银河微电子
Galaxy
Microelectronics

Features

- Reliable and Rugged
- Green device available
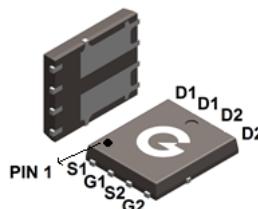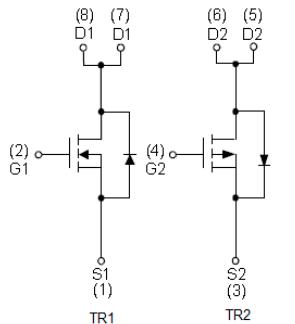
HF

Applications

- Synchronous Rectification
- Motor Control
- Protable equipment application

Mechanical Data

- Case: PDFN5×6-8LC
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

PDFN5×6-8LC

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
GBLH3301-5DL8	PDFN5×6-8LC	5000 pcs / Tape & Reel	GBLH3301

Maximum Ratings (@ T_A = 25°C unless otherwise specified)

Parameter	Symbol	TR1	TR2	Unit
Drain-to-Source Voltage	V_{DSS}	30	-30	V
Gate-to-Source Voltage	V_{GSS}	±20	±20	V
Continuous Drain Current (T_C = 25°C) [4]	I_D	11	-13.3	A
Continuous Drain Current (T_C = 100°C) [4]		7	-8.4	A
Pulsed Drain Current (T_C = 25°C) [1]	I_{DM}	44	-53	A
Diode Continuous Forward Current(T_C = 25°C)	I_S	5.5	-6.6	A
Single Pulse Avalanche Energy [3]	E_{AS}	7.3	20	mJ

Thermal Characteristics

Parameter	Symbol	TR1	TR2	Unit
Power Dissipation (T_A = 25°C)	P_D	2	2	W
Operating Junction Temperature Range	T_J	-55 ~ +150		°C
Storage Temperature Range	T_{STG}	-55 ~ +150		°C

Electrical Characteristics-TR1 (@ T_A = 25°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	30	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 24V, V_{GS} = 0V, T_J = 25°C	-	-	1	µA
		V_{DS} = 24V, V_{GS} = 0V, T_J = 85°C	-	-	30	µA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±20V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance [5]	V_{GS} = 10V,I_D = 6.3A	-	-	30	mΩ
		V_{GS} = 4.5V,I_D = 4.8A	-	-	45	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250µA	1	-	2.5	V
Dynamic Characteristics [6]						
C_{ISS}	Input Capacitance	V_{GS} = 0V	-	515	-	
C_{OSS}	Output Capacitance	V_{DS} = 15V	-	76	-	pF
C_{RSS}	Reverse Transfer Capacitance	f = 1.0MHz	-	65	-	
Switching Characteristics [6]						
$t_{d(ON)}$	Turn-on Delay Time	V_{GS} = 10V	-	4.5	-	
t_r	Turn-on Rise Time	V_{DD} = 15V	-	2.4	-	
$t_{d(OFF)}$	Turn-Off Delay Time	R_L = 2.6Ω	-	14.8	-	ns
t_f	Turn-Off Fall Time	R_G = 3Ω	-	2.5	-	
Q_G	Total Gate-Charge	V_{DD} = 15V	-	14.4	-	
Q_{GS}	Gate to Source Charge	V_{GS} = 10V	-	2.4	-	nC
Q_{GD}	Gate to Drain (Miller) Charge	I_D = 5.8A	-	2.6	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage [5]	I_{SD} = 1A, V_{GS} = 0V, T_J = 25°C	-	-	1.1	V

Notes:

1. Pulse width limited by max. junction temperature
2. $R_{\theta JA}$ steady state t=999s. $R_{\theta JA}$ is measured with the device mounted on 1in², FR-4 board with 2oz. Copper
3. The E_{AS} data shows Max. rating. The test condition is L = 0.5mH
4. t < 10s
5. Pulse test ; pulse width≤300µs, duty cycle≤2%
6. Guaranteed by design, not subject to production testing

