

Features

- Low on-resistance
- Green device available
- Halogen free
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 standards for high reliability

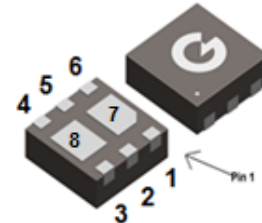
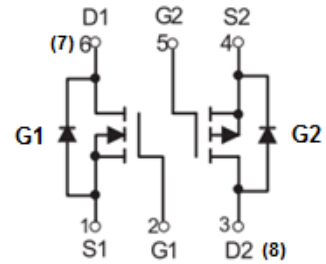
Applications

- 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

HF



DFN2020-6LC

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TGBLH2202DF2	DFN2020-6LC	3000 pcs / Tape & Reel	H2202

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

Parameter	Symbol	G_1	G_2	Unit
Drain-to-Source Voltage	V_{DS}	20	-20	V
Gate-to-Source Voltage	V_{GS}	± 8	± 12	V
Continuous Drain Current ($T_A = 25^\circ\text{C}$)	I_D	5.4	-5.1	A
Pulsed Drain Current *1	I_{DM}	12	-10	A

Thermal Characteristics

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

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)

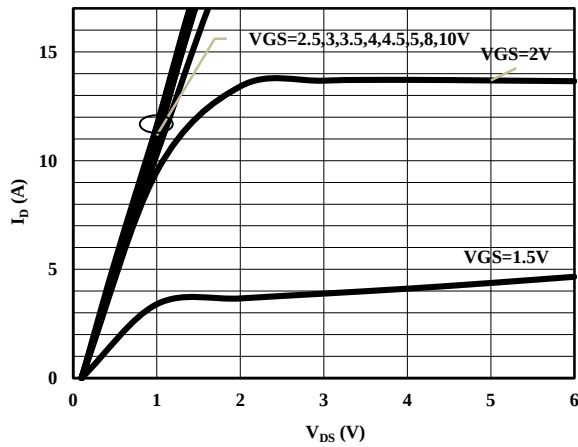


Fig.1- On-Region Characteristics

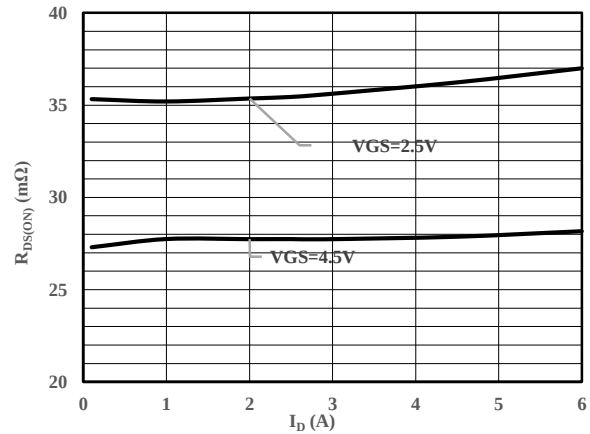


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

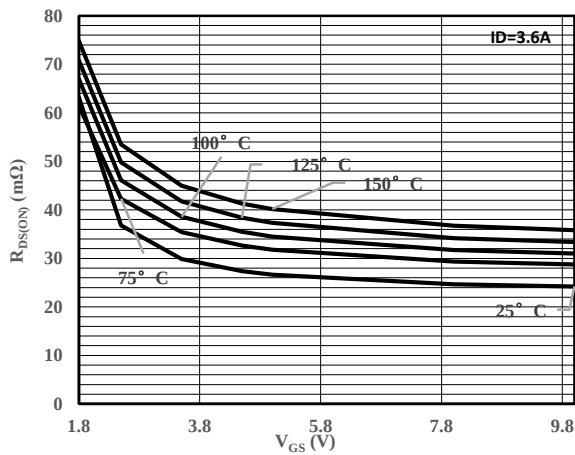


Fig.3-On-Resistance vs. Gate-Source Voltage

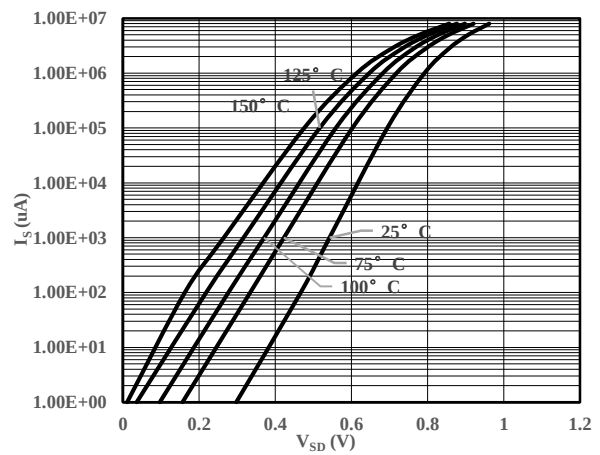


