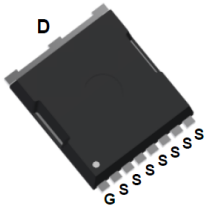
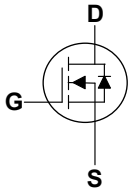
N-Channel Enhancement Mode MOSFET

Features

- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Pin Description

TOLL-8L	Symbol
	

Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	200	V
$R_{DS(ON)-Typ}$	6.5	mΩ
I_D	114	A

Absolute Maximum Ratings (T_C=25℃, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	200	V
V_{GSS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	-55 to 175	℃
T_{STG}	Storage Temperature Range	-55 to 175	℃
I_{DM} ①	Pulse Drain Current Tested	456	A
I_D	Continuous Drain Current	114	A
P_D	Maximum Power Dissipation	300	W
E_{AS}	Avalanche Energy, Single pulse	1800	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	40	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.5	℃/W

Note ①: Max. current is limited by bonding wire.

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in^2 FR-4 board with 1oz.

Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	200	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=160V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	2	---	4	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V , I_D=50A	---	6.5	7.5	mΩ
		V_{GS}=6V , I_D=30A	---	7.8	9.5	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=100V, Freq.=1MHz	---	11636	---	pF
C_{oss}	Output Capacitance		---	468	---	
C_{rss}	Reverse Transfer Capacitance		---	38	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DS}=100V, R_G=3.9Ω, R_L=2Ω,,I_D=50A	---	25	---	nS
T_r	Turn-on Rise Time		---	70	---	
$T_{d(off)}$	Turn-off Delay Time		---	135	---	
T_f	Turn-off Fall Time		---	84	---	
Q_g	Total Gate Charge	V_{DD}=100V , V_{GS}=10V , I_D=50A	---	186	---	nC
Q_{gs}	Gate-Source Charge		---	58	---	
Q_{gd}	Gate-Drain Charge		---	31	---	
Source-Drain Characteristics （T_J=25℃）						
V_{SD}	Diode Forward Voltage②	V_{GS}=0V , I_S=50A ,T_J=25℃	---	---	1.3	V
t_{rr}	Reverse Recovery Time	I_S=50A， di/dt=100A/μs，T_J=25℃	---	148	---	nS
Q_{rr}	Reverse Recovery Charge		---	805	---	nC

Note ④： Pulse test (pulse width≤300us, duty cycle≤2%).

Note ⑤：Guaranteed by design, not subject to production testing.