Electrical Characteristics-TR2 (@ T$_A$ = 25°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	-30	-	-	V
I$_{DSS}$	Zero Gate Voltage Drain Current	V$_{DS}$ = -24V, V$_{GS}$ = 0V, T$_J$ = 25°C	-	-	-1	μA
		V$_{DS}$ = -24V, V$_{GS}$ = 0V, T$_J$ = 85°C	-	-	-30	μA
I$_{GSS}$	Gate-Body Leakage Current	V$_{GS}$ = ±20V, V$_{DS}$ = 0V	-	-	±100	nA
On Characteristics						
R$_{DS(ON)}$	Static Drain-Source On-resistance [5]	V$_{GS}$ = -10V, I$_D$ = -4.1A	-	48	55	mΩ
		V$_{GS}$ = -4.5V, I$_D$ = -3A	-	65	80	mΩ
V$_{GS(th)}$	Gate Threshold Voltage	V$_{DS}$ = V$_{GS}$, I$_D$ = -250μA	-1	-	-2.5	V
Dynamic Characteristics [6]						
C$_{ISS}$	Input Capacitance	V$_{GS}$ = 0V	-	565	-	
C$_{OSS}$	Output Capacitance	V$_{DS}$ = -15V	-	89	-	pF
C$_{RSS}$	Reverse Transfer Capacitance	f = 1.0MHz	-	77	-	
Source-Drain Diode Characteristics						
V$_{SD}$	Diode Forward Voltage [5]	I$_{SD}$ = -1A, V$_{GS}$ = 0V, T$_J$ = 25°C	-	-	-1	V

Ratings and Characteristics Curves-TR1 (@ $T_A = 25°C$ unless otherwise specified)
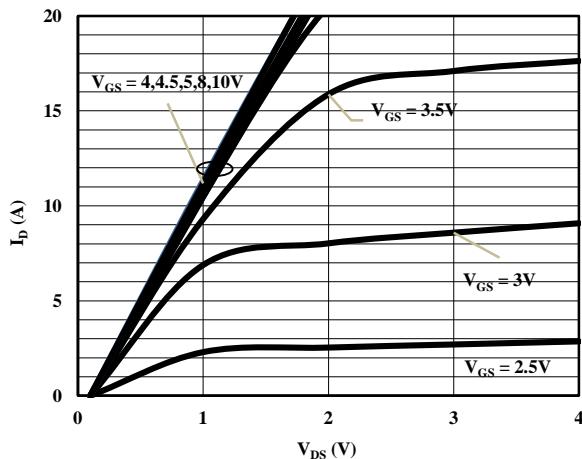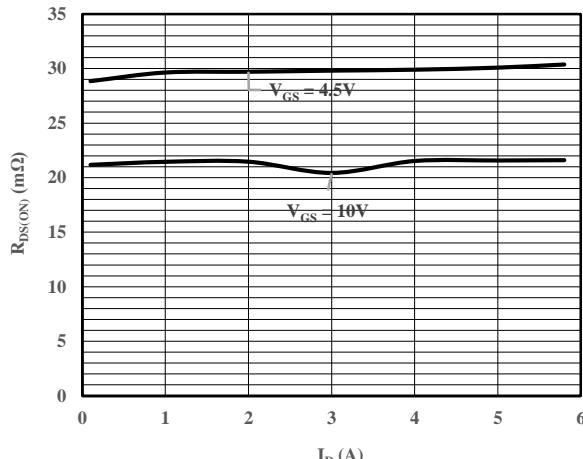
Fig 1   On-Region Characteristics

