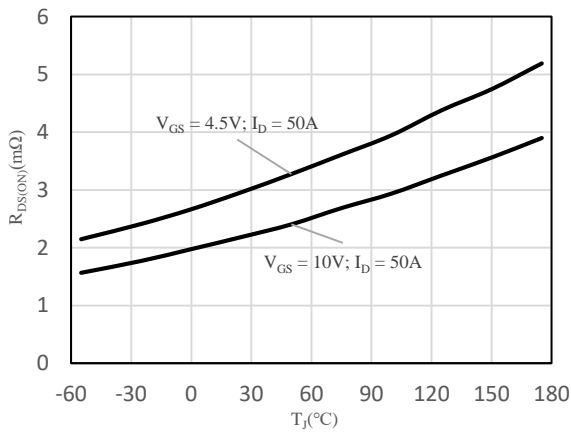


Fig 5 On-Resistance vs. Junction Temperature

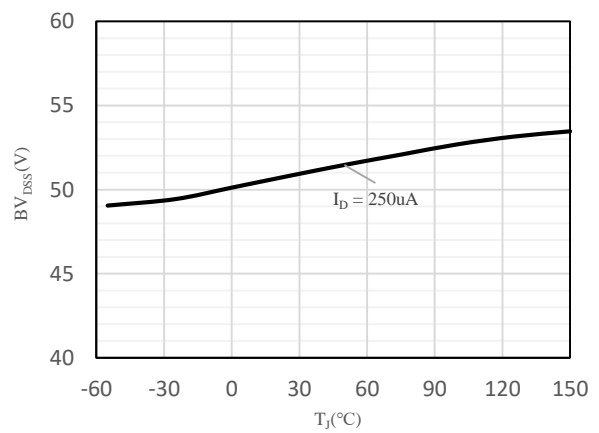


Fig 6 Drain-Source vs. Junction Temperature

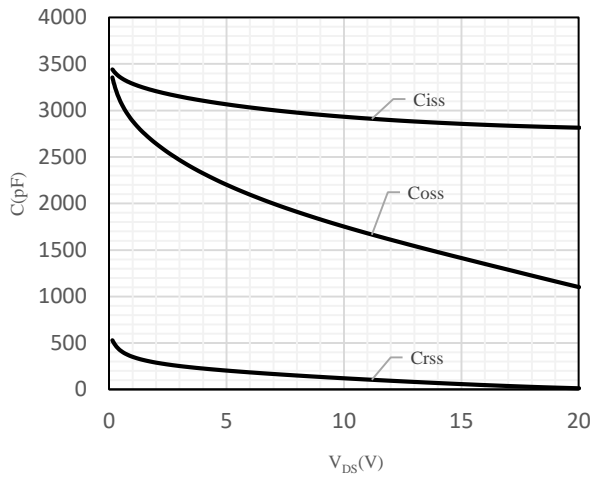


Fig 7 Capacitance Characteristics

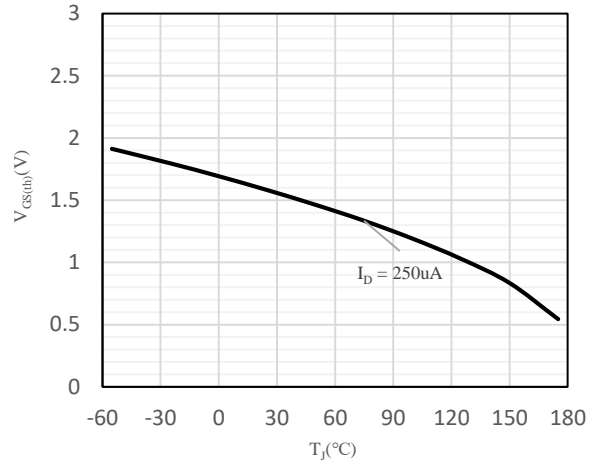


Fig 8 Gate Voltage vs. Junction Temperature