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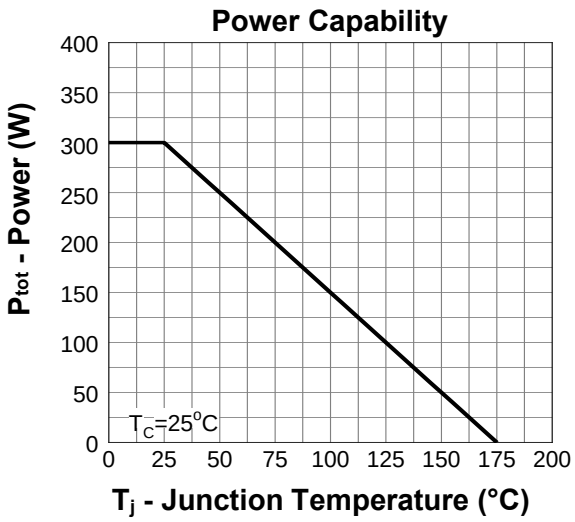
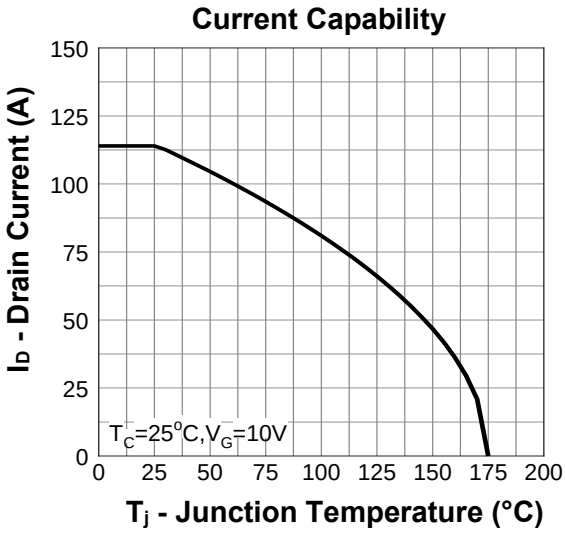
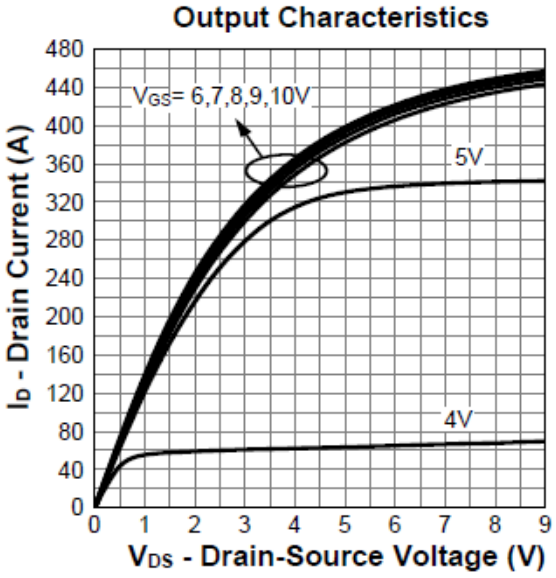
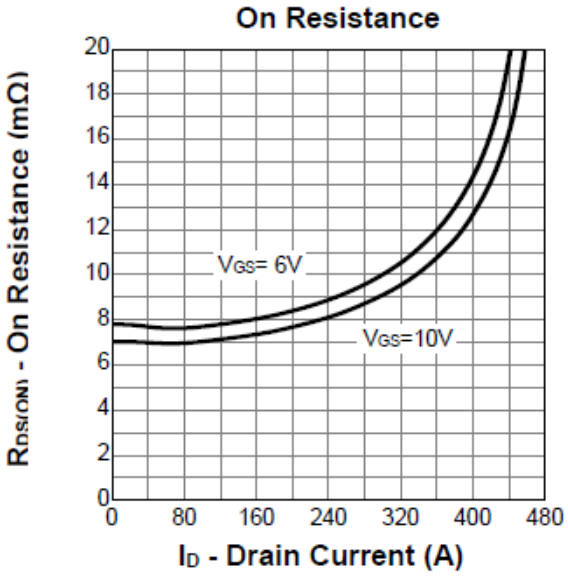
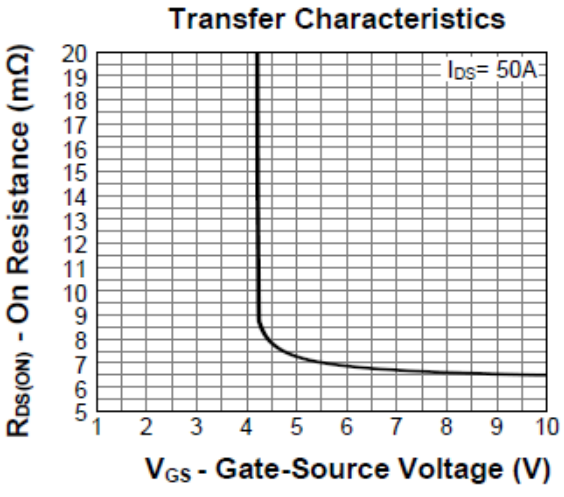
Typical Characteristics

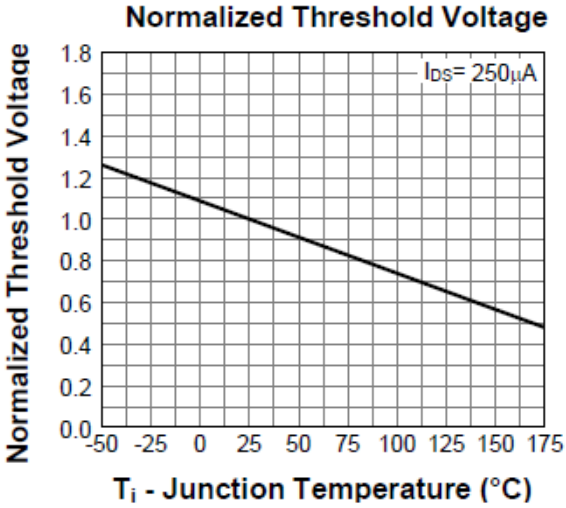












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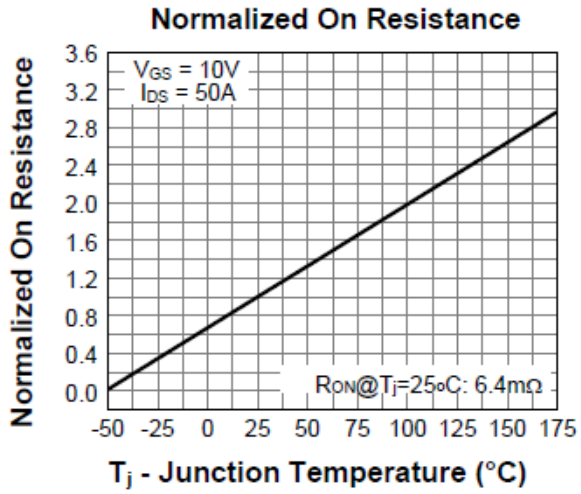