Fig.4- Body-Diode Characteristics

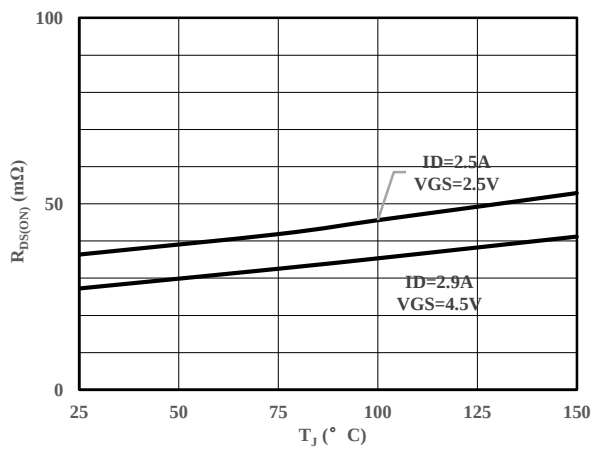


Fig.5-On-Resistance vs. Junction Temperature

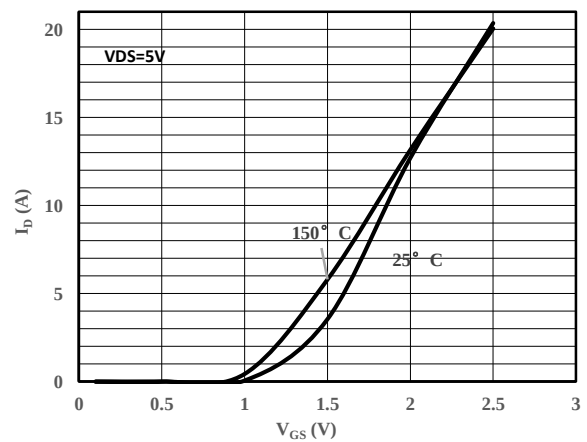


Fig.6-Transfer Characteristics

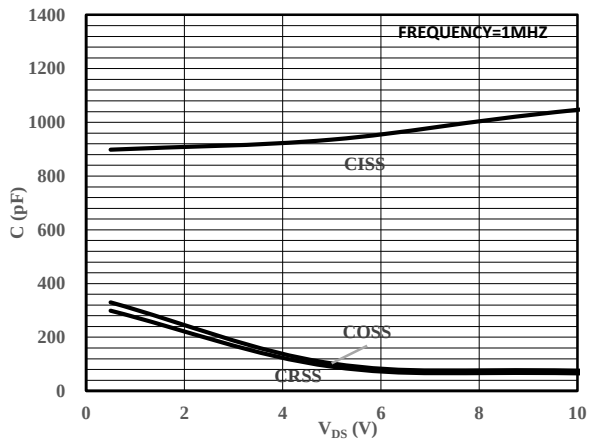


Fig.7-Capacitance Characteristics

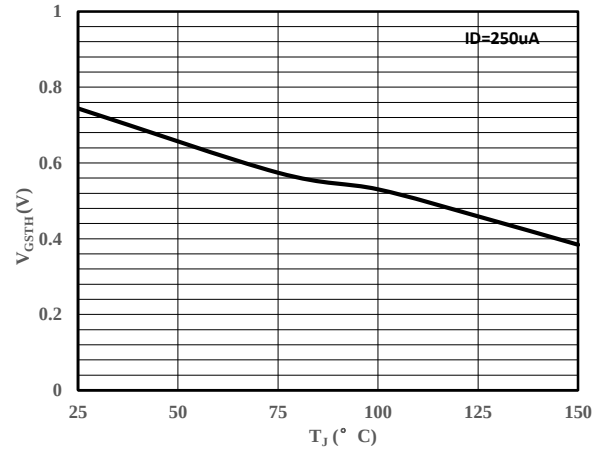


Fig.8- Gate Voltage vs. Junction Temperature

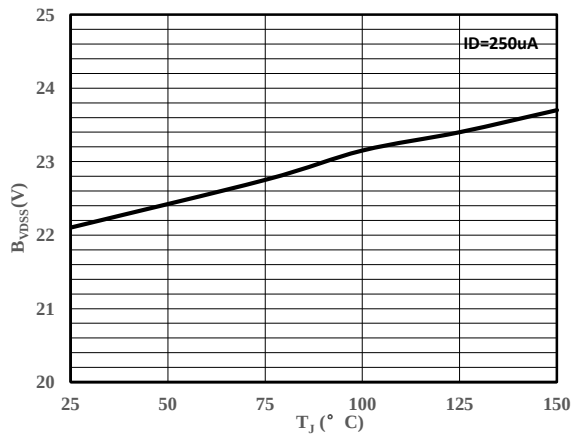


Fig.9- Drain-Source vs. Junction Temperature

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

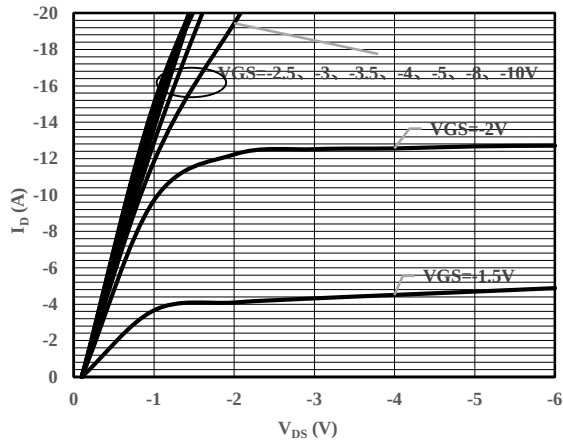


