

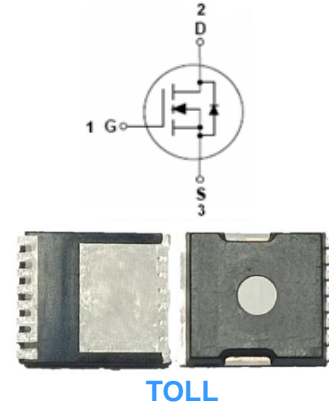
Features

- Uses advanced SGT technology
- Extremely low on-resistance $R_{DS(ON)}$
- Excellent gate charge x $R_{DS(ON)}$ product(FOM)

HF

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
BL020N08TH-TL	TOLL	2000 pcs / Tape & Reel	LR020N08S10

Maximum Ratings

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	80	V
Gate-to-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ\text{C}$, Silicon limit)	I_D	260	A
Continuous Drain Current ($T_C = 25^\circ\text{C}$, Package limit)	I_D	240	A
Continuous Drain Current ($T_C = 100^\circ\text{C}$, Silicon limit)	I_D	100	A
Pulsed Drain Current ($T_C = 25^\circ\text{C}$, tp limited by T_{Jmax})	I_{DM}	720	A
Single Pulse Avalanche Energy ($L = 0.25\text{mH}$, $R_G = 25\Omega$)	E_{AS}	520	mJ

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ($T_C = 25^\circ\text{C}$)	P_D	231	W
Thermal Resistance Junction-to-Air	$R_{\theta JA}$	60	$^\circ\text{C/W}$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.54	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	80	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 80V, V_{GS} = 0V, T_J = 25^\circ\text{C}$	-	-	1	μA
		$V_{DS} = 80V, V_{GS} = 0V, T_J = 125^\circ\text{C}$	-	-	5	μA
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 80A$	-	1.5	2	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	2.8	4	V
g_{fs}	Transconductance	$V_{DS} = 5V, I_D = 40A$	-	145	-	S
Dynamic Characteristics						
C_{ISS}	Input Capacitance	$V_{GS} = 0V$	-	19981	-	pF
C_{OSS}	Output Capacitance	$V_{DS} = 40V$	-	2298	-	
C_{RSS}	Reverse Transfer Capacitance	$f = 1.0\text{MHz}$	-	1441	-	
R_G	Gate Resistance	$V_{GS} = 0V, V_{DS} = 0V, f = 1\text{MHz}$	-	2	-	Ω
Switching Characteristics						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 40V$ $V_{GS} = 10V$ $R_L = 3\Omega$	-	38	-	ns
t_r	Turn-on Rise Time		-	132	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	126	-	
t_f	Turn-Off Fall Time		-	153	-	
Q_G	Total Gate-Charge	$V_{DD} = 40V$	-	217	-	nC
Q_{GS}	Gate to Source Charge	$V_{GS} = 10V$	-	63	-	
Q_{GD}	Gate to Drain (Miller) Charge	$I_D = 80A$	-	56	-	
Source-Drain Diode Characteristics						
V_{SD}	Diode Forward Voltage	$I_{SD} = 50A, V_{GS} = 0V$	-	-	1.2	V
t_{rr}	Reverse Recovery Time	$I_F = 80A$	-	112	-	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt = 100A/\mu s$	-	290	-	nC

