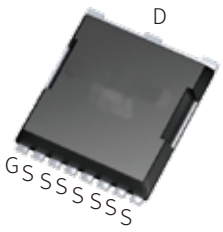
FEATURES

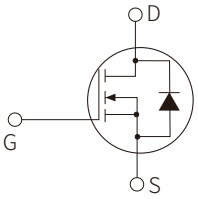
- Surface-mounted package
- Advanced trench cell design
- Super Trench
- MSL1



TOLL-8L

APPLICATION

- BMS
- Drones
- High power inverter system
- Light electric vehicles



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Drain-Source Voltage T_C=25°C		V_{DS}	150	V
Drain Current (Pulsed) T_C=25°C V_{GS}=10V		$I_{DM}^{*,**}$	1016	A
Drain Current (DC)	T_C=25°C V_{GS}=10V	I_D^*	258	A
	T_C=100°C V_{GS}=10V		163	A
Gate-Source Voltage T_C=25°C		V_{GS}	±20	V
Drain power dissipation T_C=25°C		P_{tot}	500	W
Junction Temperature		T_J	150	°C
Storage Temperature		T_{STG}	-55 to 150	°C
Single Pulsed Avalanche Energy L=0.5mH, I_{as}=70A, Start T_J =25°C		E_{AS}	1225	mJ
Thermal Resistance –Junction to Ambient		$R_{\theta JA}^{**}$	62	°C/W
Thermal Resistance- Junction to Case		$R_{\theta JC}^{**}$	0.3	°C/W
Continuous-Source Current T_C=25°C		I_S	258	A

Notes:
* Pulse width ≤300us, duty cycle≤ 2 %
** Surface Mounted on minimum footprint pad area
*** Limited by bonding wire

ELECTRICAL CHARACTERISTICS (T_A=25°C)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS}=0V,I_{DS}=250μA	150			V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	2		4	V
Drain Leakage Current	I_{DSS}	V_{DS}=120V,V_{GS}=0V			1	μA
Gate Leakage Current	I_{GSS}	V_{GS}=±20V ,V_{DS}=0V			±100	nA
On-State Resistance	$R_{DS(on)}$ Note1	V_{GS}=10V,I_{DS}=50A		2.8	3.3	mΩ
Diode Characteristics						
Diode Forward Voltage	V_{SD} Note1	I_{SD}=50A,V_{GS}=0V	0.5		1.2	V
Reverse Recovery Time	t_{rr}	I_{DS}=50A, V_{GS}=0V dI_{SD}/dt=100A/μs		110		nS
Reverse Recovery Charge	Q_{rr}			395		nC
Dynamic Characteristics Note2						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=75V, Frequency = 1 MHz		12580		pF
Output capacitance	C_{oss}			850		pF
Reverse transfer capacitance	C_{rss}			145		pF
Turn-on Delay Time	$t_{d(on)}$	V_{DS}=75V,V_{GEN}=10V R_G= 3.0Ω, I_{DS}=50A		22		nS
Turn-on Rise Time	t_r			106		nS
Turn-Off Delay Time	$t_{d(off)}$			60		nS
Turn-Off Fall Time	t_f			100		nS
Gate Charge Characteristics Note2						
Total Gate Charge	Q_g	V_{DS}=75V,V_{GS}=10V,I_{DS}=50A		160		nC
Gate-Source Charge	Q_{gs}			51		nC
Gate-Drain Charge	Q_{gd}			21		nC

Notes:
1 : Pulse test ; pulse width≤300us, duty cycle≤2 %
2 : Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Figure1: Power Capability

