

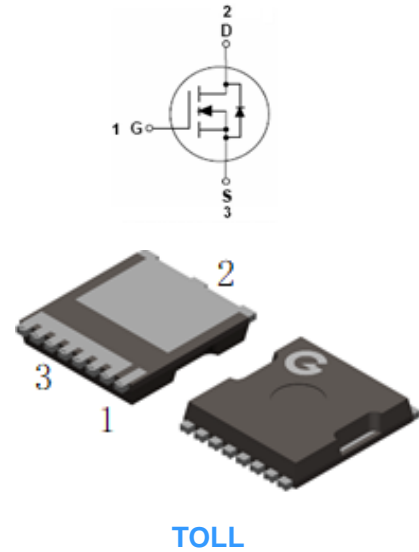
### Features

- Typical  $R_{DS(ON)} = 2.5m\Omega$  at  $V_{GS} = 10V$ ,  $I_D = 80 A$
- Typical  $Q_g(tot) = 89 nC$  at  $V_{GS} = 10 V$ ,  $I_D = 80 A$
- UIS capability

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
BL030N085TH-TL	TOLL	2000 pcs / Tape & Reel	030N085TH

### Maximum Ratings (@ $T_J = 25^\circ C$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	$V_{DSS}$	85	V
Gate-to-Source Voltage	$V_{GSS}$	$\pm 20$	V
Continuous Drain Current ( $T_C = 25^\circ C$ , $V_{GS} = 10V$ ) *1	$I_D$	220	A
Single Pulse Avalanche Energy *2	$E_{AS}$	205	mJ

### Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ( $T_C = 25^\circ C$ )	$P_D$	300	W
Thermal Resistance Junction-to-Air *3	$R_{\theta JA}$	43	$^\circ C/W$
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	0.5	$^\circ C/W$
Operating Junction Temperature Range	$T_J$	-55 ~ +175	$^\circ C$
Storage Temperature Range	$T_{STG}$	-55 ~ +175	$^\circ C$

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

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
$V_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	85	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS} = 80V, V_{GS} = 0V, T_J = 25^\circ\text{C}$	-	-	1	$\mu A$
		$V_{DS} = 80V, V_{GS} = 0V, T_J = 175^\circ\text{C}^{*4}$	-	-	1	mA
$I_{GSS}$	Gate-Body Leakage Current	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$R_{DS(ON)}$	Static Drain-Source On-resistance	$V_{GS} = 10V, I_D = 80A, T_J = 25^\circ\text{C}$	-	-	3	m $\Omega$
		$V_{GS} = 10V, I_D = 80A, T_J = 175^\circ\text{C}^{*4}$	-	4.9	-	m $\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2	2.8	4	V
$R_G$	Gate Resistance	$V_{GS} = 0V, V_{DS} = 0V, f = 1\text{MHz}$	-	3	-	$\Omega$
<b>Dynamic Characteristics</b>						
$C_{ISS}$	Input Capacitance	$V_{GS} = 0V$ $V_{DS} = 40V$ $f = 250\text{kHz}$	-	6313	-	pF
$C_{OSS}$	Output Capacitance		-	1249	-	
$C_{RSS}$	Reverse Transfer Capacitance		-	28	-	
$Q_G$	Total Gate-Charge	$V_{DD} = 64V$ $V_{GS} = 10V$ $I_D = 80A$	-	89	-	nC
$Q_{GS}$	Gate to Source Charge		-	30	-	
$Q_{GD}$	Gate to Drain (Miller) Charge		-	20	-	
<b>Switching Characteristics</b>						
$t_{d(ON)}$	Turn-on Delay Time	$V_{DD} = 40V$ $V_{GS} = 10V$ $R_G = 6\Omega$ $I_D = 80A$	-	37	-	ns
$t_r$	Turn-on Rise Time		-	30	-	
$t_{d(OFF)}$	Turn-Off Delay Time		-	87	-	
$t_f$	Turn-Off Fall Time		-	35	-	
<b>Source-Drain Diode Characteristics</b>						
$V_{SD}$	Diode Forward Voltage	$I_{SD} = 80A, V_{GS} = 0V$	-	-	1.25	V
		$I_{SD} = 40A, V_{GS} = 0V$	-	-	1.20	V
$t_{rr}$	Reverse Recovery Time	$I_F = 40A, V_{DD} = 50V$	-	80	-	ns
$Q_{rr}$	Reverse Recovery Charge	$di_F/dt = 100A/\mu s$	-	160	-	nC

