银河微电
Galaxy
Microelectronics

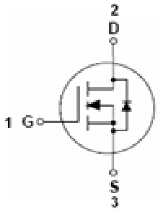
N-Channel Enhancement Mode MOSFET

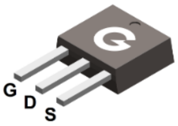
BL2N65I BL2N65D

Features

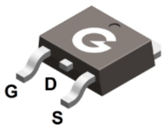
HF

- Super low gate charge
- Green device available
- Excellent C_{dV} / d_t effect decline
- Advanced high cell density trench technology
- RoHS compliant with Halogen-free





TO-251



TO-252

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Mechanical Data

- Case: TO-251, TO-252
- 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
BL2N65I	TO-251	80 pcs / Tube	2N65I
BL2N65D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	2N65D

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	650	V
Gate-to-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current	I_D	2	A
Pulsed Drain Current	I_{DM}	8	A
Single Pulse Avalanche Energy [*1]	E_{AS}	140	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation (T_A = 25°C)	P_D	2.5	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	50	°C/W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	2.87	°C/W
Operating Junction Temperature Range	T_J	-55 ~ +150	°C
Storage Temperature Range	T_{STG}	-55 ~ +150	°C

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	650	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 650V, V_{GS} = 0V	-	-	10	μA
I_{GSS}	Gate-Body Leakage Current	V_{GS} = ±30V, V_{DS} = 0V	-	-	±100	nA
On Characteristics						
$R_{DS(ON)}$	Drain-Source On-resistance *2	V_{GS} = 10V,I_D = 1A	-	3.8	5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	2	-	4	V
R_G	Gate Resistance	V_{GS} = 0V, f = 1MHz	-	23.6	-	Ω
Dynamic Characteristics						
C_{ISS}	Input Capacitance	V_{GS} = 0V V_{DS} = 25V f = 1.0MHz	-	359	-	pF
C_{OSS}	Output Capacitance		-	48	-	
C_{RSS}	Reverse Transfer Capacitance		-	17	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	V_{DD} = 300V R_G = 25Ω I_D = 2.4A	-	10	-	ns
t_r	Turn-on Rise Time		-	25	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	20	-	
t_f	Turn-Off Fall Time		-	25	-	
Q_G	Total Gate-Charge	V_{DD} = 480V V_{GS} = 10V I_D = 2.4A	-	7.8	-	nC
Q_{GS}	Gate to Source Charge		-	1.7	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	2.3	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage *2	I_{SD} = 2A, V_{GS} = 0V	-	-	1.4	V
trr	Reverse Recovery Time	I_{SD} = 2.4A, V_{GS} = 0V dI/d_t = 100A/μs	-	503	-	ns
Qrr	Reverse Recovery Charge		-	1838	-	nC

Notes:

1. The E_{AS} data shows Max. rating. The test condition is V_{DS} = 50V, V_{GS} = 10V, L = 70mH
2. The data tested by pulsed, pulse width ≤ 300μs, duty cycle ≤ 2%