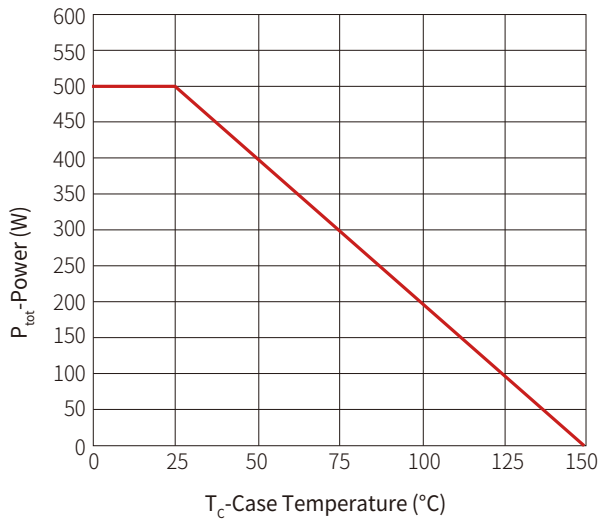


Figure2: Current Capability

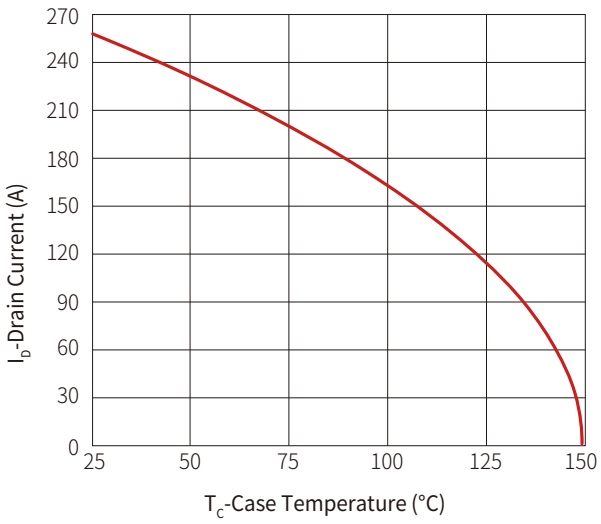


Figure3: Safe operating Area

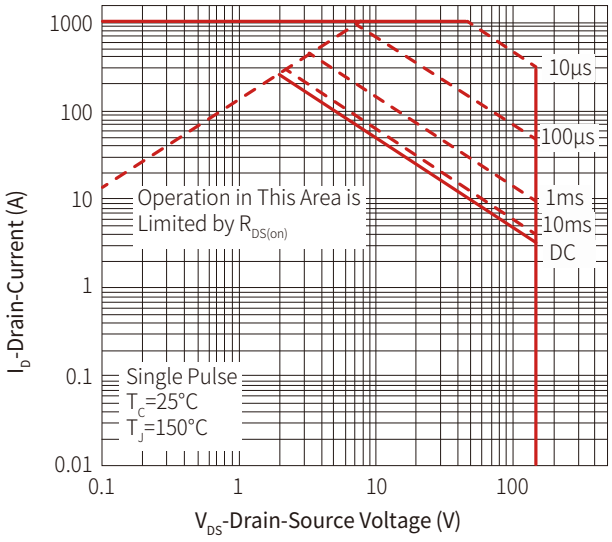


Figure 4: Transient Thermal Impedance

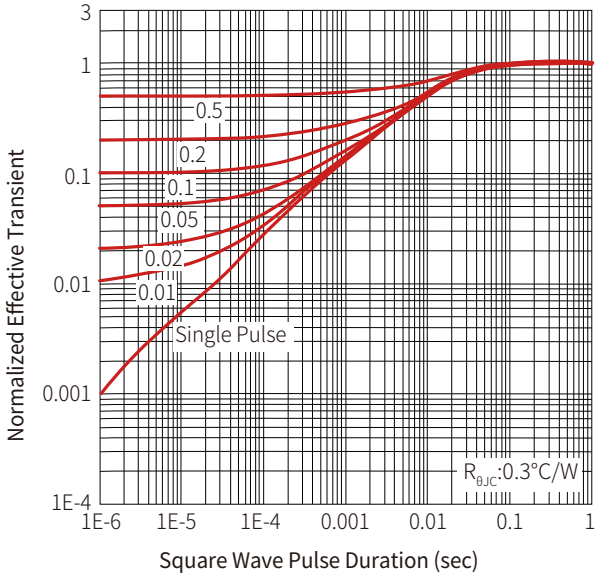


Figure 5:Output Characteristics

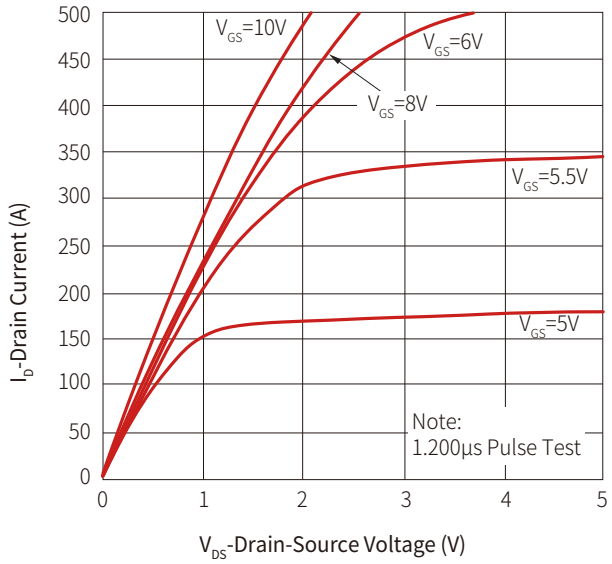


Figure 6: On Resistance

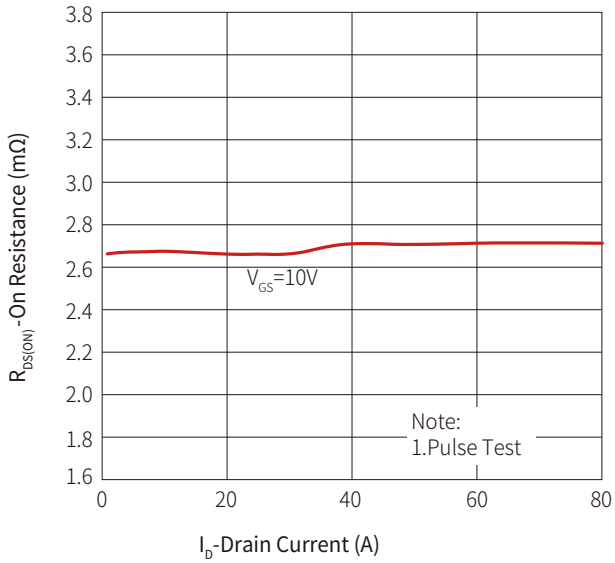


Figure 7:Normalized Threshold Voltage vs Junction Temperature