Notes:

1. Current is limited by silicon
2. Starting  $T_J = 25^\circ\text{C}$ ,  $L = 0.1\text{mH}$ ,  $V_{DD} = 64V$
3. The maximum rating presented here is based on mounting on a 1 in2 pad of 2oz copper
4. Product is not tested to this condition in production

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

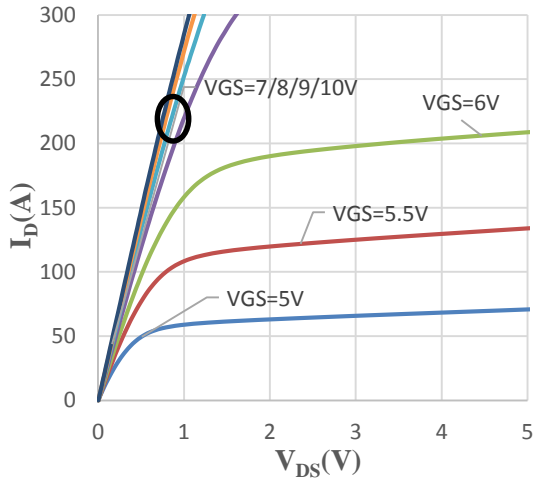


Fig 1 Typical Output Characteristics

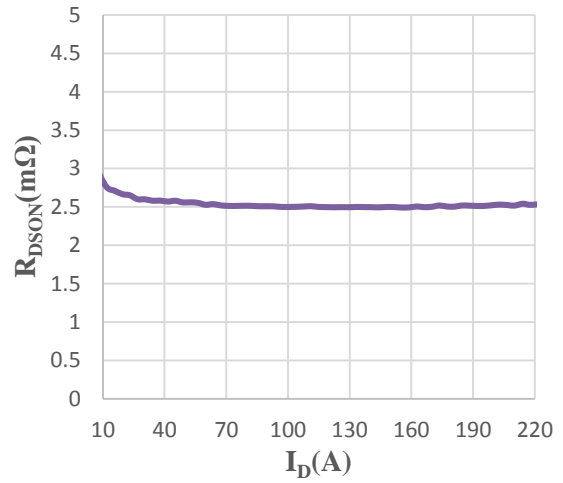


