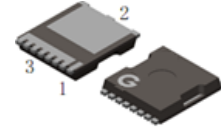
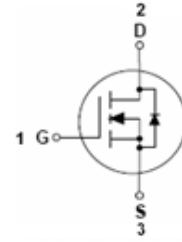


Features

- Advanced Shielded-Gate Trench technology
- Super low on-resistance
- Superior thermal resistance
- HBM: JESD22-A114-B: 2
- RoHS compliant with Halogen-free

HF



TOLL

Mechanical Data

- Case: TOLL
- 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
BL015N11TH-TL	TOLL	2000 pcs / Tape & Reel	015N11TH

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	110	V
Gate-to-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$)	I_D	380	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$)		240	
Continuous Drain Current ($T_A = 25^\circ\text{C}$) *1		38	
Continuous Drain Current ($T_A = 100^\circ\text{C}$) *1		24	
Pulsed Drain Current ($t_p = 10\mu\text{s}$, $T_C = 25^\circ\text{C}$)	I_{DM}	1520	A
Single Pulse Avalanche Energy ($L = 50\text{mH}$) *3	E_{AS}	3500	mJ
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	417	W
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	-	0.2	0.3	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	-	20	30	$^\circ\text{C/W}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu\text{A}$	110	-	-	V
		$V_{GS} = 0V, I_D = 1\text{mA}$	110	-	-	
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 110V, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$R_{DS(ON)}$	Drain-Source On-resistance ^{*2}	$V_{GS} = 10V, I_D = 100A$	-	1.25	1.5	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	2	3.2	4	V
R_G	Gate Resistance	$V_{GS} = 0V, f = 1\text{MHz}$	-	2	-	Ω
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 40V$ $f = 100\text{kHz}$	-	12920	-	pF
C_{OSS}	Output Capacitance		-	4210	-	
C_{RSS}	Reverse Transfer Capacitance		-	210	-	
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 50V$ $V_{GS} = 15V$ $R_G = 3.3\Omega$ $I_D = 50A$	-	56	-	ns
t_r	Turn-on Rise Time		-	145	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	160	-	
t_f	Turn-Off Fall Time		-	45	-	
Q_G	Total Gate-Charge	$V_{DD} = 50V$ $V_{GS} = 10V$ $I_D = 100A$	-	212	-	nC
Q_{GS}	Gate to Source Charge		-	63	-	
Q_{GD}	Gate to Drain (Miller) Charge		-	62	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage ^{*2}	$I_{SD} = 100A, V_{GS} = 0V$	-	0.85	1.2	V
t_{rr}	Reverse Recovery Time	$I_F = 40A, V_{GS} = 0V$ $dI_F/dt = 100A/\mu\text{s}$	-	125	-	ns
Q_{rr}	Reverse Recovery Charge		-	320	-	nC

Notes:

- The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper
- The data tested by pulsed, pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$
- The E_{AS} data shows Max. rating. The test condition is $V_{DD} = 80V, V_{GS} = 10V, L = 50\text{mH}$