Fig 2   On-Resistance vs. Drain Current and Gate Voltage
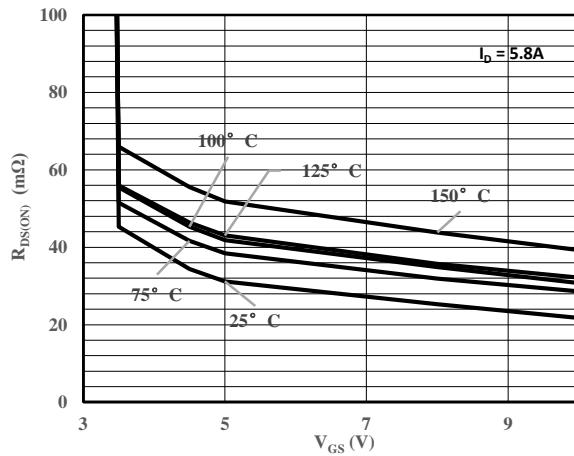
**Fig 3   On-Resistance vs. Gate-Source Voltage**
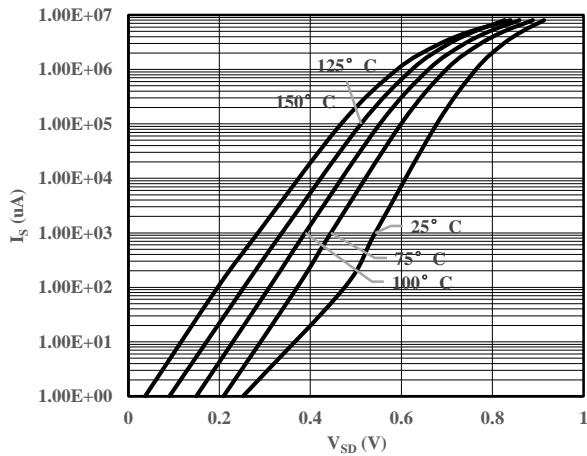
**Fig 4   Body-Diode Characteristics**
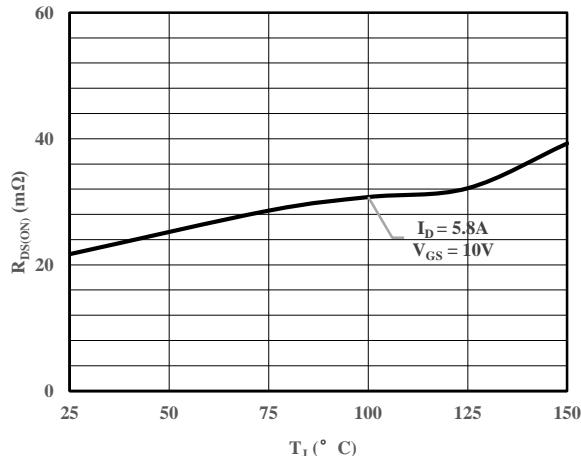
**Fig 5   On-Resistance vs. Junction Temperature**
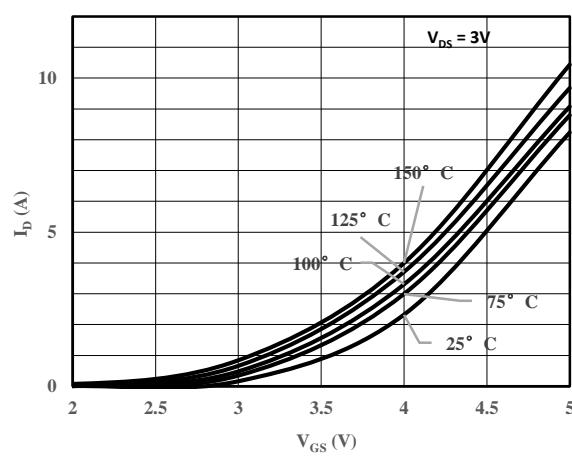
Fig 6   Transfer Characteristics
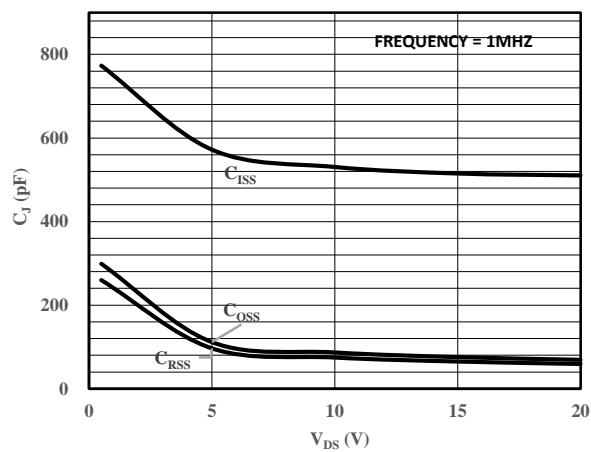
Fig 7   Capacitance Characteristics
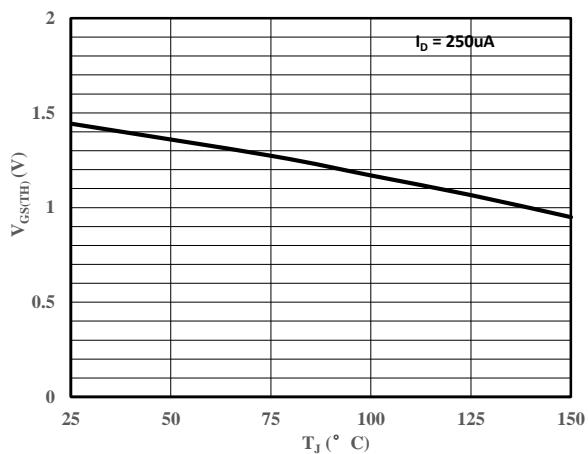
Fig 8   Gate Voltage vs. Junction Temperature
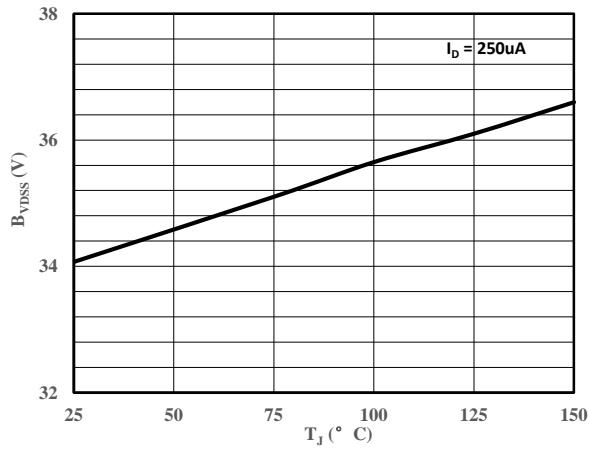
Fig 9   Drain-Source vs. Junction Temperature

