

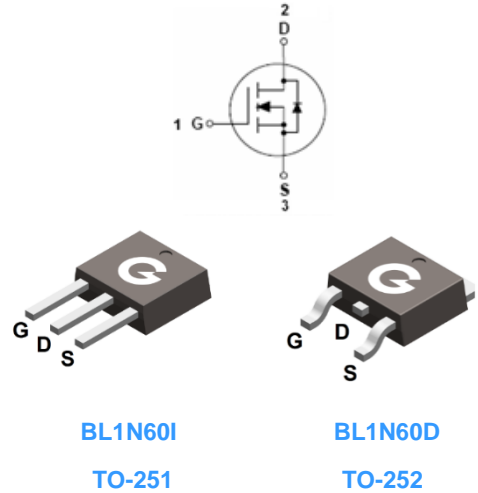
### Features

- Ultra low gate charge
- Low reverse transfer capacitance
- Fast switching capability
- Avalanche energy specified
- Improved dv/dt capability, high ruggedness

HF

### Mechanical Data

- Case: TO-251, TO-252
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matted-Tin plated; Solderable Per MIL-STD-202, Method 208



### Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL1N60I	TO-251	80 pcs / Tube	1N60I
BL1N60D	TO-252	80 pcs / Tube or 2500 pcs / Tape & Reel	1N60D

### Maximum Ratings (@ T<sub>A</sub> = 25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V <sub>DSS</sub>	600	V
Gate-to-Source Voltage	V <sub>GSS</sub>	±30	V
Continuous Drain Current (T <sub>C</sub> = 25°C)	I <sub>D</sub>	1.2	A
Continuous Drain Current (T <sub>C</sub> = 100°C)		0.66	A
Pulsed Drain Current	I <sub>DM</sub>	4	A
Single Pulse Avalanche Energy <sup>*1</sup>	E <sub>AS</sub>	20	mJ

