银河微电
Galaxy
Microelectronics

Dual N-Channel Enhancement Mode MOSFET

GBLN2201DF2

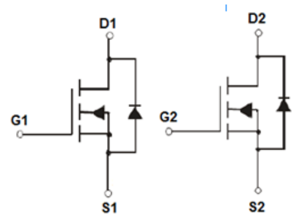
Features

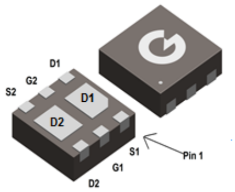
- Advanced trench technology
- Low on-resistance
- Fast switching speed
- RoHS compliant with Halogen-free

HF

Mechanical Data

- Case: DFN2020-6LC
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208





DFN2020-6LC

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
GBLN2201DF2	DFN2020-6LC	3000 pcs / Tape & Reel	N2201

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	20	V
Gate-to-Source Voltage	V_{GSS}	±8	V
Continuous Drain Current (T_A = 25°C) [*1]	I_D	5	A
Continuous Drain Current (T_A = 70°C) [*1]		4	A
Pulsed Drain Current (t_p =10μs, T_A = 25°C)	I_{DM}	20	A
Single Pulse Avalanche Energy [*3]	E_{AS}	5	mJ
Power Dissipation (T_A = 25°C) [*1]	P_D	1.5	W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	-	-	30	°C/W
Thermal Resistance Junction-to-Air [*1]	$R_{\theta JA}$	-	-	83	°C/W

Electrical Characteristics (@ 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	20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 16V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Drain-Source On-resistance [*2]	V_{GS} = 4.5V, I_D = 3A	-	23	35	mΩ
		V_{GS} = 2.5V, I_D = 2A	-	29	50	
$V_{GS(TH)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	0.5	0.8	1.2	V
R_G	Gate Resistance	V_{GS} = 0V, f = 1MHz	-	9	-	Ω
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 10V f = 1.0MHz	-	426	-	pF
C_{OSS}	Output Capacitance		-	76	-	
C_{RSS}	Reverse Transfer Capacitance		-	66	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time [*4]	V_{GS} = 4.5V V_{DD} = 10V R_G = 6Ω I_D = 3.6A	-	9	-	ns
t_r	Turn-on Rise Time [*4]		-	23	-	
$t_{d(OFF)}$	Turn-Off Delay Time [*4]		-	38	-	
t_f	Turn-Off Fall Time [*4]		-	3	-	
Q_G	Total Gate-Charge	V_{DS} = 10V V_{GS} = 4.5V I_D = 3.6A	-	6.4	-	nC
Q_{GS}	Gate to Source Charge		-	1.1	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	1.8	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage [*2]	I_S = 3A, V_{GS} = 0 V	-	0.8	1.2	V

Notes:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%
3. The E_{AS} data shows Max. rating. The test condition is V_{DD} = 10V, V_{GS} = 6V, L = 0.1mH
4. Guaranteed by design, not subject to production

Ratings and Characteristics Curves (@ T_A = 25°C unless otherwise specified)

