

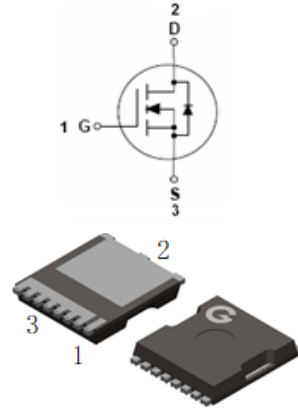
Features

- 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



TOLL

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
BL030N085TH-TL	TOLL	2000 pcs / Tape & Reel	030N085TH

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

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DSS}	85	V
Gate-to-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current ($T_C = 25^\circ C$)	I_D	220	A
Single Pulse Avalanche Energy *3	E_{AS}	205	mJ
Power Dissipation ($T_C = 25^\circ C$)	P_D	300	W
Operating Junction Temperature Range	T_J	$-55 \sim +175$	$^\circ C$
Storage Temperature Range	T_{STG}	$-55 \sim +175$	$^\circ C$

Thermal Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	-	-	0.5	$^\circ C/W$
Thermal Resistance Junction-to-Air *1	$R_{\theta JA}$	-	-	43	$^\circ C/W$

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 = 250μA	85	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 80V, V _{GS} = 0V, T _J = 25°C	-	-	1	μA
		V _{DS} = 80V, V _{GS} = 0V, T _J = 175°C	-	-	1	mA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	-	-	±100	nA
On Characteristics						
R _{DS(ON)}	Drain-Source On-resistance *2	V _{GS} = 10V, I _D = 80A, T _J = 25°C	-	2.5	3	mΩ
		V _{GS} = 10V, I _D = 80A, T _J = 175°C	-	4.9	-	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	2	2.8	4	V
R _G	Gate Resistance	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz	-	3	-	Ω
Dynamic Characteristics						
C _{ISS}	Input Capacitance	V _{GS} = 0V	-	6313	-	pF
C _{OSS}	Output Capacitance	V _{DS} = 40V	-	1249	-	
C _{RSS}	Reverse Transfer Capacitance	f = 250kHz	-	28	-	
Q _G	Total Gate-Charge	V _{DD} = 64V	-	89	-	nC
Q _{GS}	Gate to Source Charge	V _{GS} = 10V	-	30	-	
Q _{GD}	Gate to Drain (Miller) Charge	I _D = 80A	-	20	-	
Switching Characteristics						
t _{d(ON)}	Turn-on Delay Time *4	V _{DD} = 40V	-	37	-	ns
t _r	Turn-on Rise Time *4	V _{GS} = 10V	-	30	-	
t _{d(OFF)}	Turn-Off Delay Time *4	R _G = 6Ω	-	87	-	
t _f	Turn-Off Fall Time *4	I _D = 80A	-	35	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *2	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 /dI = 100A/μs	-	160	-	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 $\leq 300\mu s$, duty cycle $\leq 2\%$
- The E_{AS} data shows Max. rating. The test condition is $V_{DD} = 64V, V_{GS} = 10V, L = 10mH$
- Guaranteed by design, not subject to production

