P＋N-Channel Enhancement Mode MOSFET

GBLH2202DF2

HF

Features

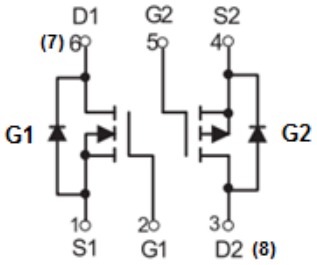
- Low on-resistance
- Green device available

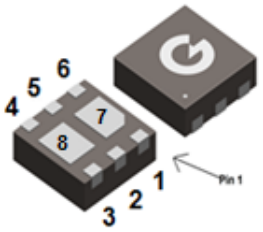
Applications

- Switching

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
GBLH2202DF2	DFN2020-6LC	3000 pcs / Tape & Reel	H2202

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

Parameter	Symbol	G_1	G_2	Unit
Drain-to-Source Voltage	V_{DSS}	20	-20	V
Gate-to-Source Voltage	V_{GSS}	±8	±12	V
Continuous Drain Current (T_A = 25°C)	I_D	5.4	-5.1	A
Pulsed Drain Current *1	I_{DM}	12	-10	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C) *3	P_D	2	W
Thermal Resistance Junction-to-Air *3	$R_{\theta JA}$	62.5	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

Electrical Characteristics-G1 (@ 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} = 20V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±8V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance *2	V_{GS} = 4.5V,I_D = 2.9A	-	-	45	mΩ
		V_{GS} = 2.5V,I_D = 2.5A	-	-	59	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	0.6	-	1.2	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 10V f = 1.0MHz	-	1046	-	pF
C_{OSS}	Output Capacitance		-	76	-	
C_{RSS}	Reverse Transfer Capacitance		-	66	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{GS} = 4.5V V_{DD} = 10V R_G = 6Ω, R_L = 2.8Ω I_D = 3.6A	-	9	-	ns
t_r	Turn-on Rise Time		-	23	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	38	-	
t_f	Turn-Off Fall Time		-	3	-	
Q_G	Total Gate-Charge	V_{DD} = 10V V_{GS} = 4.5V I_D = 3.6A	-	7.5	-	nC
Q_{GS}	Gate to Source Charge		-	1.1	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	2	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage *2	I_{SD} = 1A, V_{GS} = 0V	-	-	1.2	V

Notes:

1、 Repetitive rating; pulse width limited by maximum junction temperature

2、 The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%

3、 Device mounted on a Cu board (40×40×0.8mm)

Electrical Characteristics-G2 (@ 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} = -20V, V_{GS} = 0V	-	-	-1	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±12V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance *2	V_{GS} = -4.5V, I_D = -2.8A	-	-	50	mΩ
		V_{GS} = -2.5V, I_D = -2A	-	-	70	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = -250μA	-0.5	-	-0.9	V
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = -5V f = 1.0MHz	-	1375	-	pF
C_{OSS}	Output Capacitance		-	179	-	
C_{RSS}	Reverse Transfer Capacitance		-	174	-	
Switching Characteristics						
Q_G	Total Gate-Charge	V_{GS} = -4.5V V_{DD} = -16V I_D = -4.2A	-	12.3	-	nC
Q_{GS}	Gate to Source Charge		-	1.6	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	3.6	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage *2	I_{SD} = -4.1A, V_{GS} = 0V	-	-	-1.2	V
I_S	Diode Continuous Forward Current		-	-	-5.1	A

Ratings and Characteristics Curves-G1 (@ T_A = 25°C unless otherwise specified)