Fig.1- On-Region Characteristics

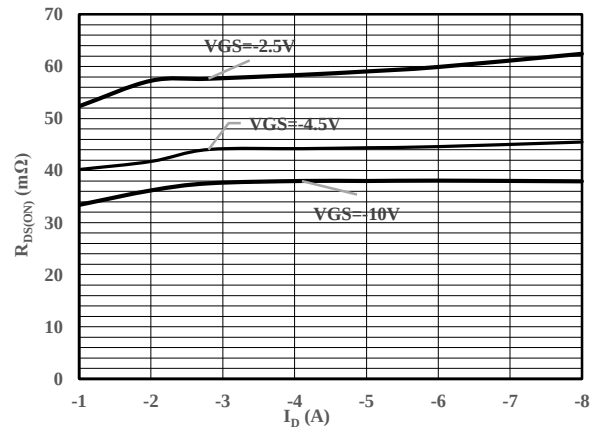


Fig.2-On-Resistance vs. Drain Current and Gate Voltage

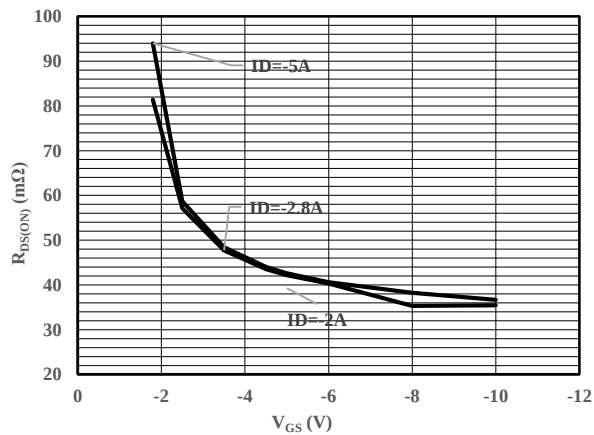


Fig.3-On-Resistance vs. Gate-Source Voltage

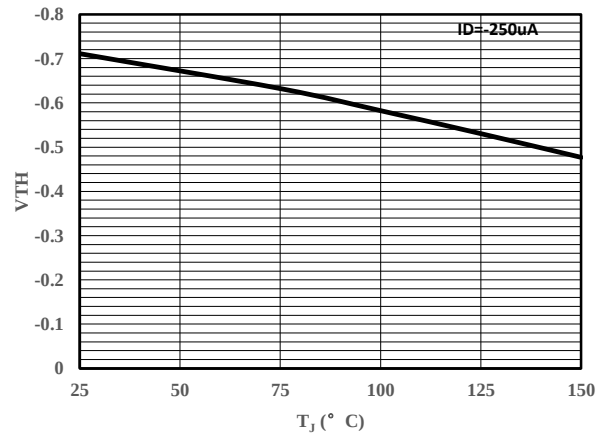


Fig.4- Gate Voltage vs. Junction Temperature

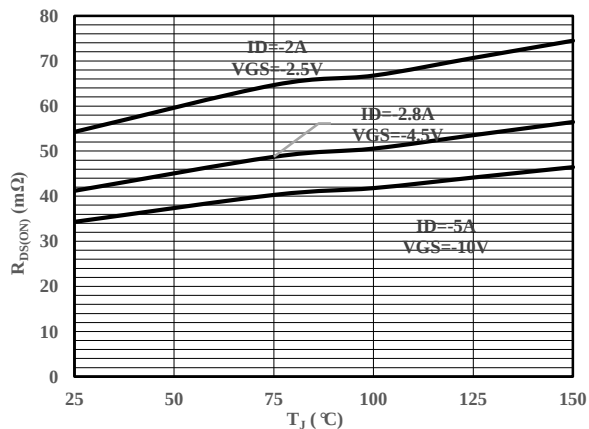


Fig.5-On-Resistance vs. Junction Temperature

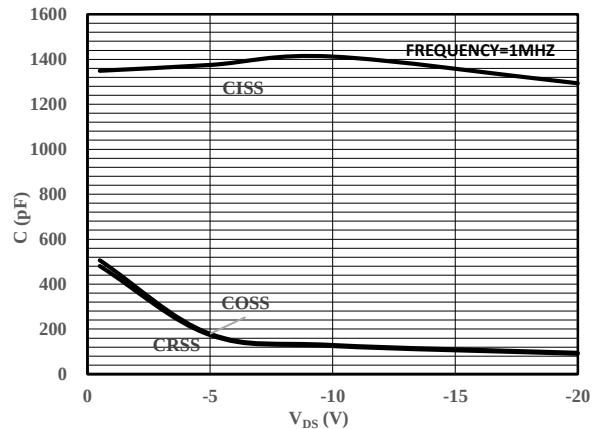
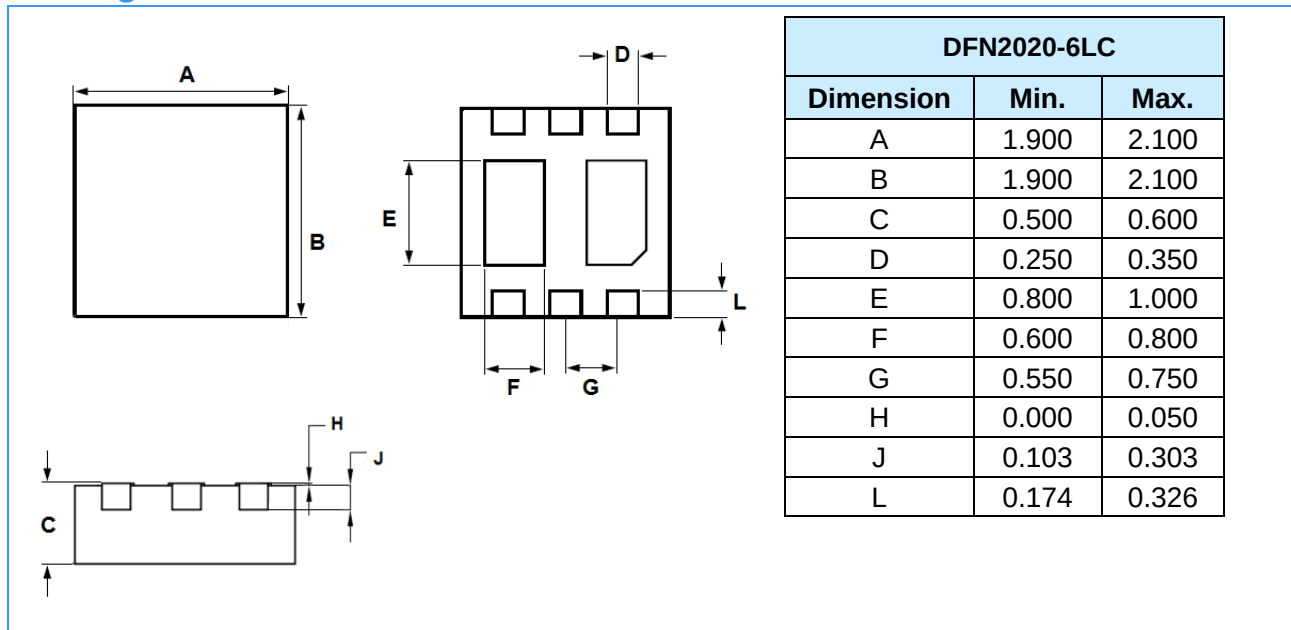


Fig.6- Capacitance Characteristics

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)