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

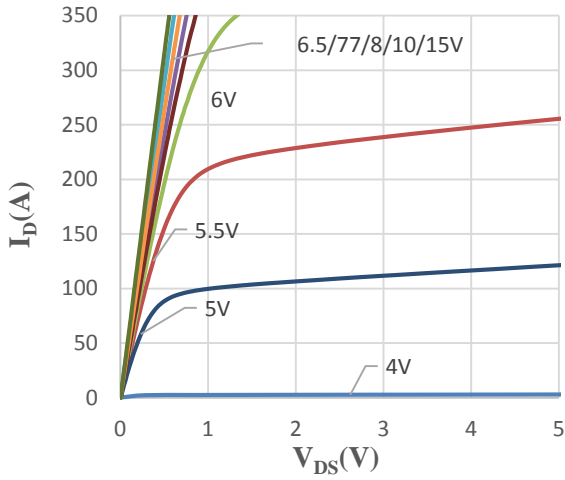


Fig 1 Typical Output Characteristics

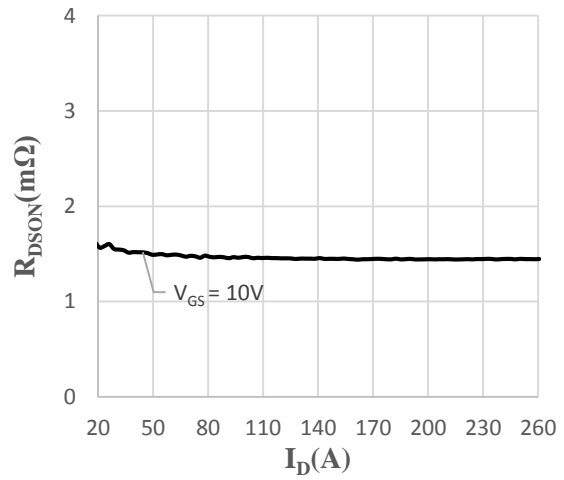


Fig 2 On-Resistance vs. Drain Current and Gate Voltage

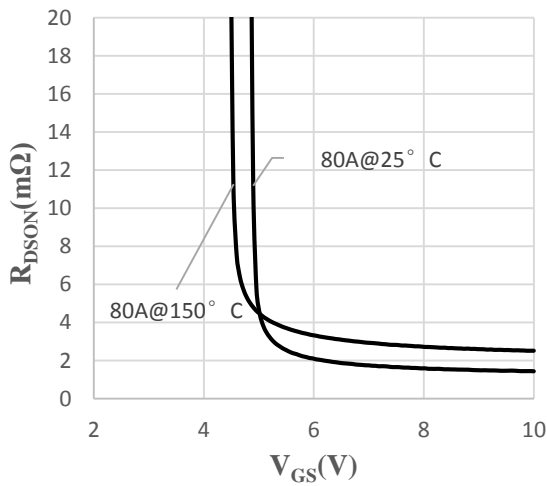


Fig 3 On-Resistance vs. Gate-Source Voltage

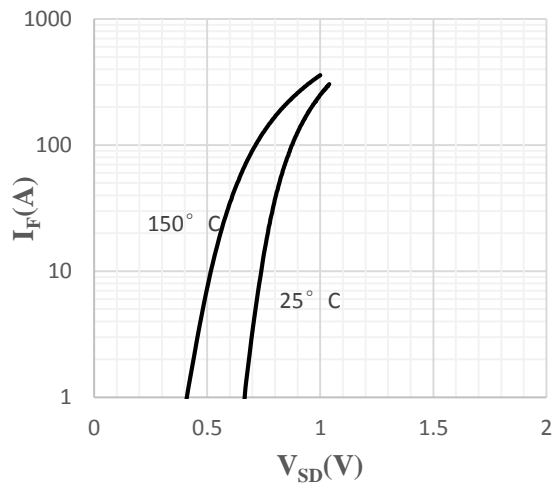


Fig 4 Body-Diode Characteristics