### Thermal Characteristics

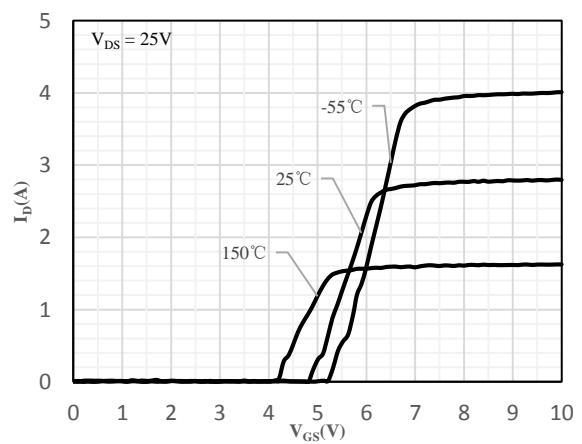
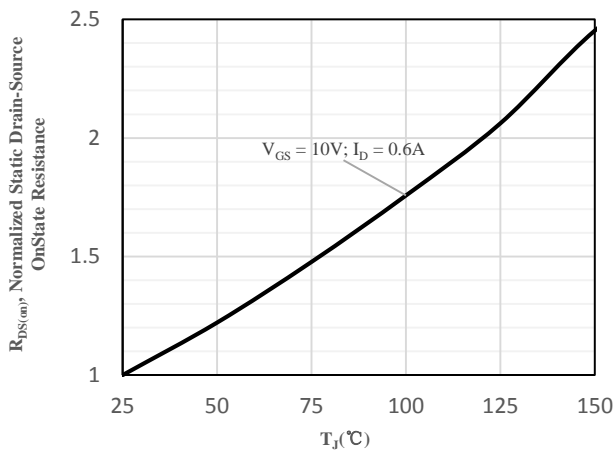
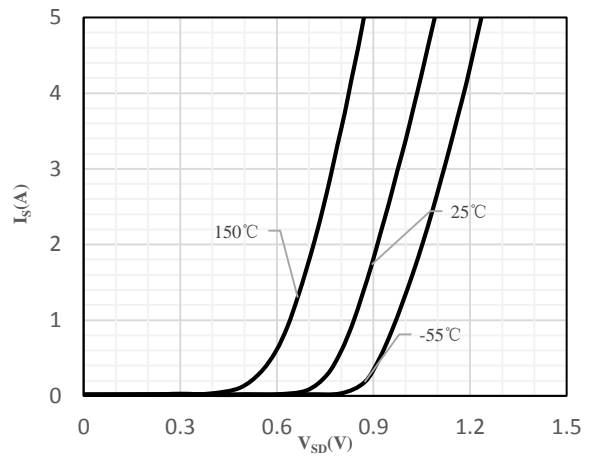
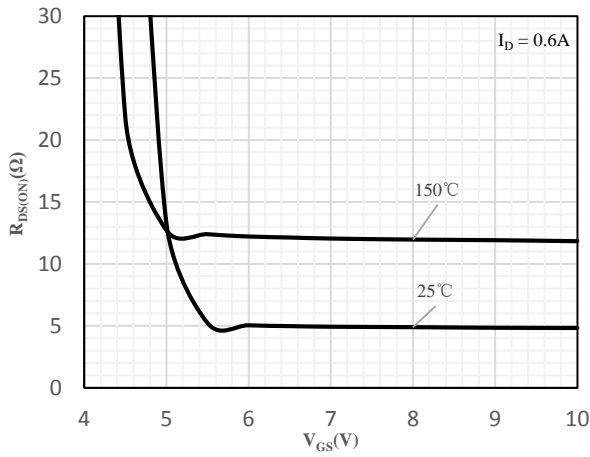
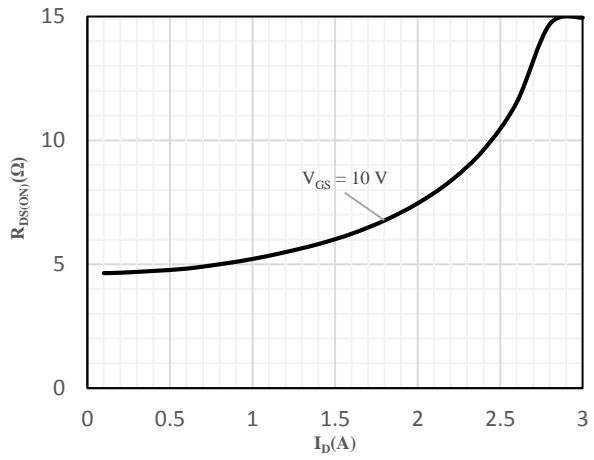
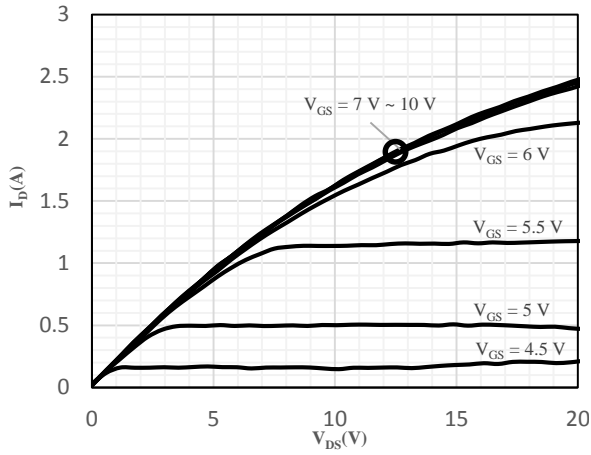
Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	30	W
Thermal Resistance Junction-to-Air	R <sub>θJA</sub>	62	°C/W
Thermal Resistance Junction-to-Case	R <sub>θJC</sub>	4.17	°C/W
Operating Junction Temperature Range	T <sub>J</sub>	-55 ~ +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

### Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
$V_{DS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	600	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 600V, V_{GS} = 0V$	-	-	10	$\mu A$
		$V_{DS} = 480V, V_{GS} = 0V, T_A = 125^\circ\text{C}$	-	-	100	$\mu A$
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS} = \pm 30V, V_{DS} = 0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 0.6A$	-	-	11.5	$\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	3.5	4	V
$R_G$	Gate Resistance	$V_{GS} = 0V, f = 1\text{MHz}$	-	5.3	-	$\Omega$
<b>Dynamic Characteristics</b>						
$C_{ISS}$	Input Capacitance	$V_{GS} = 0V$	-	279	-	pF
$C_{OSS}$	Output Capacitance	$V_{DS} = 25V$	-	42	-	
$C_{RSS}$	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$	-	9	-	
<b>Switching Characteristics</b>						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 300V$ $V_{GS} = 10V$ $I_D = 1.2A$	-	5	-	ns
$t_r$	Turn-on Rise Time		-	25	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	7	-	
$t_f$	Turn-Off Fall Time		-	25	-	
$Q_G$	Total Gate-Charge	$V_{DD} = 480V$	-	7.3	-	nC
$Q_{GS}$	Gate to Source Charge	$I_D = 1.2A$	-	1.4	-	
$Q_{GD}$	Gate to Drain (Miller) Charge	$V_{GS} = 10V$	-	4	-	
<b>Source-Drain Diode Characteristics</b>						
$V_{SD}$	Diode Forward Voltage	$I_{SD} = 1.2A, V_{GS} = 0V$	-	0.85	1.4	V
$I_{SD}$	Continuous Drain-Source Current		-	-	1.2	A
$I_{SM}$	Pulsed Drain-Source Current		-	-	4.8	A
$t_{rr}$	Reverse Recovery Time	$I_{SD} = 1A, V_{GS} = 0V, V_R = 30V$	-	290	-	ns
$Q_{rr}$	Reverse Recovery Charge	$di/dt = 100A/\mu s$	-	850	-	nC