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

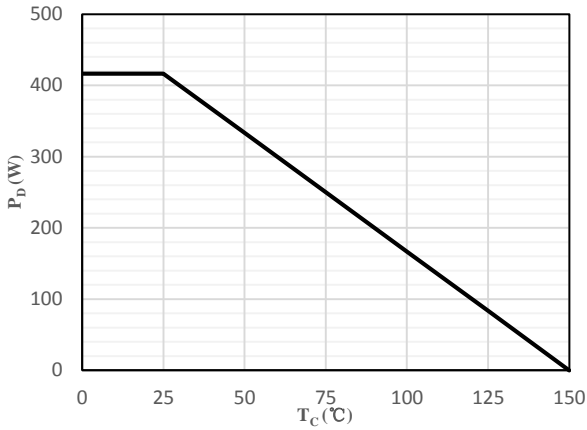


Fig 1 Power Dissipation

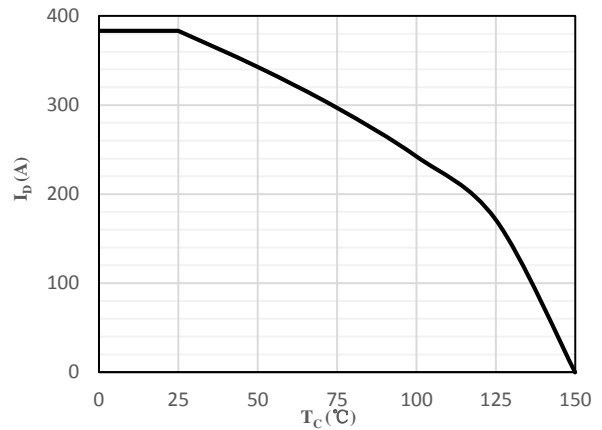


Fig 2 Drain Current

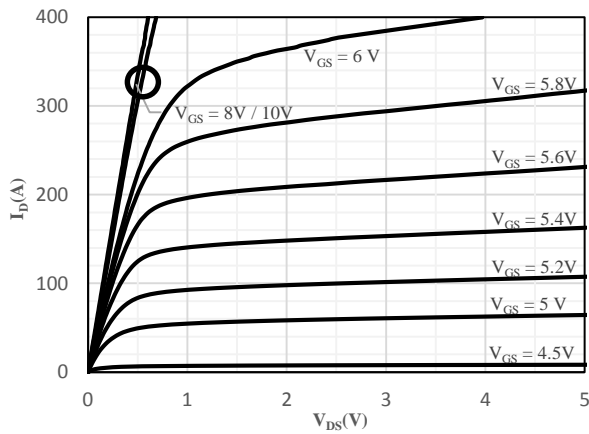


Fig 3 Typical Output Characteristics

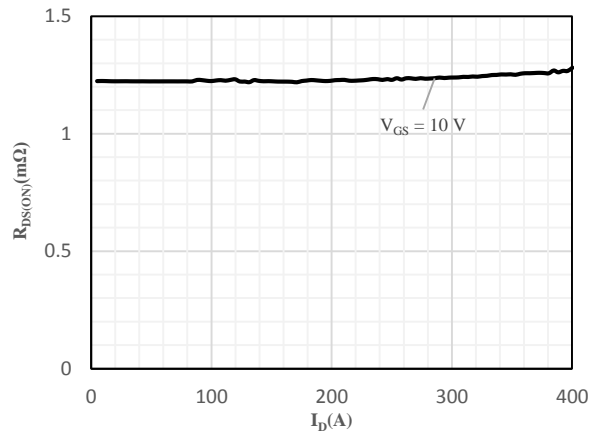