## Ratings and Characteristics Curves-TR2 (@ T_A = 25°C unless otherwise specified)
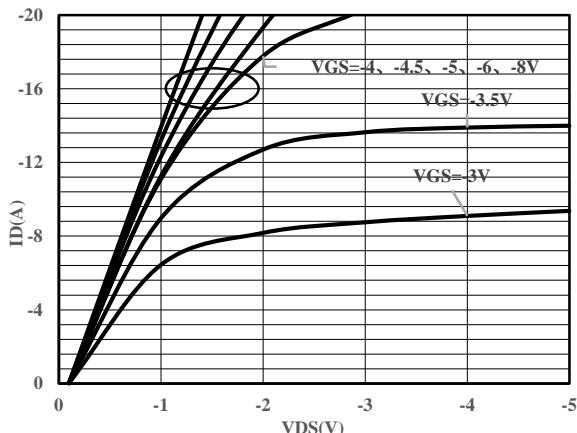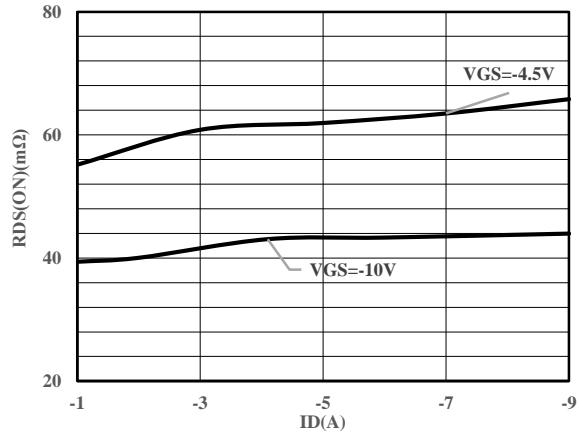
Fig.1- On-Region Characteristics