Fig 2 On-Resistance vs. Drain Current

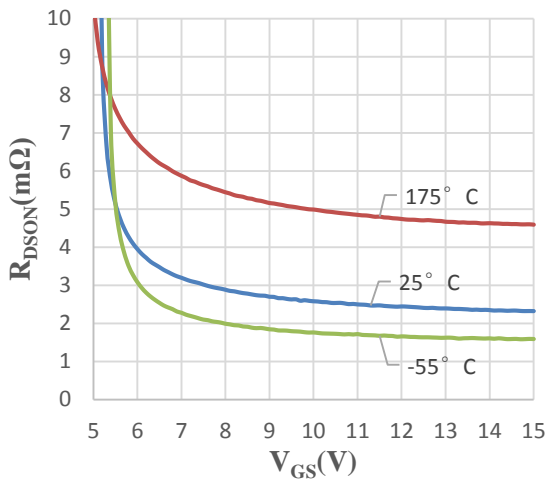


Fig 3 On-Resistance vs. Gate-Source Voltage

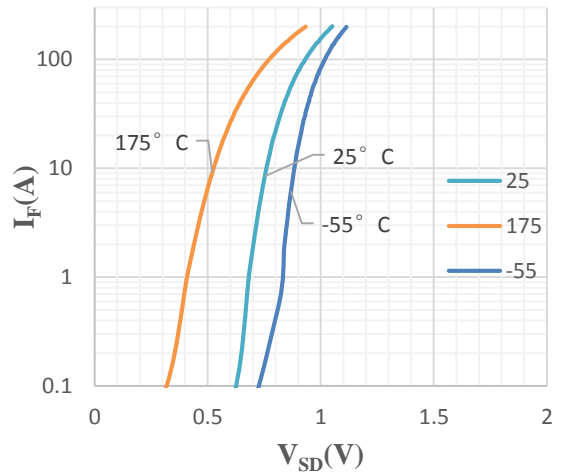


Fig 4 Body-Diode Characteristics

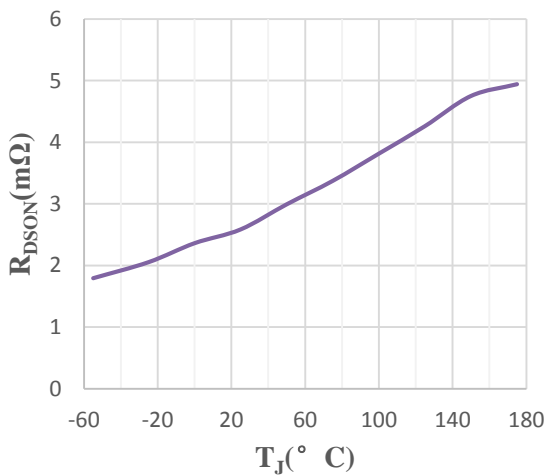


Fig 5 On-Resistance vs. Junction Temperature

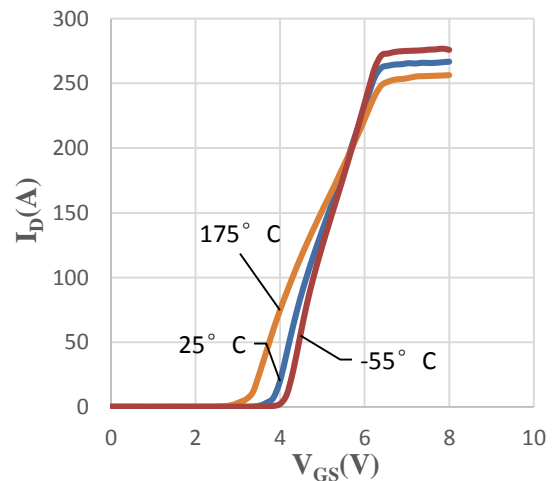


Fig 6 Transfer Characteristics

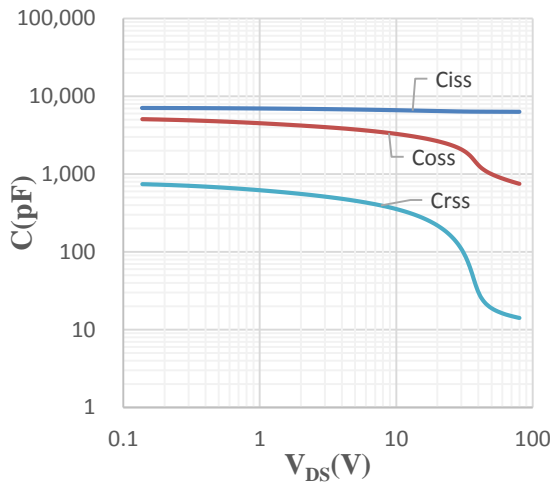