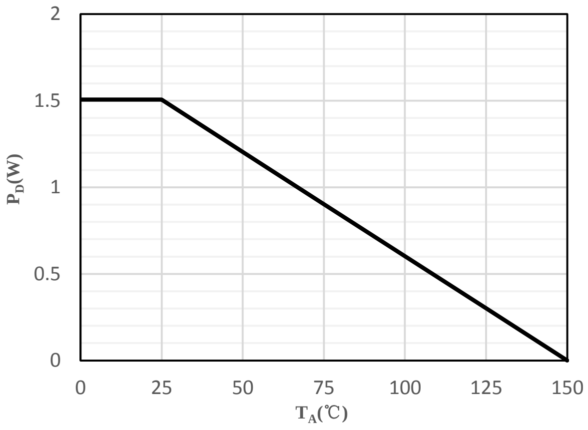


Fig 1 Power Dissipation

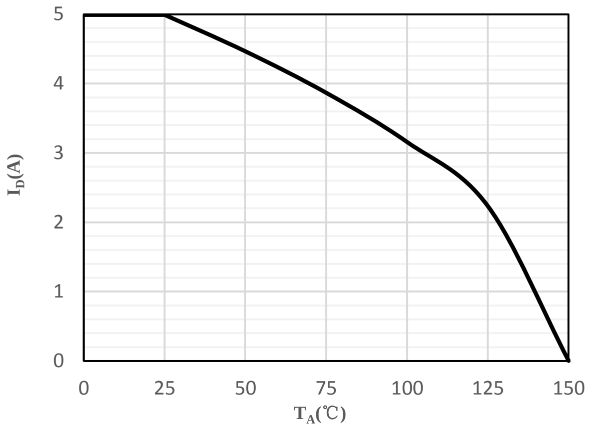


Fig 2 Drain Current

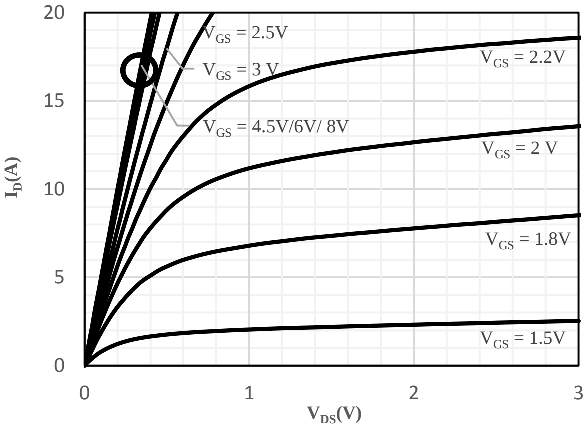


Fig 3 Typical Output Characteristics

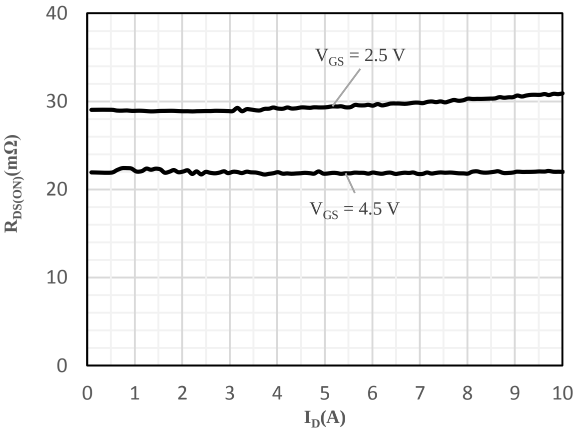


Fig 4 On-Resistance vs. Drain Current and Gate Voltage

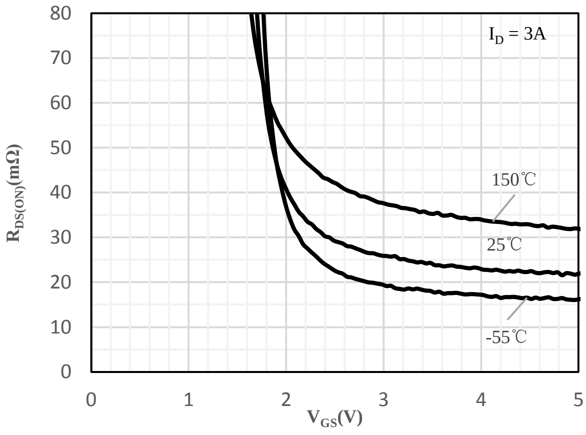


Fig 5 On-Resistance vs. Gate-Source Voltage

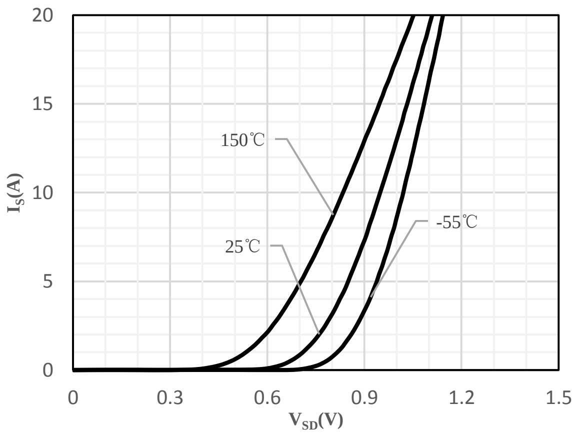