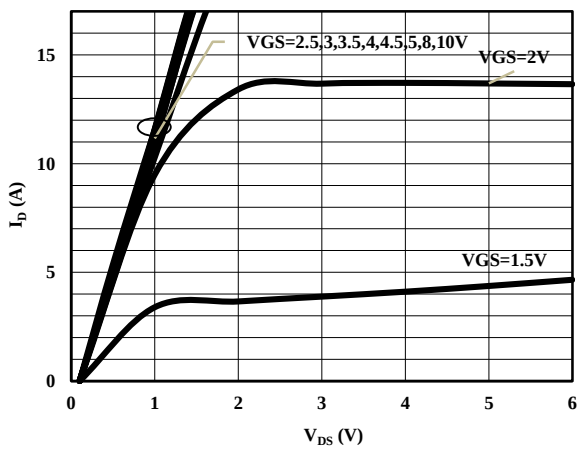


Fig.1- On-Region Characteristics

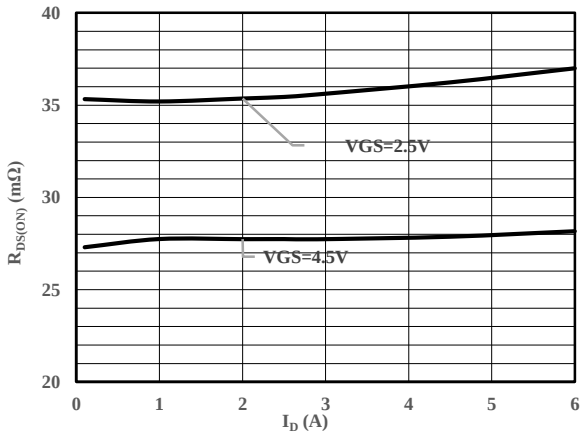


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

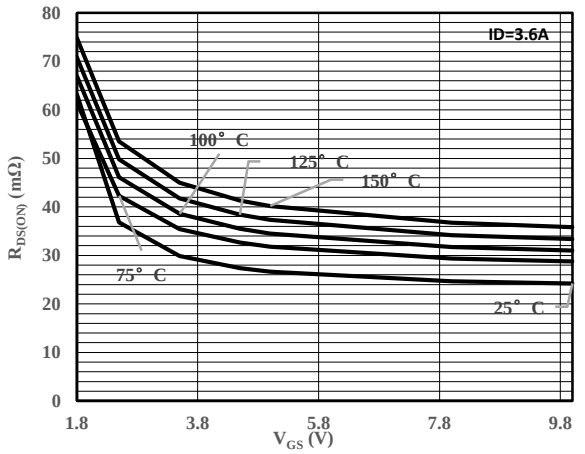


Fig.3-On-Resistance vs. Gate-Source Voltage

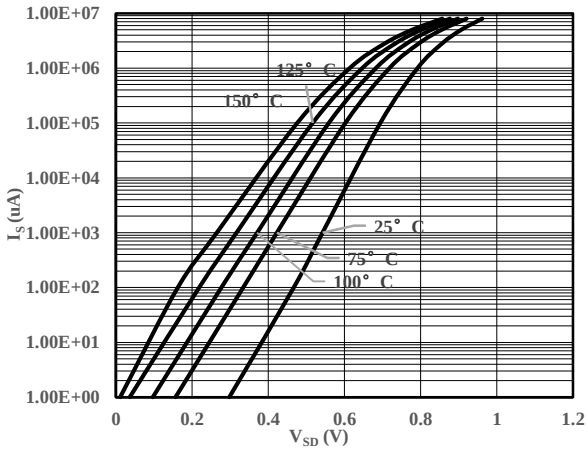


Fig.4- Body-Diode Characteristics

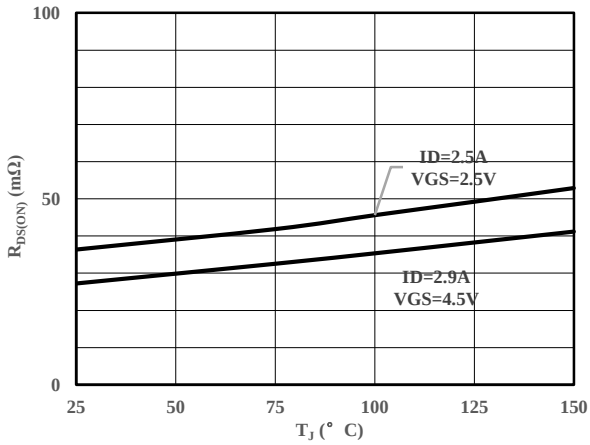


Fig.5-On-Resistance vs. Junction Temperature