Note 1: The test condition is  $V_{DS} = 50V, V_{GS} = 10V, L = 10\text{mH}$

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



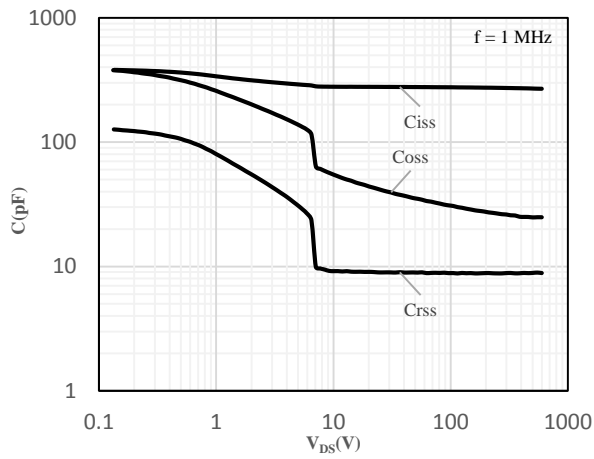


Fig 7 Capacitance Characteristics

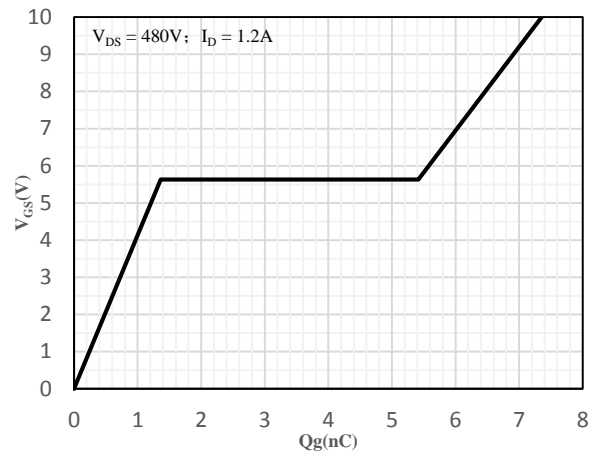


Fig 8 Gate-Charge Characteristics

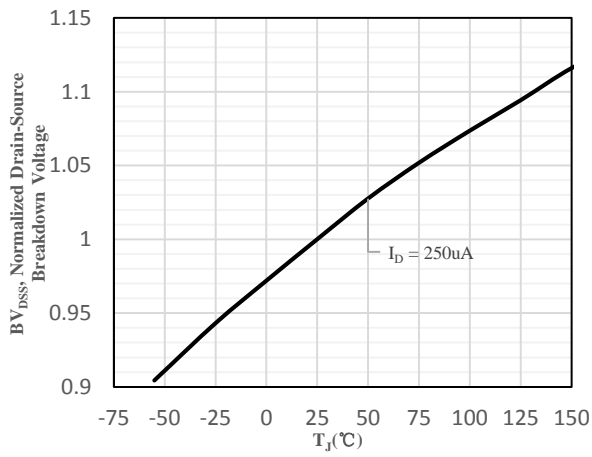


Fig 9 Normalized Breakdown Voltage  
vs. Junction Temperature

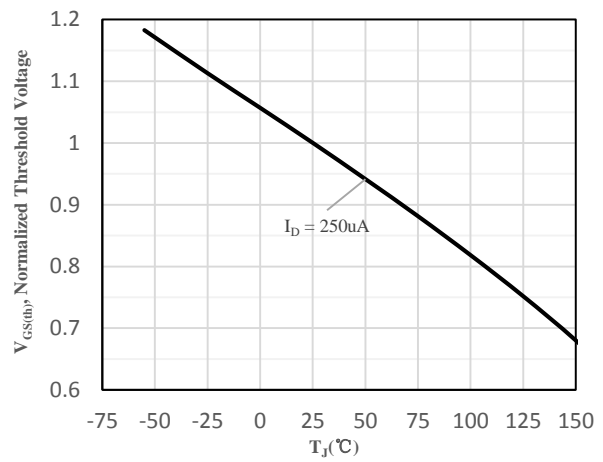
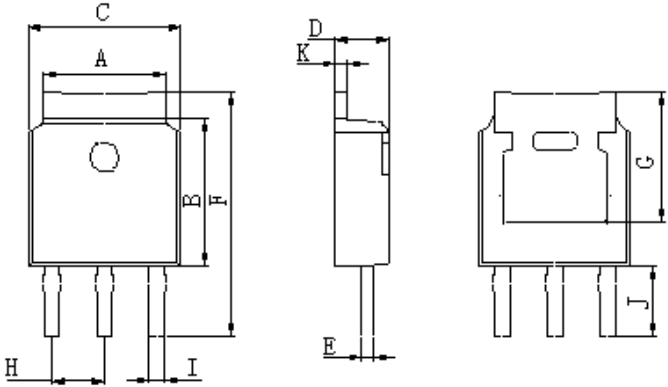
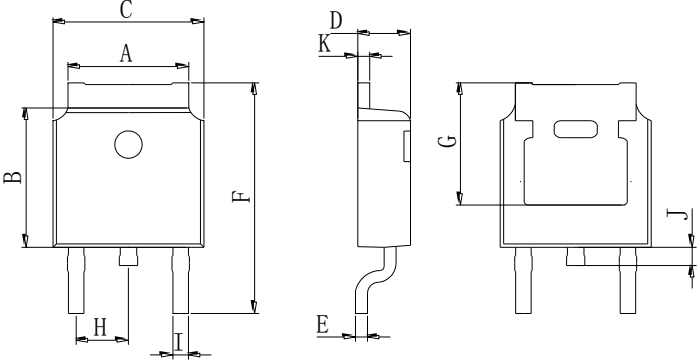


Fig 10 Normalized  $V_{GS(th)}$  vs. Junction Temperature