Fig 6 Body-Diode Characteristics

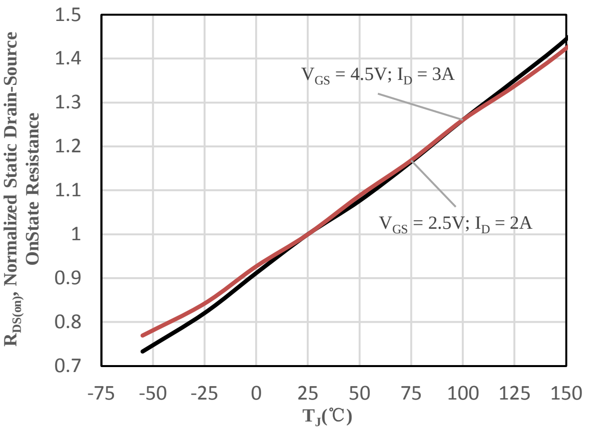


Fig 7 Normalized On-Resistance vs. Junction Temperature

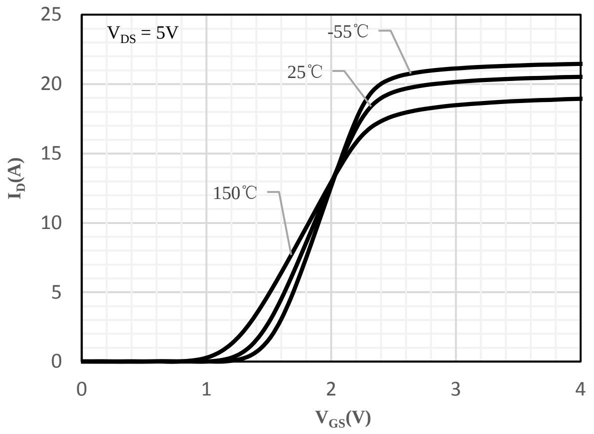


Fig 8 Transfer Characteristics

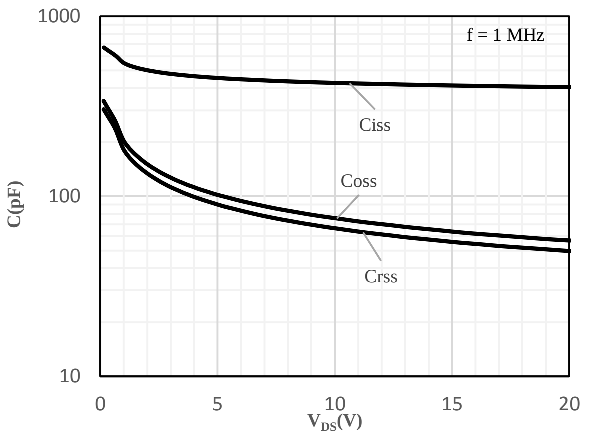


Fig 9 Capacitance Characteristics

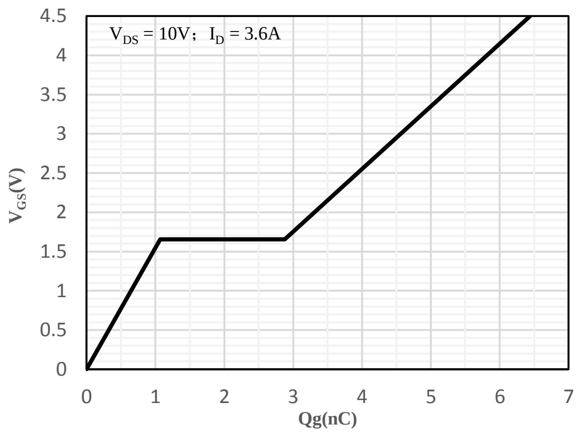


Fig 10 Gate-Charge Characteristics

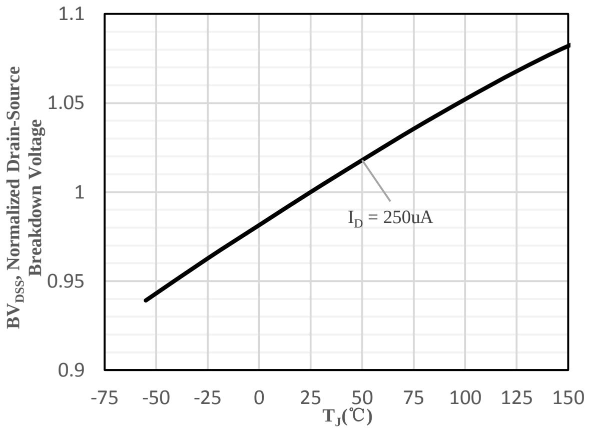