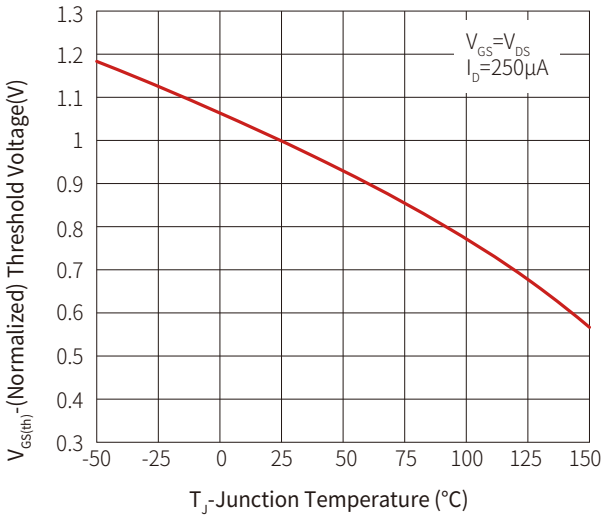


Figure 8: Normalized Breakdown Voltage vs Junction Temperature

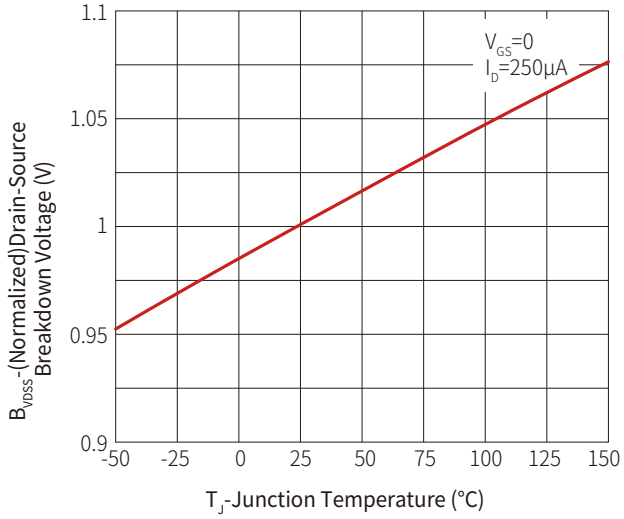


Figure 9:Normalized On Resistance

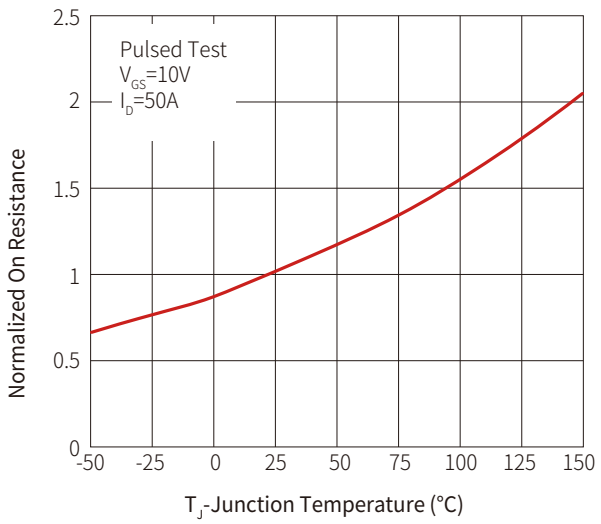


Figure 10: Diode Forward Current

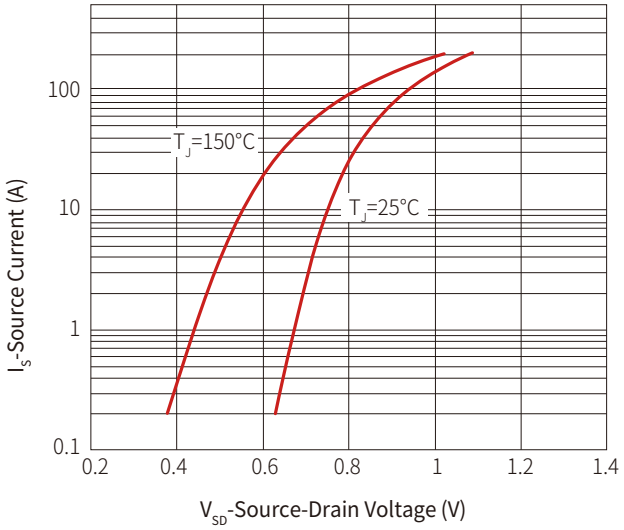


Figure 11:Capacitance

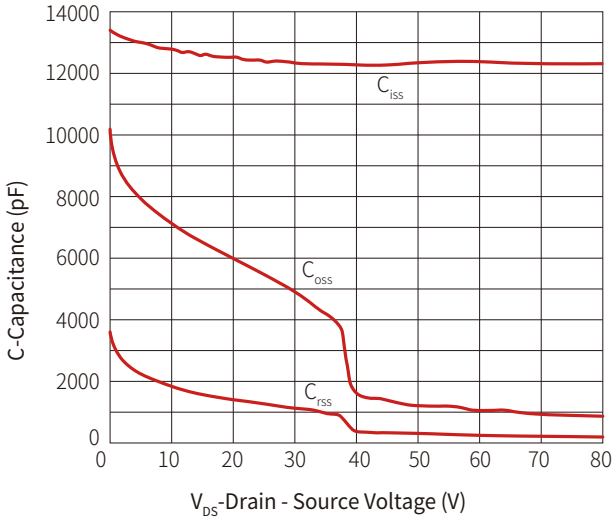
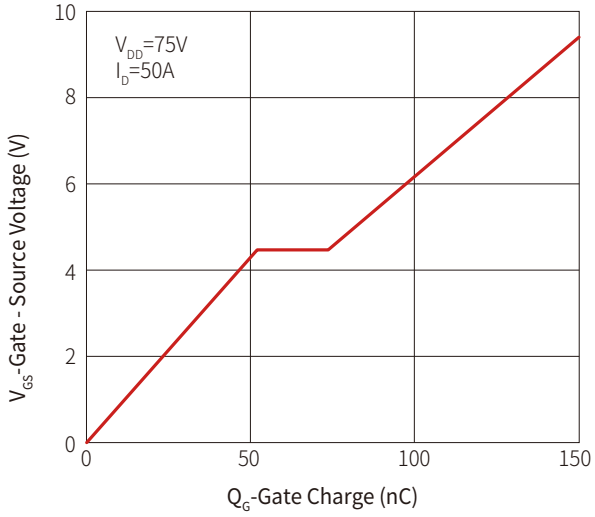
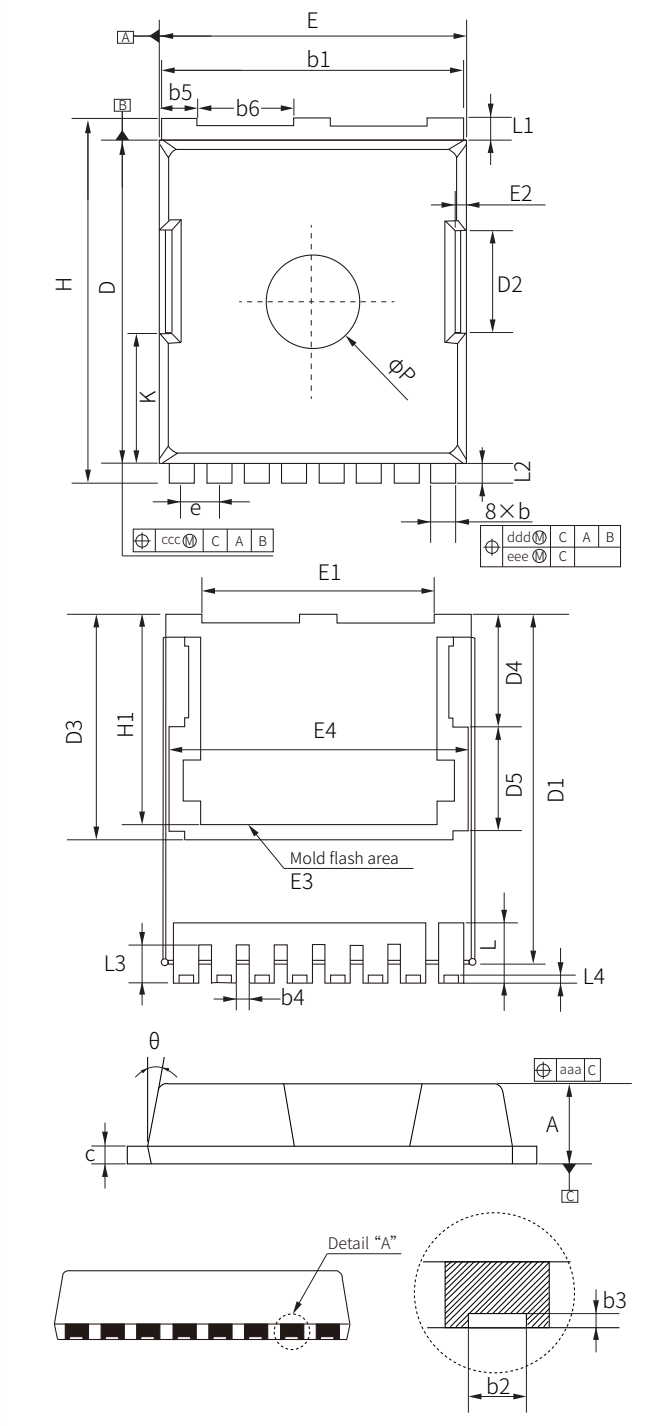


Figure 12: Gate Charge