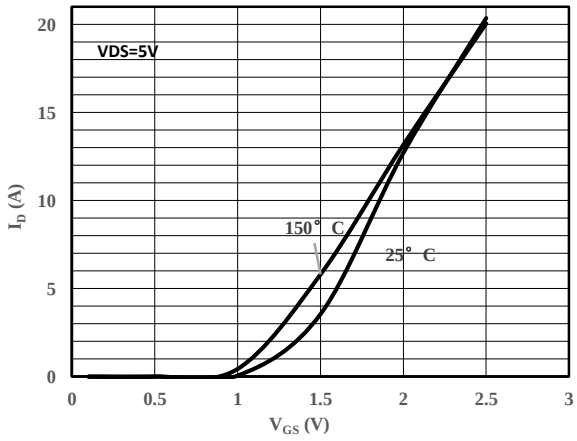


Fig.6-Transfer Characteristics

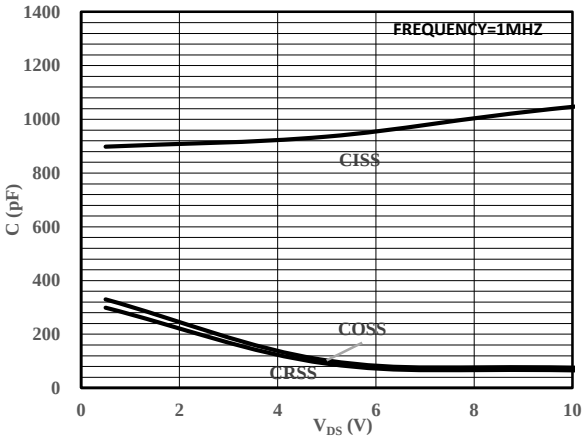


Fig.7-Capacitance Characteristics

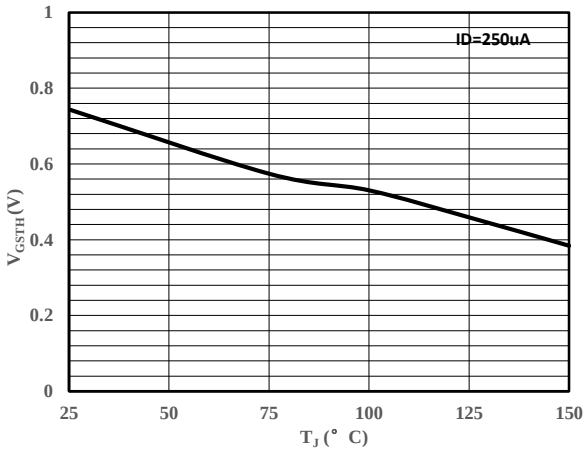


Fig.8- Gate Voltage vs. Junction Temperature

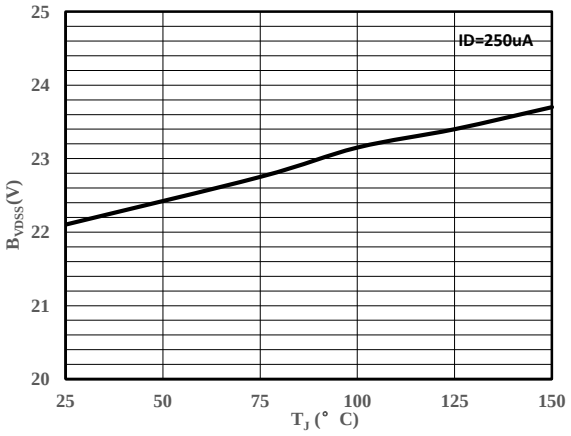


Fig.9- Drain-Source vs. Junction Temperature

Ratings and Characteristics Curves-G2 (@ T_A = 25°C unless otherwise specified)