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

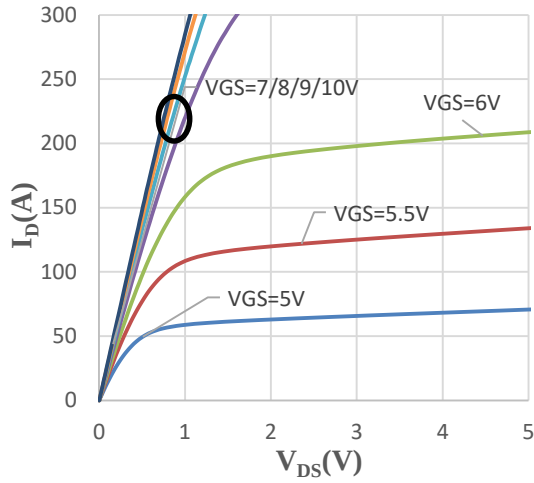


Fig 1 Typical Output Characteristics

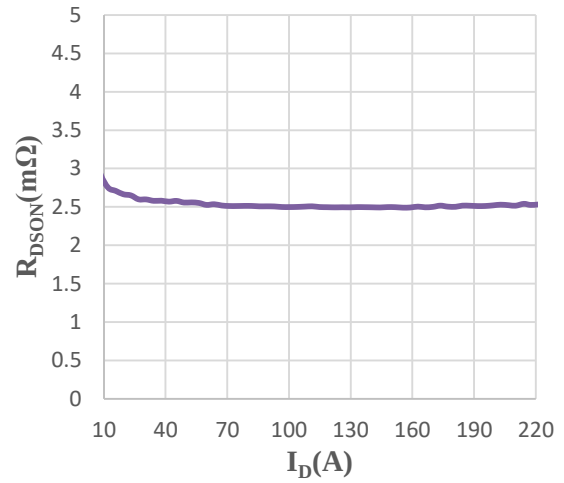


Fig 2 On-Resistance vs. Drain Current

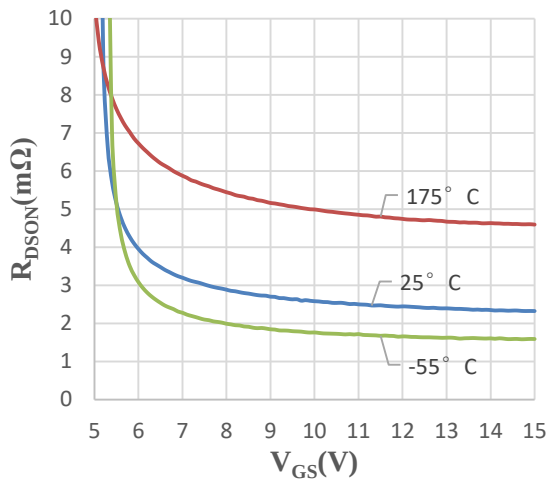


Fig 3 On-Resistance vs. Gate-Source Voltage

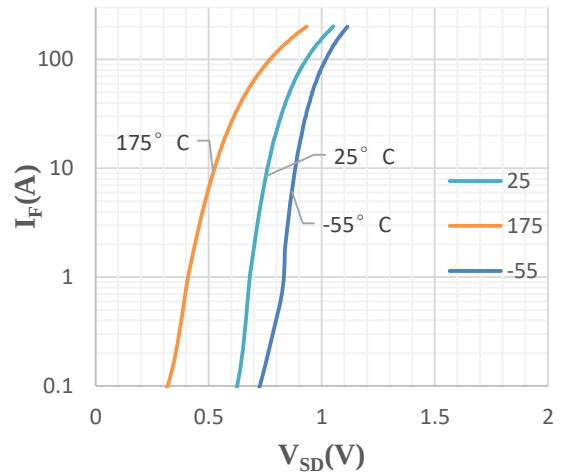


Fig 4 Body-Diode Characteristics

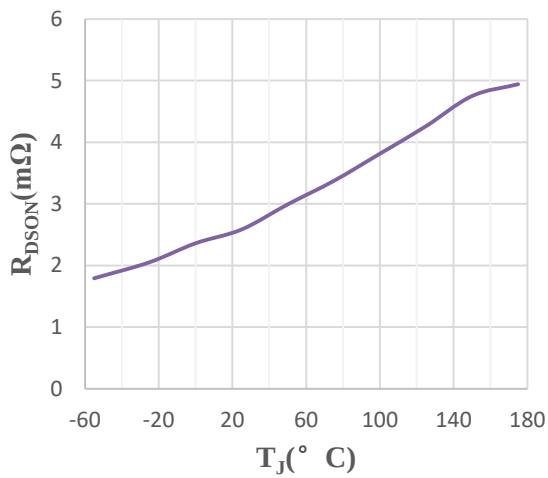


Fig 5 On-Resistance vs. Junction Temperature

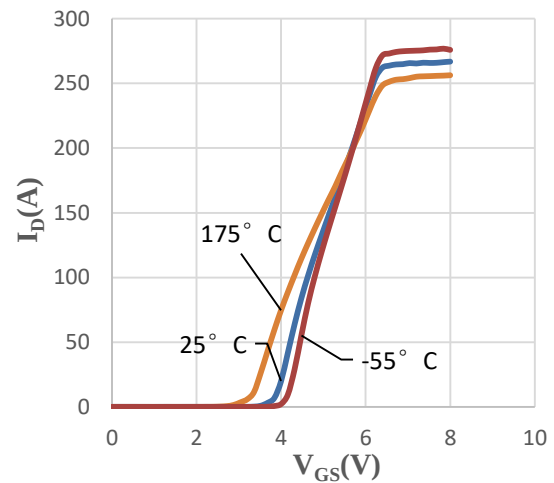


Fig 6 Transfer Characteristics

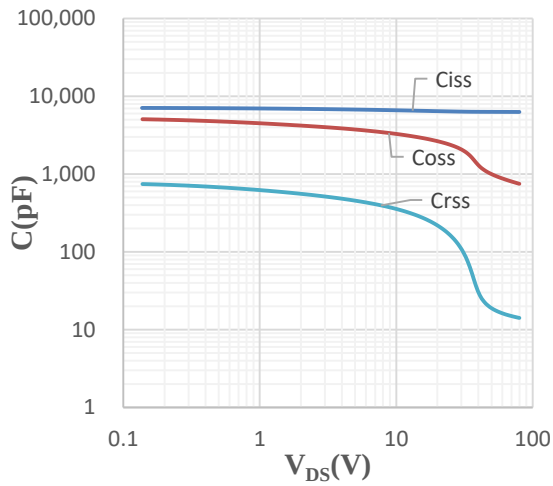


Fig 7 Capacitance Characteristics

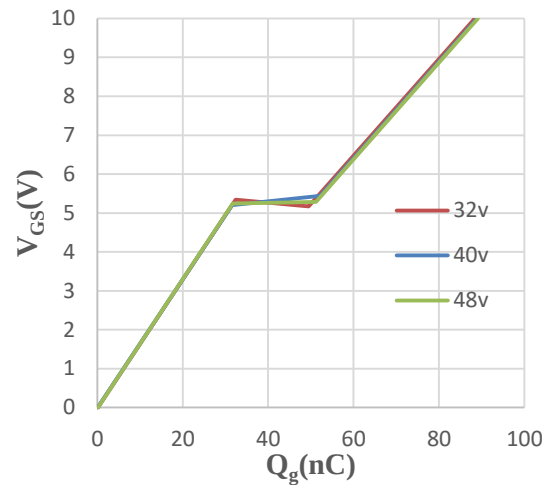