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

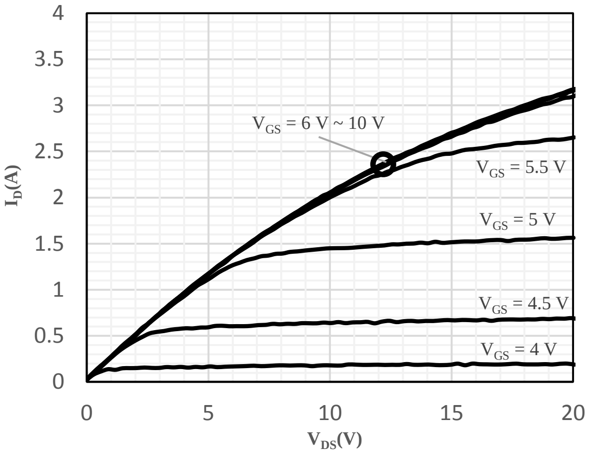


Fig 1 Typical Output Characteristics

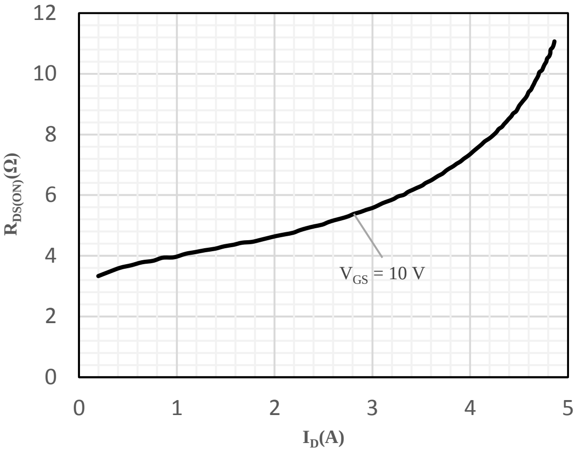


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

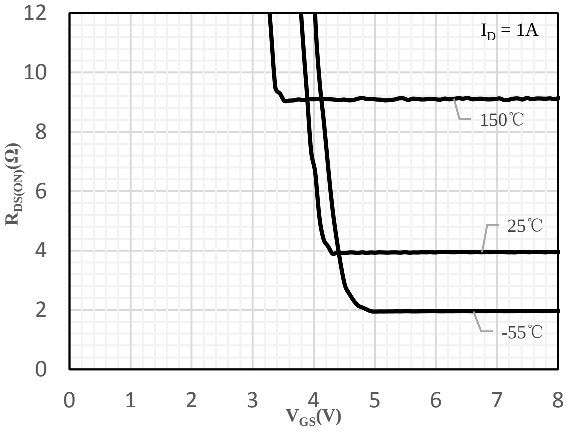


Fig 3 On-Resistance vs. Gate-Source Voltage

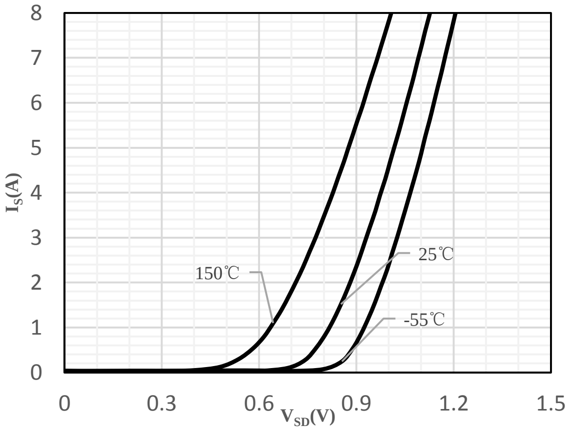