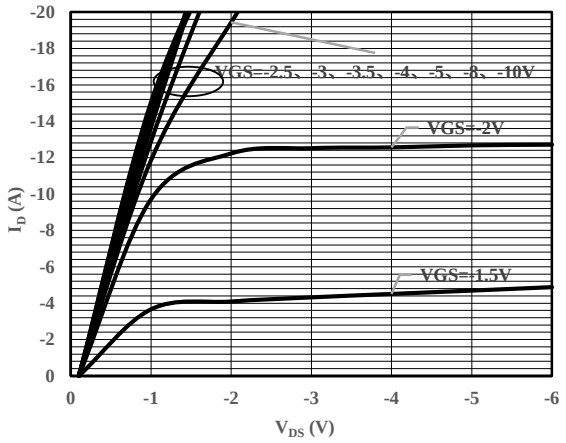


Fig.1- On-Region Characteristics

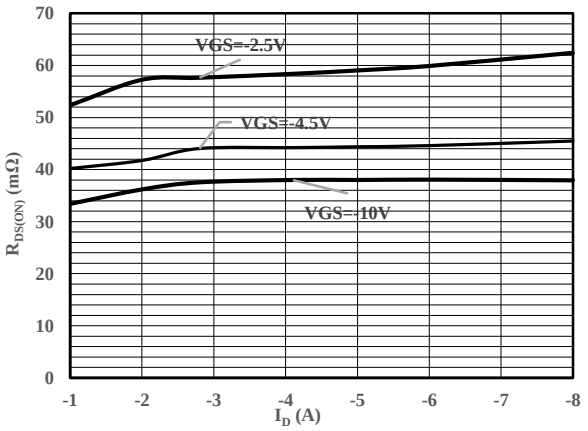


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

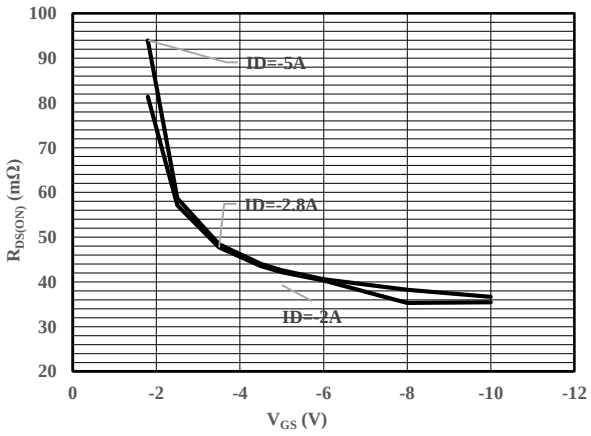


Fig.3-On-Resistance vs. Gate-Source Voltage

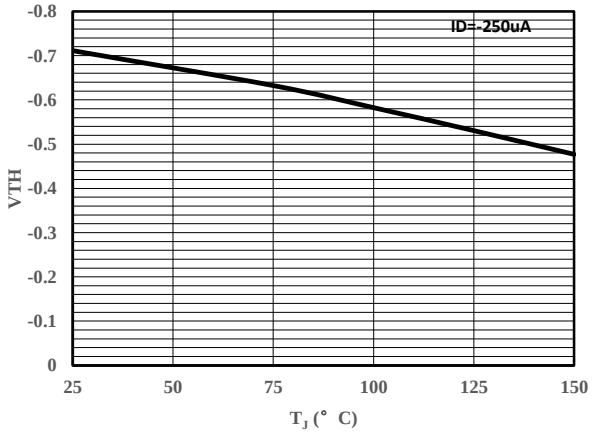


Fig.4- Gate Voltage vs. Junction Temperature

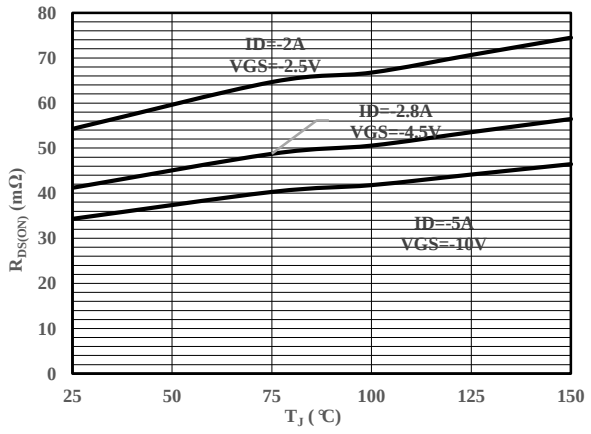