TOLL-8L PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.40	0.087	0.094
b	0.70	0.90	0.028	0.035
b1	9.70	9.90	0.382	0.390
b2	0.36	0.55	0.014	0.022
b3	0.05	-	0.002	-
b4	0.30	0.50	0.012	0.020
b5	1.10	1.30	0.043	0.051
b6	3.00	3.20	0.118	0.126
c	0.40	0.60	0.016	0.024
D	10.28	10.55	0.405	0.415
D1	10.98	11.18	0.432	0.440
D2	3.20	3.40	0.126	0.134
D3	7.15		0.281	
D4	3.59		0.141	
D5	3.26		0.128	
e	1.10	1.30	0.043	0.051
E	9.80	10.00	0.386	0.394
E1	7.40	7.60	0.291	0.299
E2	7.40	7.60	0.291	0.299
E3	8.50		0.335	
E4	9.46		0.372	
H	11.50	11.85	0.453	0.466
H1	6.55	6.75	0.258	0.266
K	4.08	4.28	0.161	0.169
L	1.60	2.10	0.063	0.083
L1	0.50	0.90	0.020	0.035
L2	0.50	0.70	0.020	0.028
L3	1.00	1.30	0.040	0.051
L4	0.13	0.33	0.005	0.013
P	2.85	3.15	0.112	0.124
θ	10°REF		0.398°REF	
aaa	0.20		0.008	
ccc	0.20		0.008	
ddd	0.25		0.010	
eee	0.20		0.008	

ORDERING INFORMATION

Part Number	Component Package	Marking	QTY/Reel	QTY/Box
SNM033N15T	TOLL-8L	033N15T XXXX	2000PCS	14000PCS

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