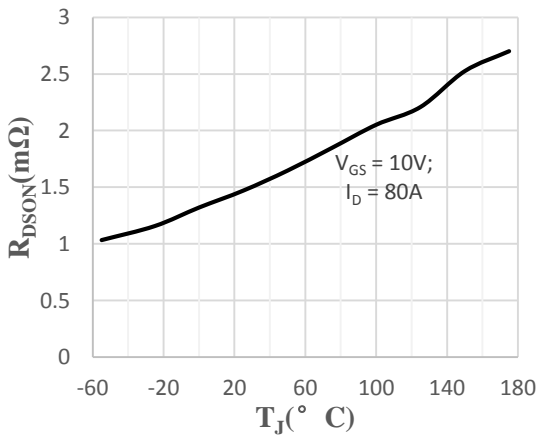


Fig 5 On-Resistance vs. Junction Temperature

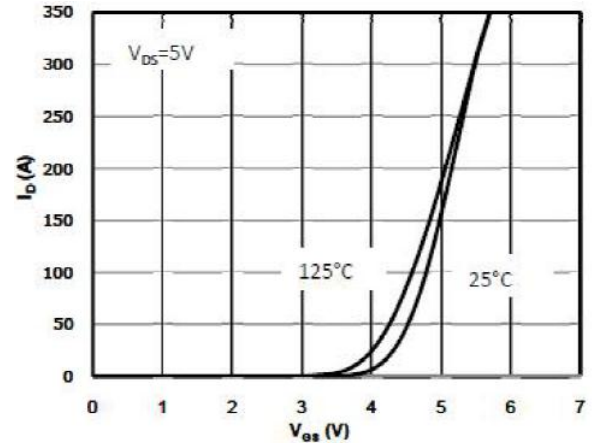


Fig 6 Transfer Characteristics

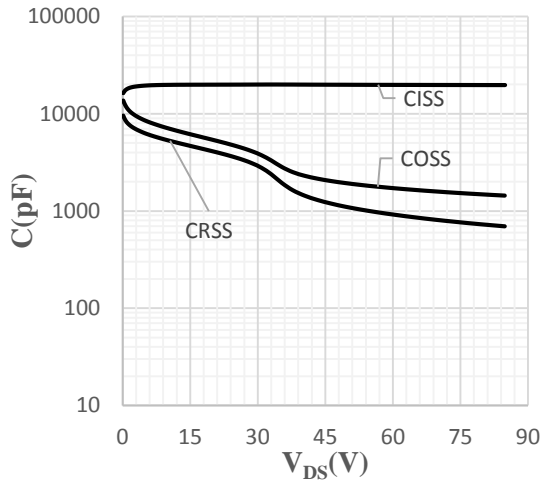


Fig 7 Capacitance Characteristics

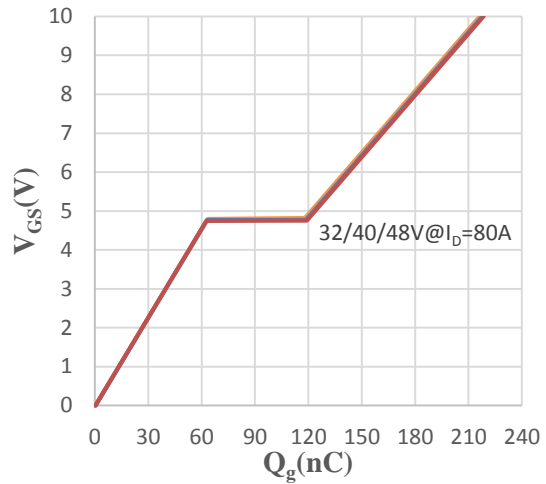


Fig 8 Gate-Charge Characteristics

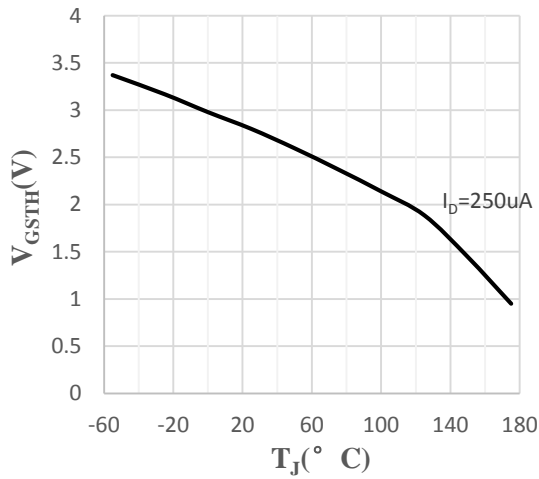


Fig 9 Vth vs temperature