Fig.5-On-Resistance vs. Junction Temperature

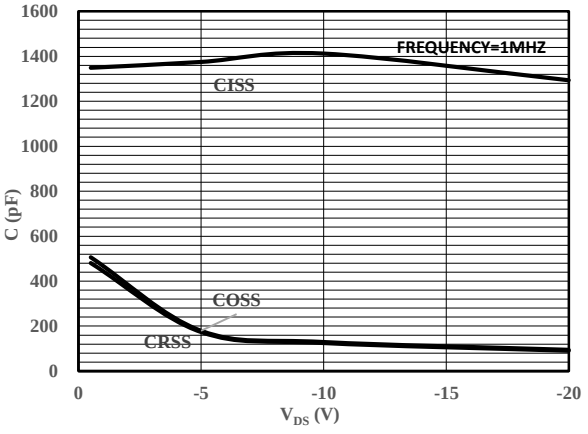
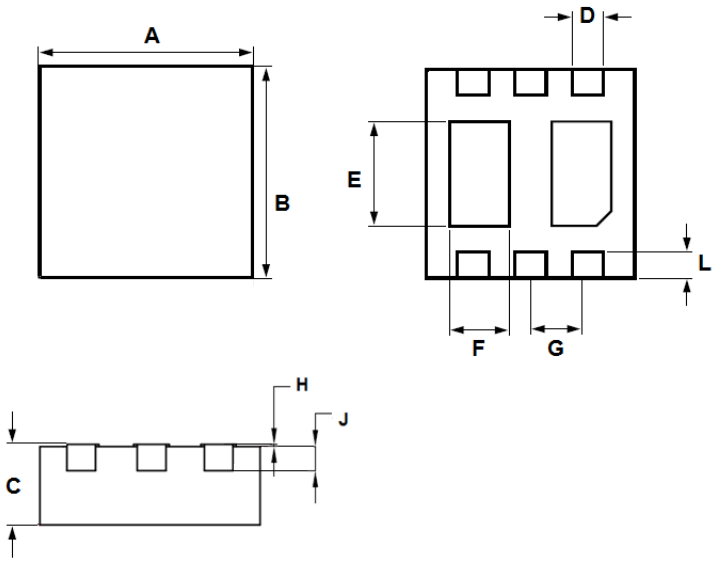


Fig.6- Capacitance Characteristics

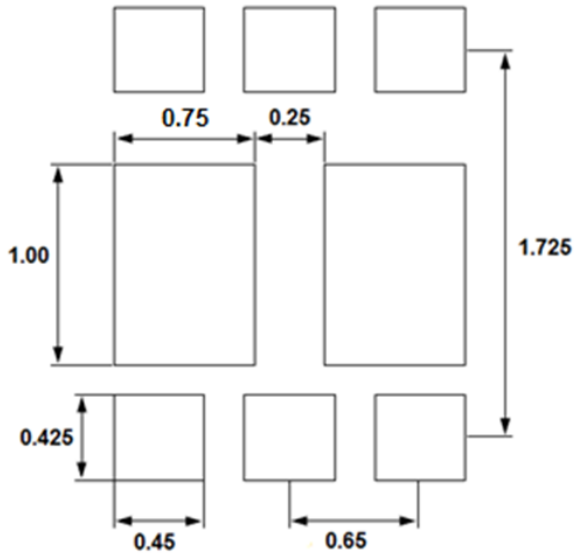
Package Outline Dimensions (Unit: mm)



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



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