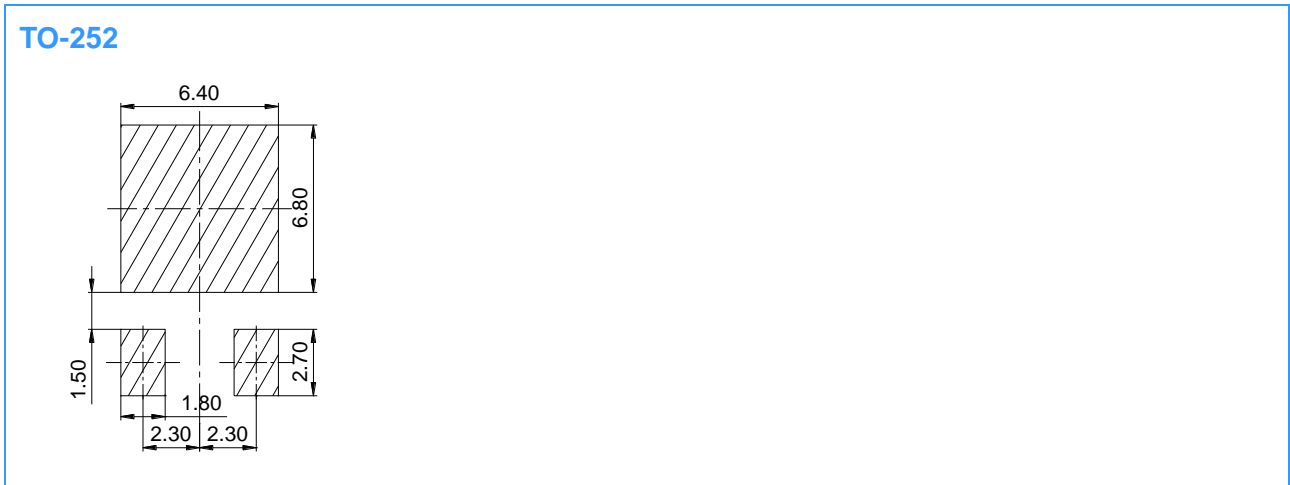
### Package Outline Dimensions (Unit: mm)

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	12.00	12.60	
G	5.05	5.65	
H	2.10	2.50	
I	0.70	0.90	
J	4.90	5.50	
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)



**IMPORTANT NOTICE**

Changzhou Galaxy Century Microelectronics (GME) reserves the right to make changes without further notice to any product information (copyrighted) herein to make corrections, modifications, improvements, or other changes. GME does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others.