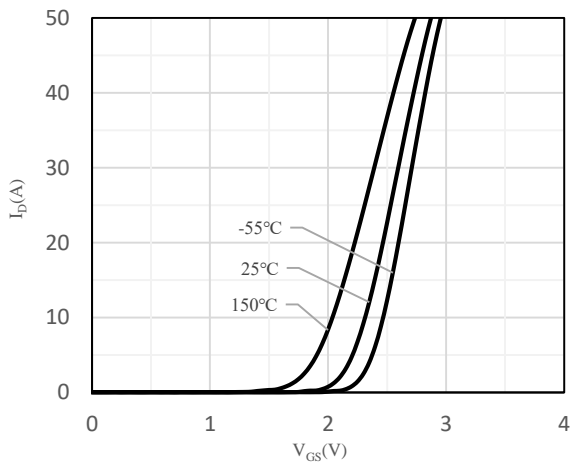


Fig 9 Transfer Characteristics

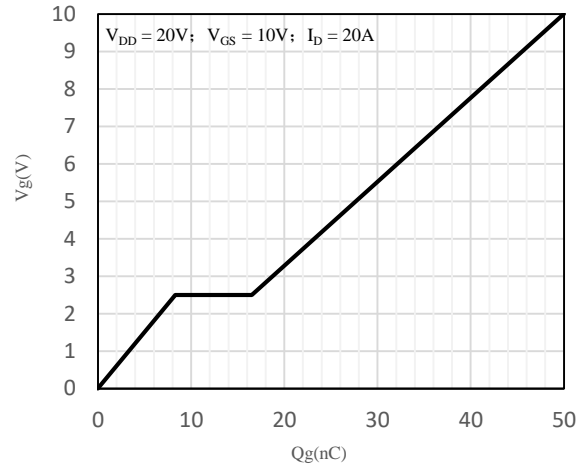
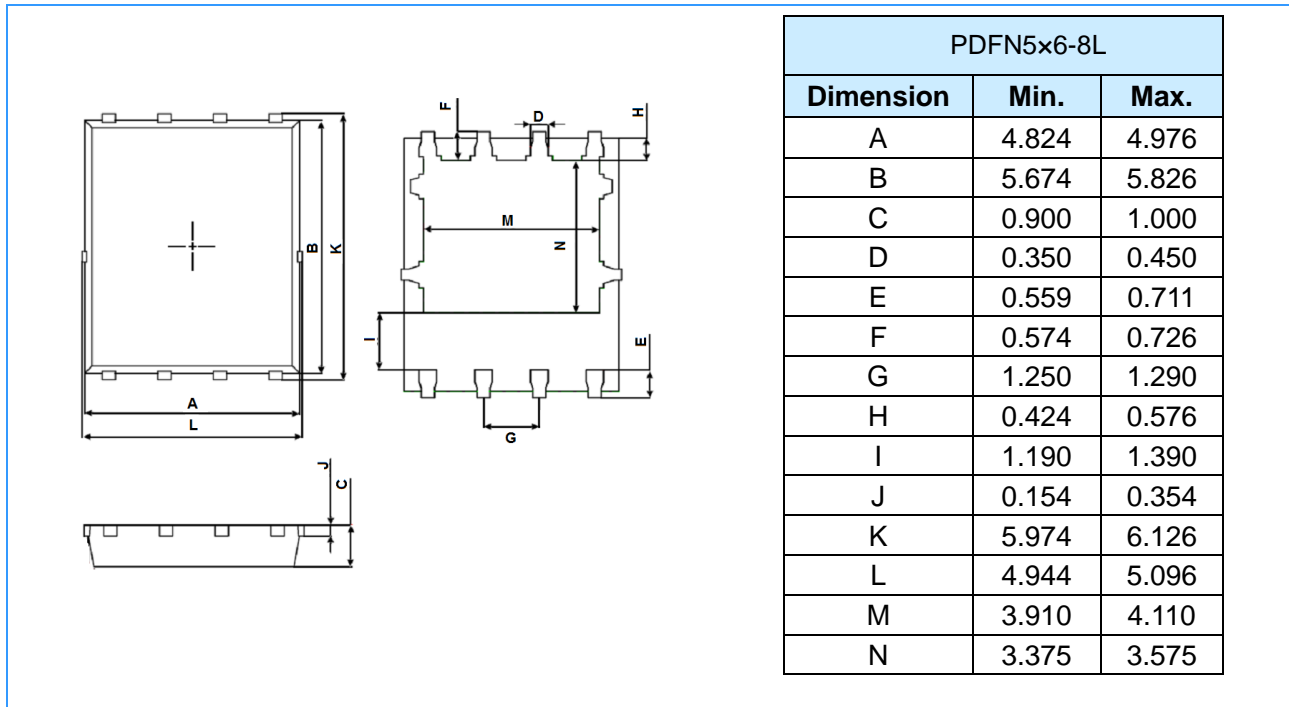
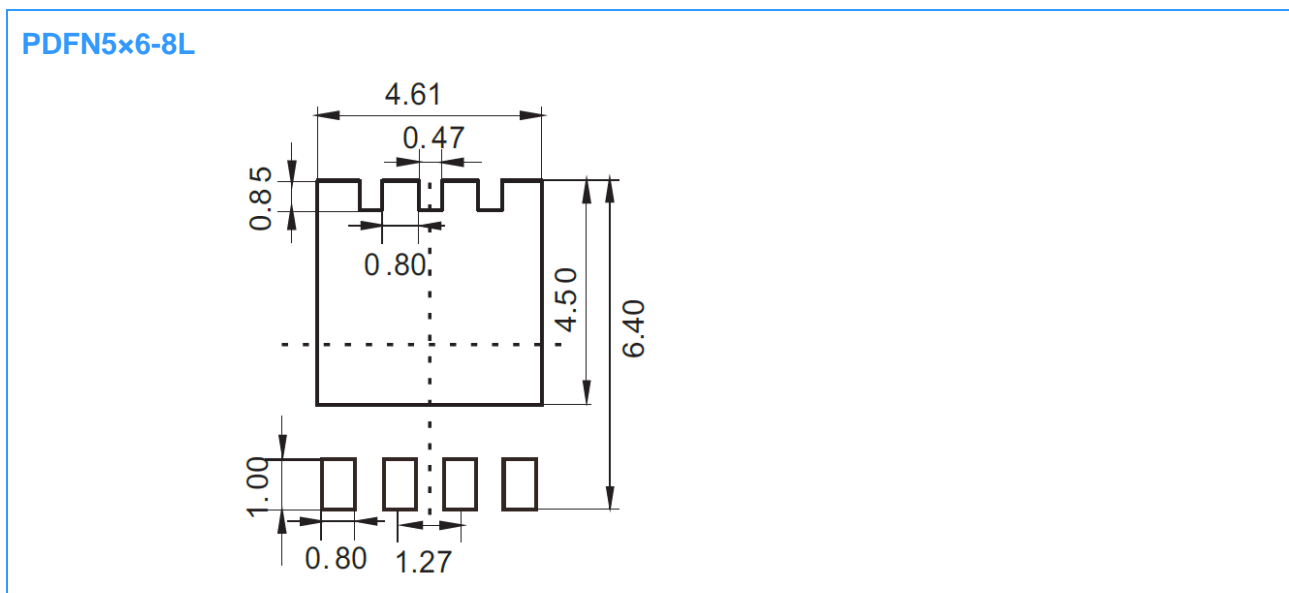


Fig 10 Gate-Charge Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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