Fig 4 On-Resistance vs. Drain Current and Gate Voltage

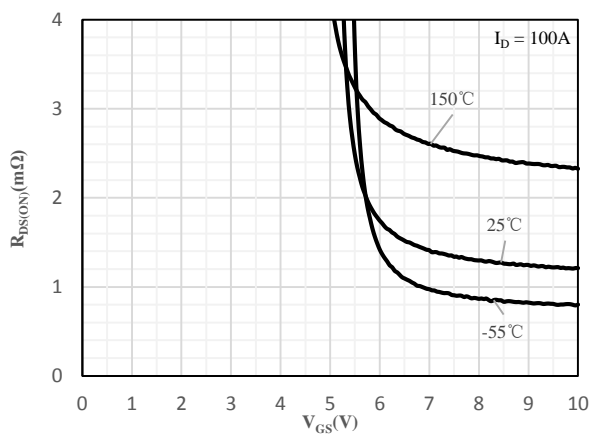


Fig 5 On-Resistance vs. Gate-Source Voltage

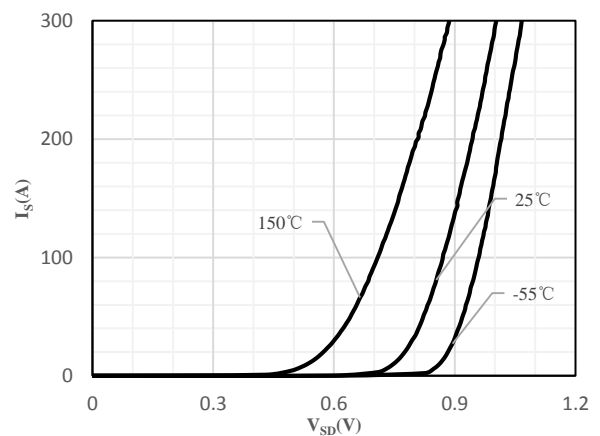


Fig 6 Body-Diode Characteristics

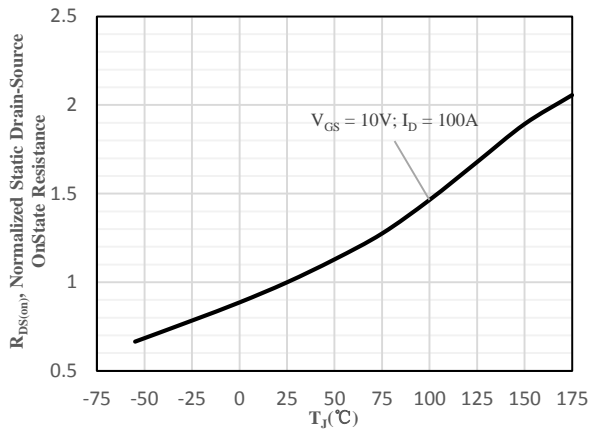


Fig 7 Normalized On-Resistance vs. Junction Temperature

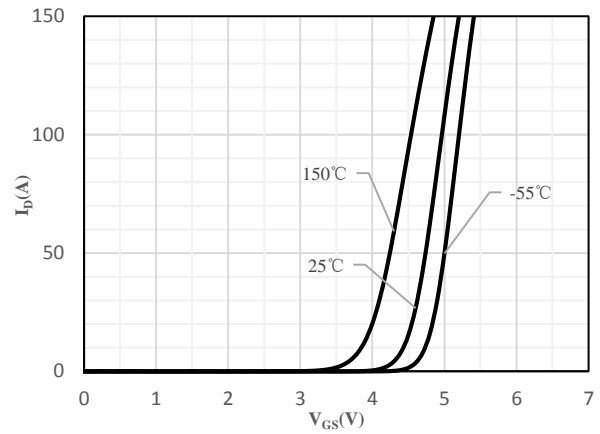