Fig 4 Body-Diode Characteristics

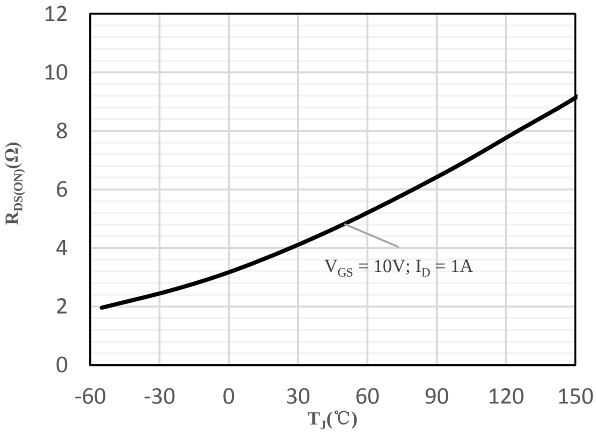


Fig 5 On-Resistance vs. Junction Temperature

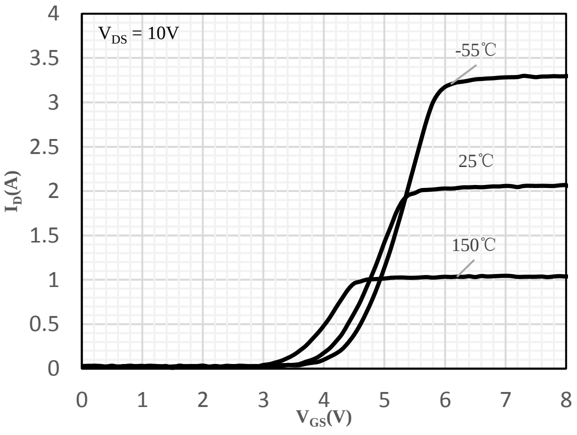
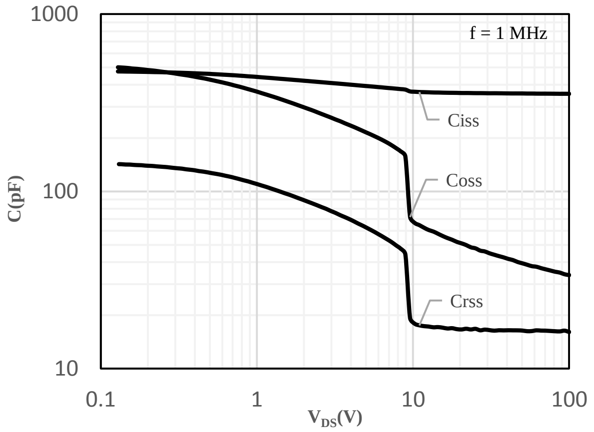


Fig 6 Transfer Characteristics



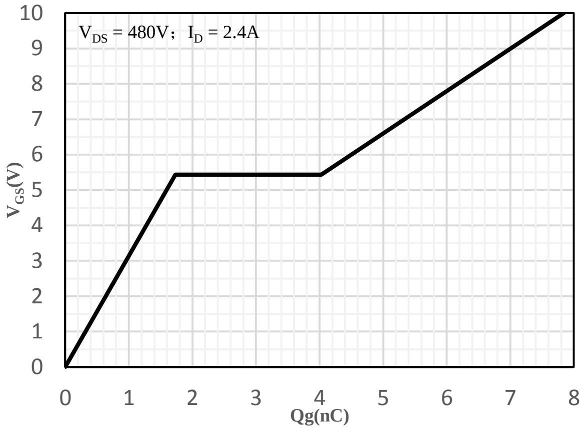
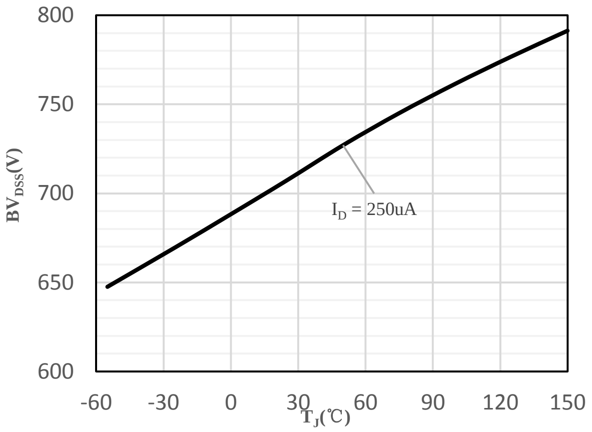