Fig 11 Normalized Breakdown Voltage vs. Junction Temperature

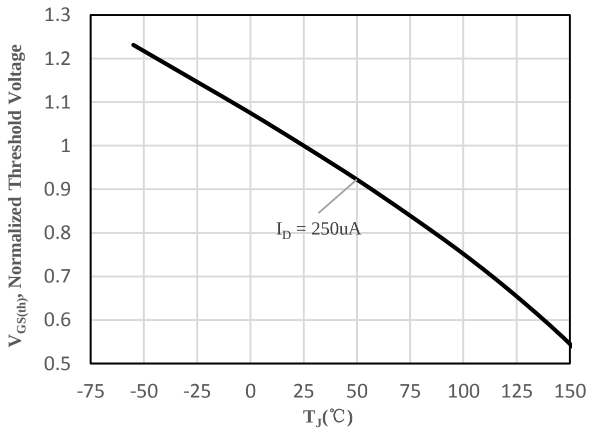
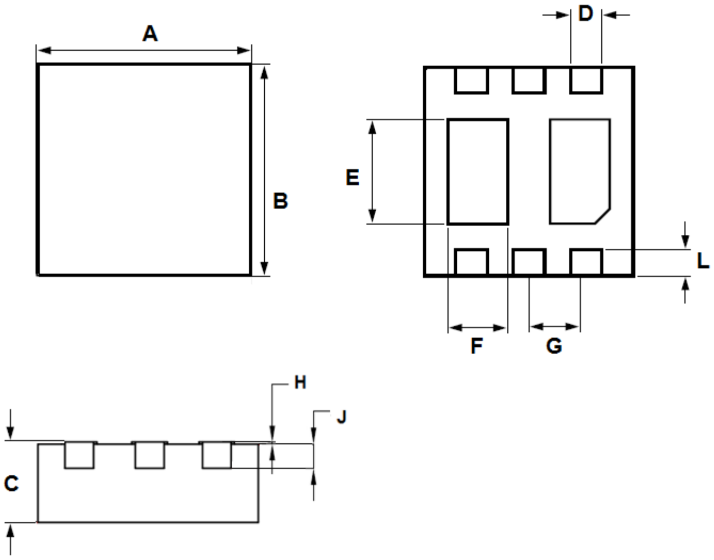


Fig 12 Normalized $V_{GS(th)}$ vs. Junction Temperature

Package Outline Dimensions (Unit: mm)



DFN2020-6LC		
Dimension	**Min.**	**Max.**
A	1.900	2.100
B	1.900	2.100
C	0.500	0.600
D	0.250	0.350
E	0.800	1.000
F	0.600	0.800
G	0.550	0.750
H	0.000	0.050
J	0.103	0.303
L	0.174	0.326

Mounting Pad Layout (Unit: mm)

DFN2020-6LC