Fig 8 Gate-Charge Characteristics

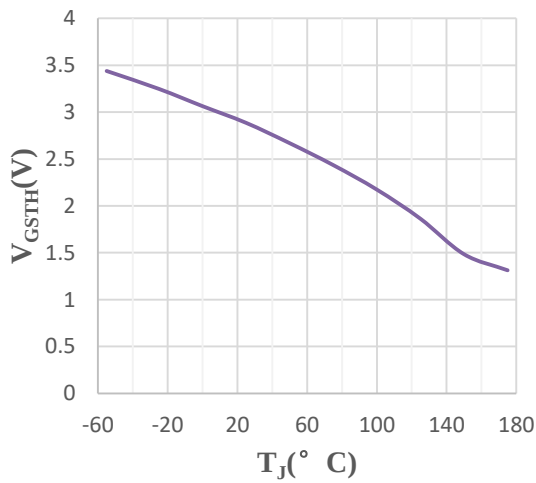


Fig 9 Gate Threshold Voltage vs Temperature

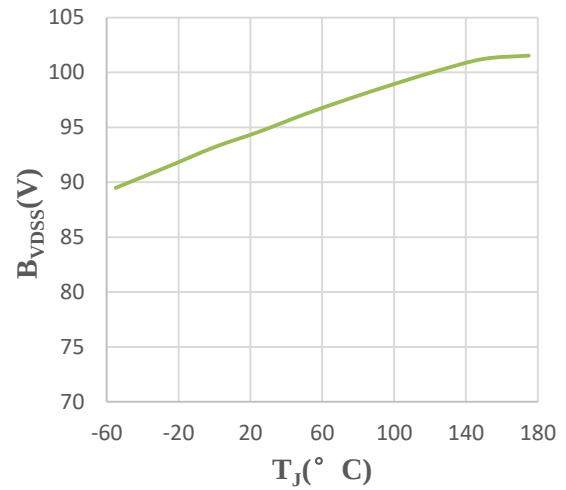
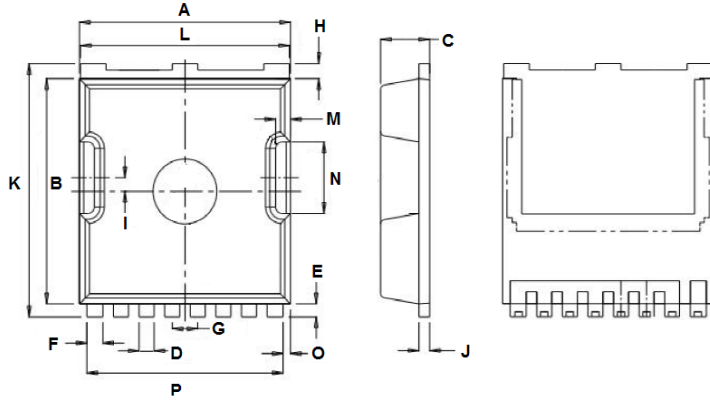


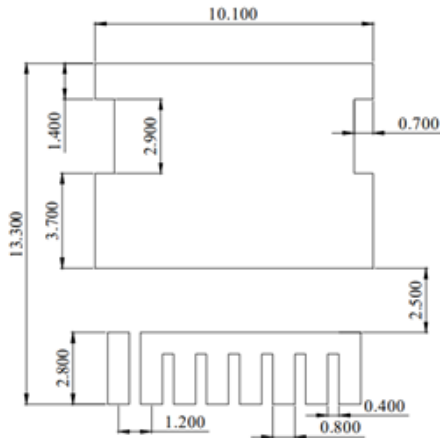
Fig 10 BV_{DS} vs Junction temperature

Package Outline Dimensions (Unit: mm)



TOLL		
Dimension	Min.	Max.
A	9.70	10.10
B	10.20	10.60
C	2.10	2.50
D	0.60	0.80
E	0.50	0.70
F	0.65	0.85
G	1.10	1.30
H	0.60	0.80
I	0.55	0.75
J	0.45	0.55
K	11.50	11.90
L	9.60	10.00
M	0.50	0.70
N	3.10	3.50
O	0.25	0.45
P	9.00	9.40

SOLDERING FOOTPRINT (Unit: mm)



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