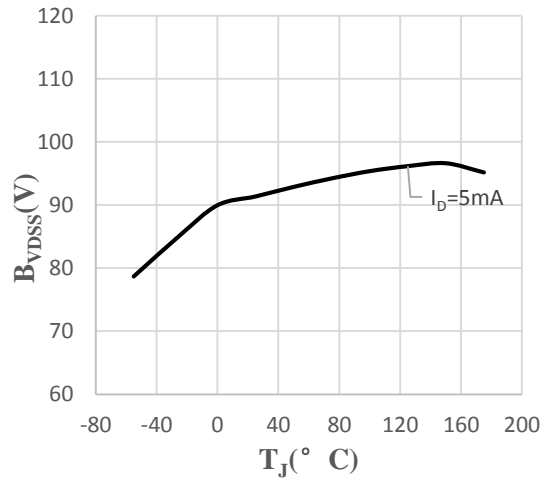


Fig 9 Bvdss vs temperature

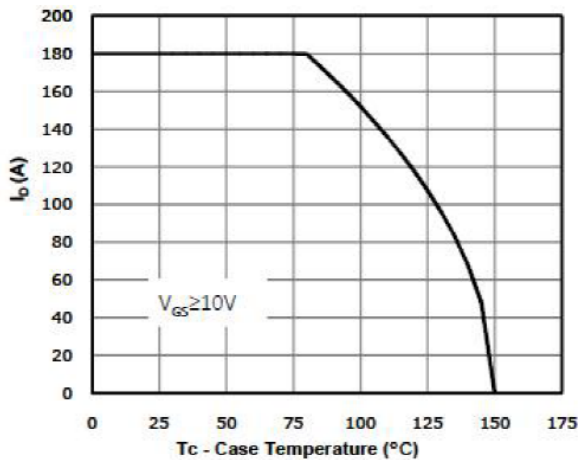


Fig 10 Drain Current Derating

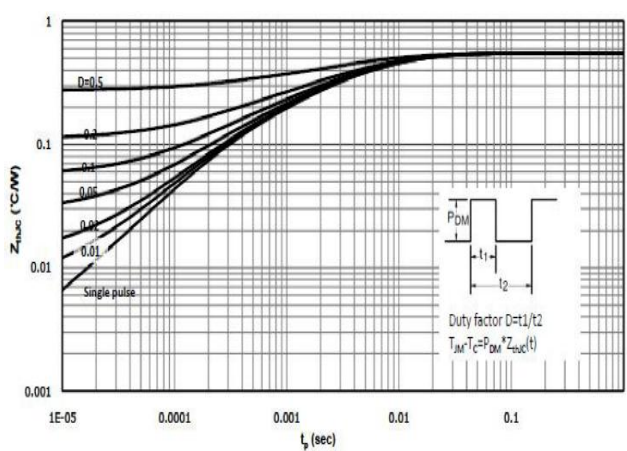
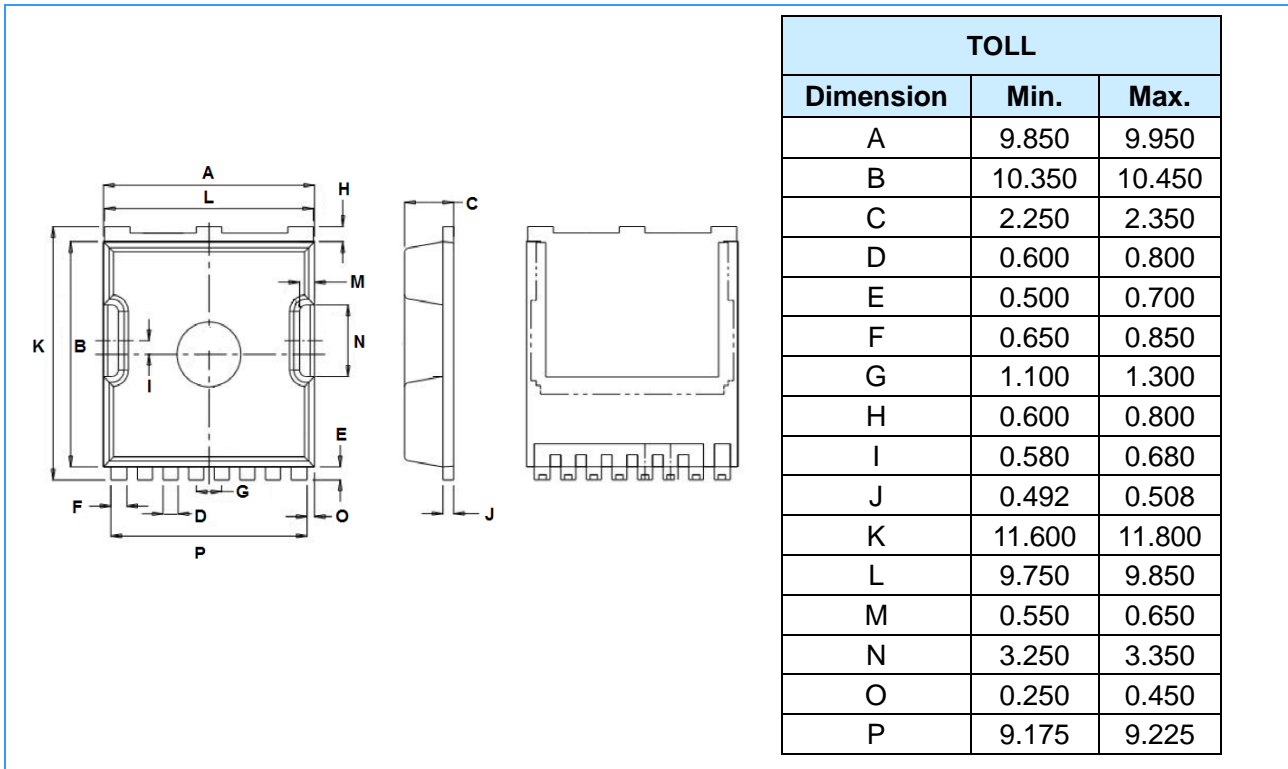


Fig 11 Normalized maximum transient thermal impedance (Rthj-c)

Package Outline Dimensions (Unit: mm)



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