Fig 7 Capacitance Characteristics

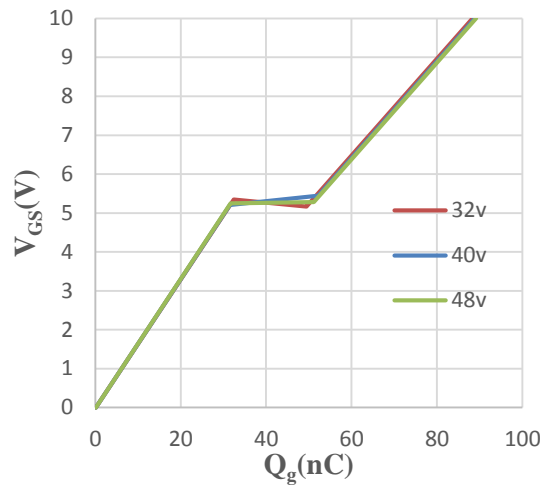


Fig 8 Gate-Charge Characteristics

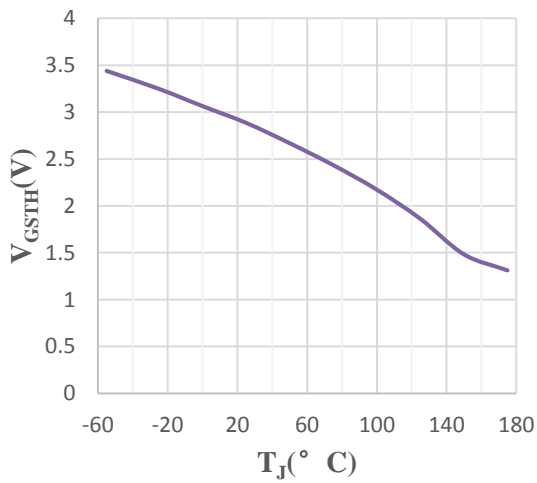


Fig 9 Gate Threshold Voltage vs Temperature

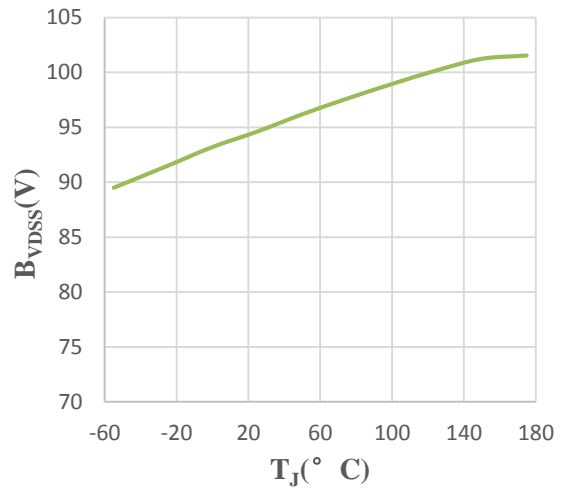
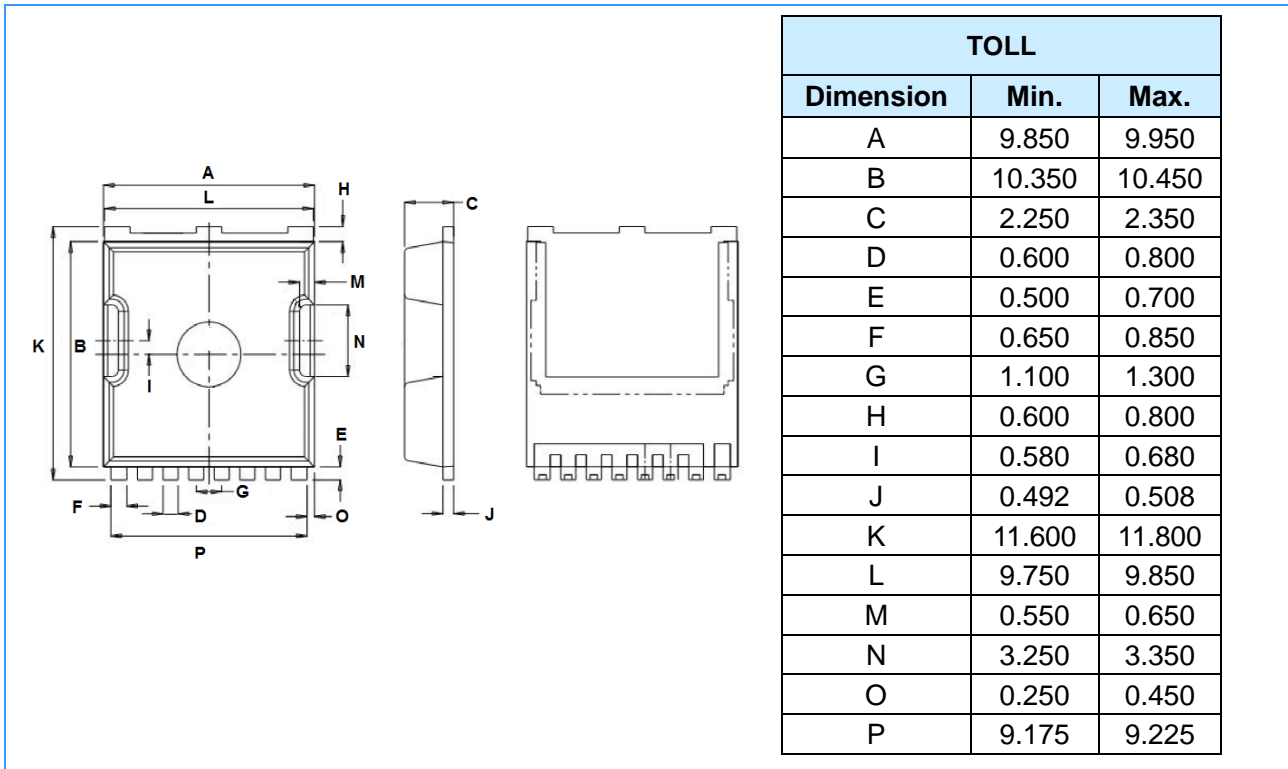


Fig 10  $B_{V_{DS}}$  vs Junction temperature

**Package Outline Dimensions** (Unit: mm)



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