Fig 8 Transfer Characteristics

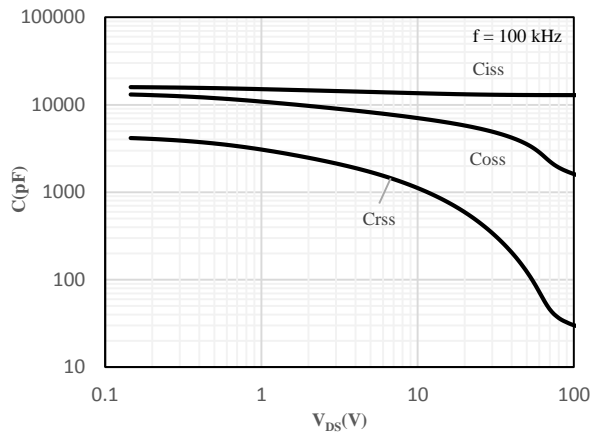


Fig 9 Capacitance Characteristics

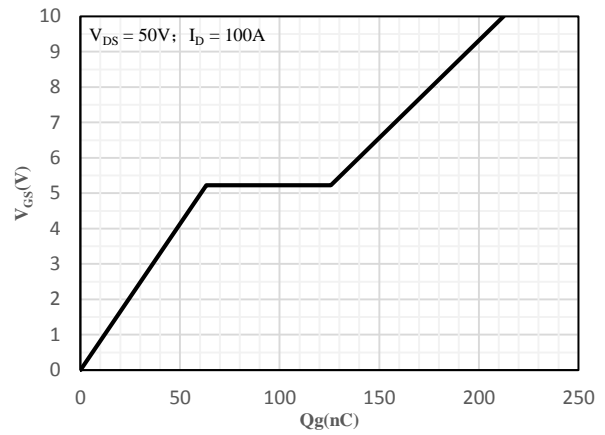


Fig 10 Gate-Charge Characteristics

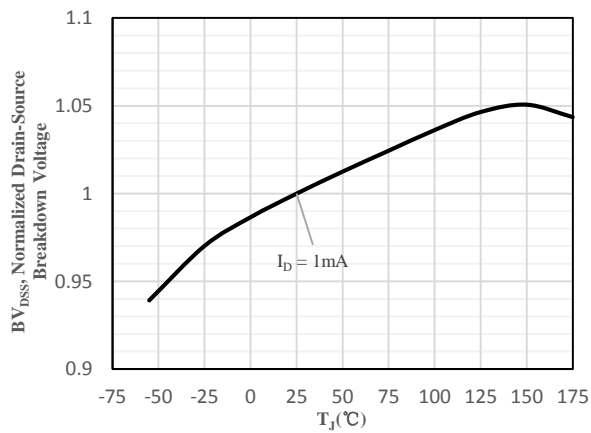


Fig 11 Normalized Breakdown Voltage vs. Junction Temperature

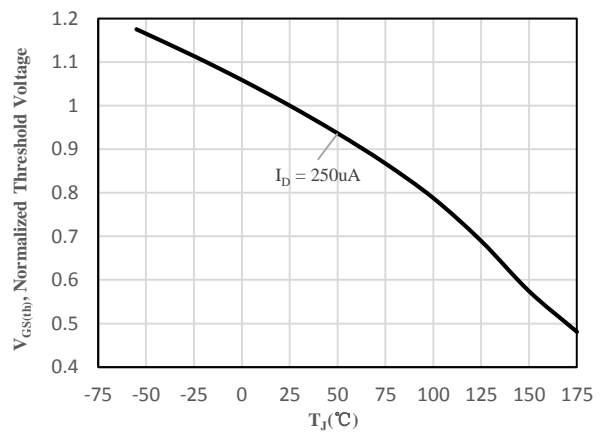