**Fig.2-On-Resistance vs. Drain Current and Gate Voltage**
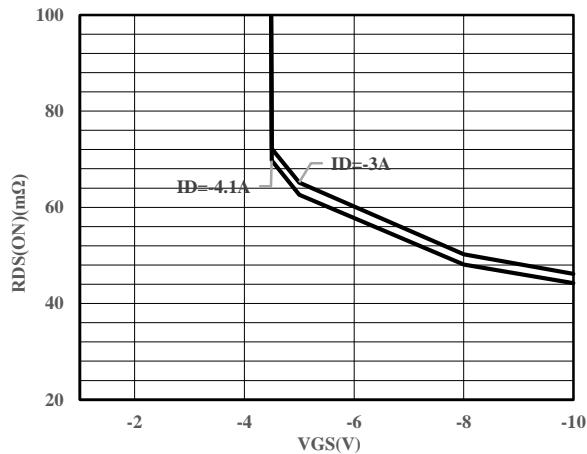
**Fig.3-On-Resistance vs. Gate-Source Voltage**
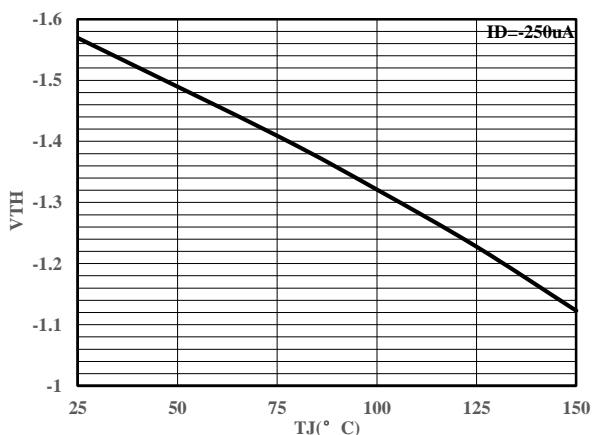
Fig.4- Gate Voltage vs. Junction Temperature
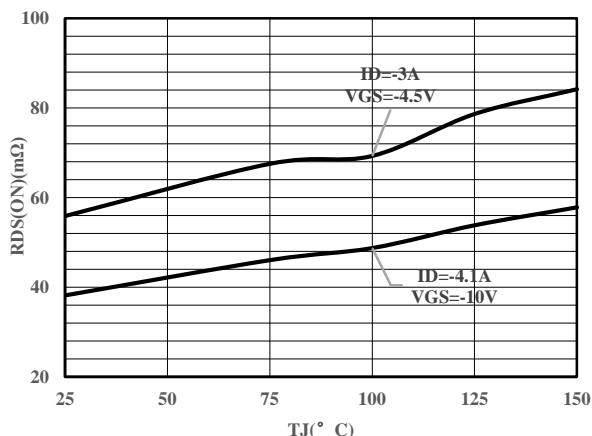
Fig.5-On-Resistance vs. Junction Temperature
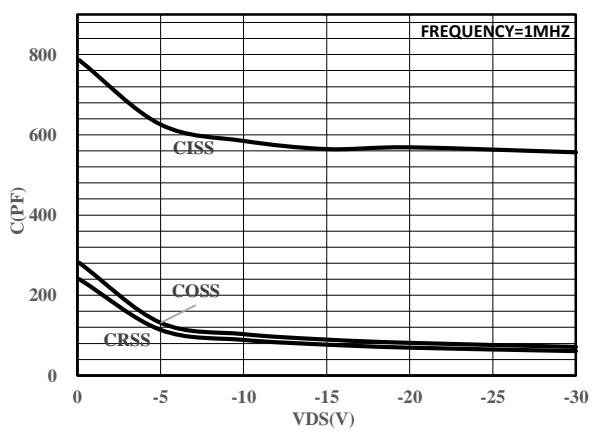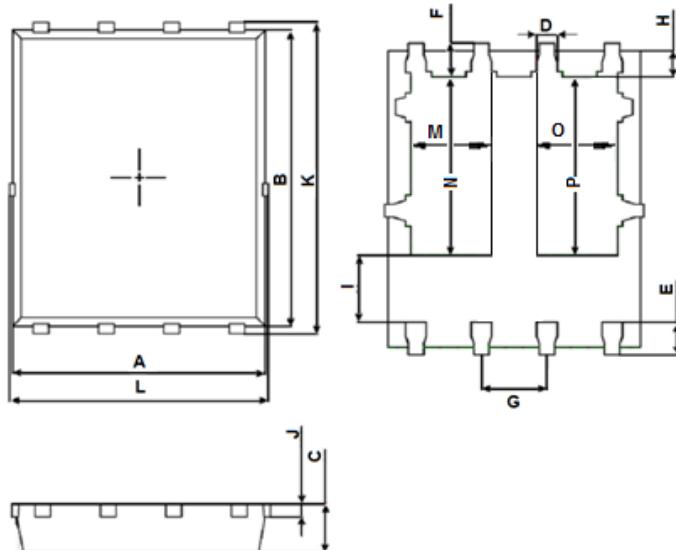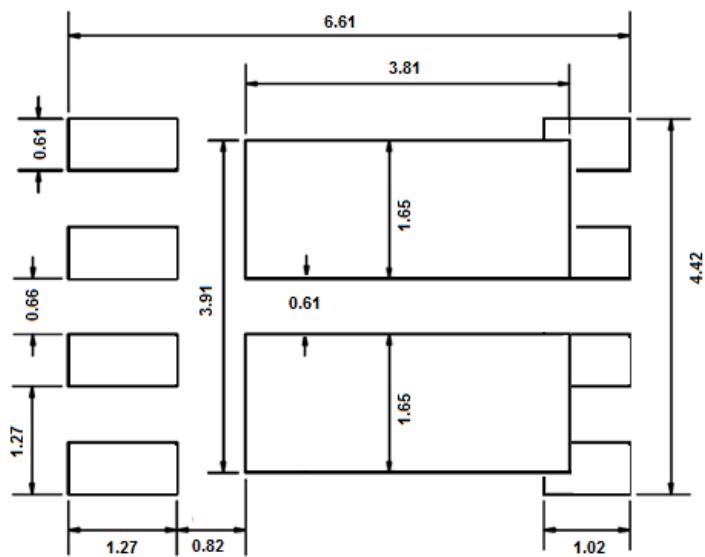
Fig.7-Capacitance Characteristics

Package Outline Dimensions (Unit: mm)

PDFN5×6-8LC		
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/O	1.595	1.795
N/P	3.375	3.575

Mounting Pad Layout (Unit: mm)

PDFN5×6-8LC

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