Fig 7 Capacitance Characteristics

Fig 8 Gate-Charge Characteristics



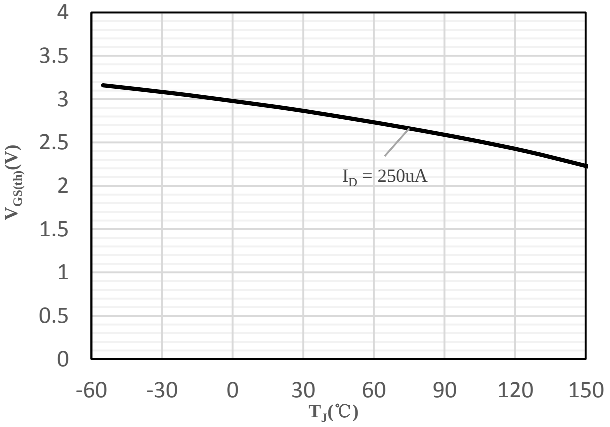


Fig 9 Breakdown Voltage vs. Junction Temperature

Fig 10 $V_{GS(th)}$ vs. Junction Temperature

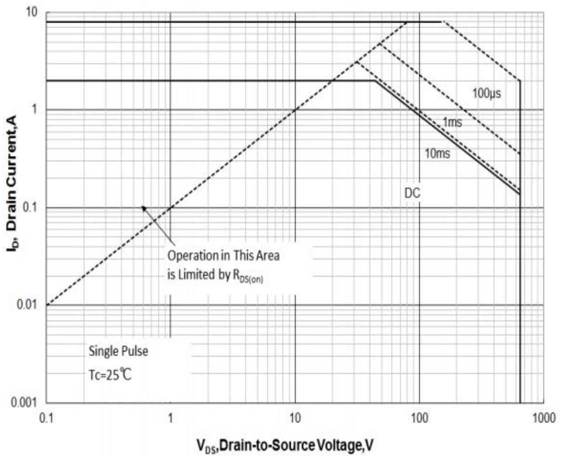
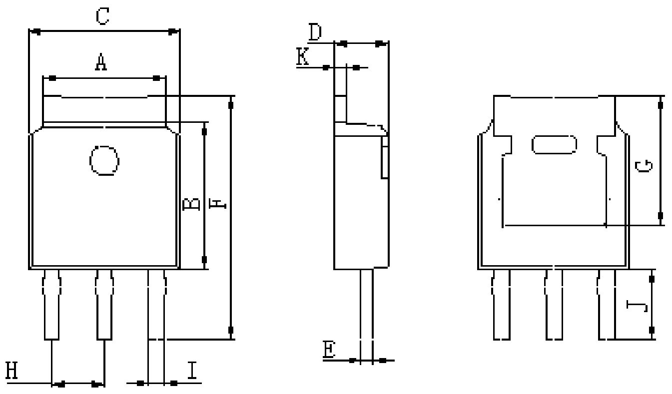
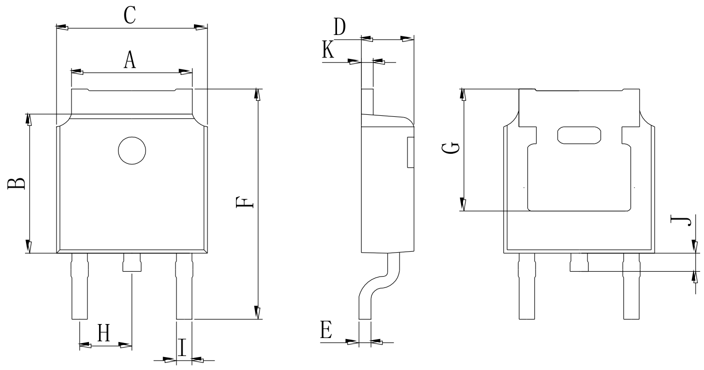


Fig 11 Safe Operating Area

Package Outline Dimensions (Unit: mm)



TO-251		
Dimension	**Min.**	**Max.**
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	11.00	11.60
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	4.00	4.40
K	0.40	0.60



TO-252		
Dimension	**Min.**	**Max.**
A	5.05	5.65
B	5.80	6.40
C	6.25	6.85
D	2.20	2.40
E	0.40	0.60
F	9.71	10.31
G	5.05	5.65
H	2.10	2.50
I	0.70	0.90
J	0.50	0.70
K	0.40	0.60

Mounting Pad Layout (Unit: mm)

TO-252