Fig 12 Normalized $V_{GS(th)}$ vs. Junction Temperature

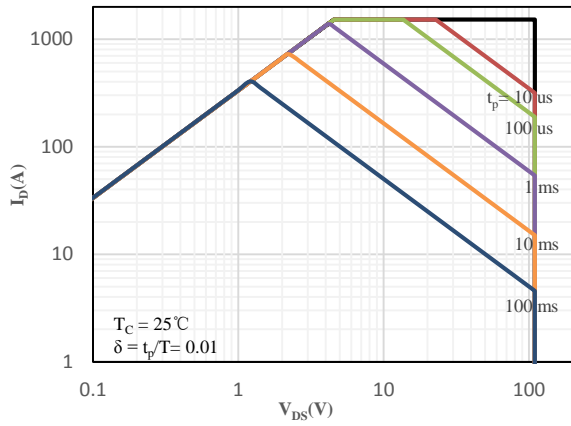


Fig 13 Safe Operating Area

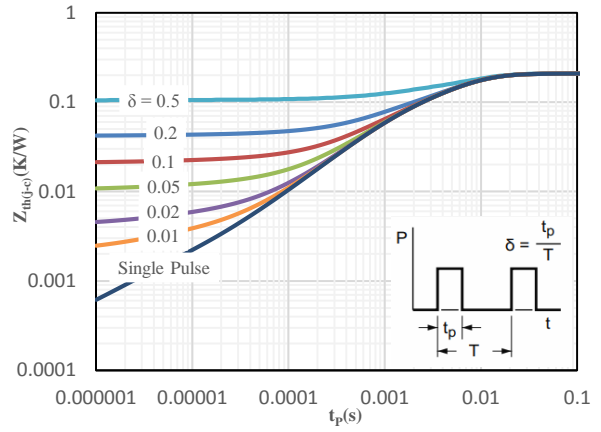
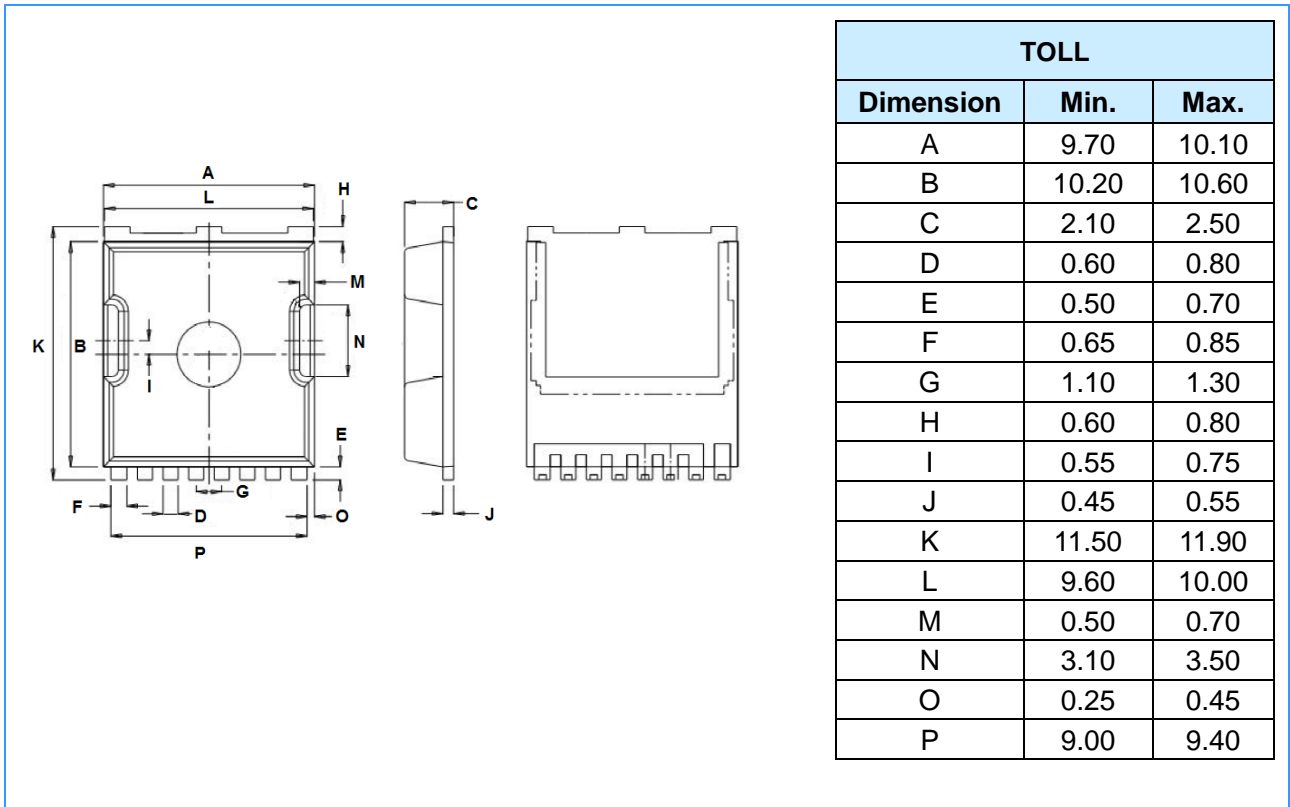


Fig 14 Maximum transient thermal impedance

Package Outline Dimensions (Unit: mm)



SOLDERING FOOTPRINT (Unit: mm)