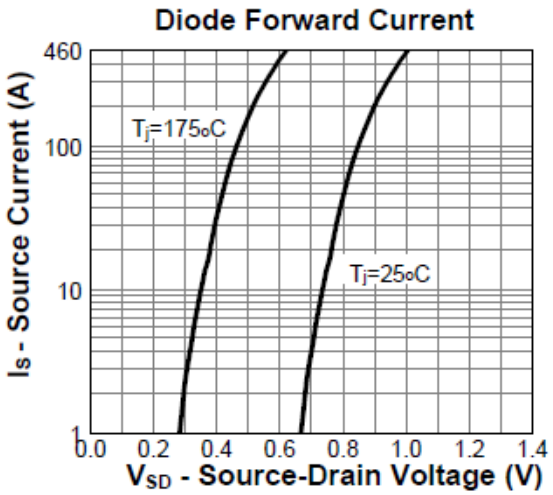

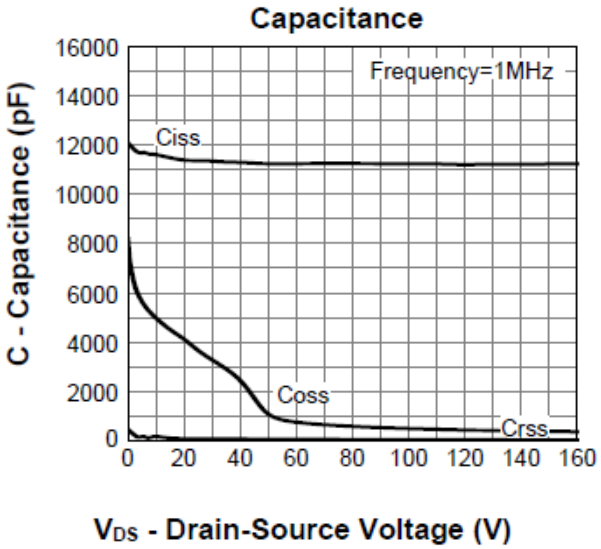

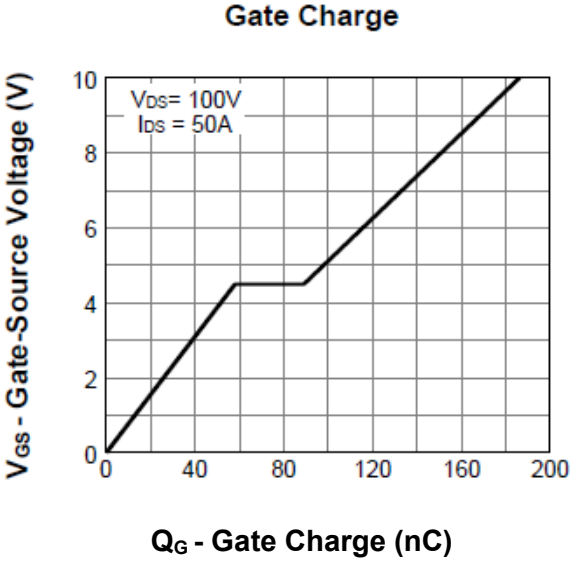

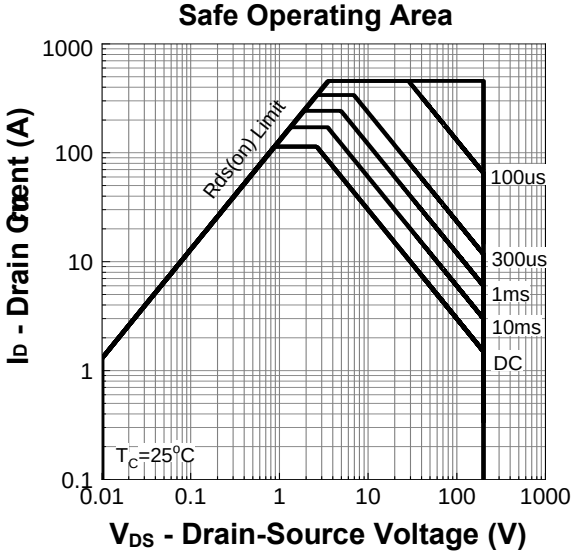

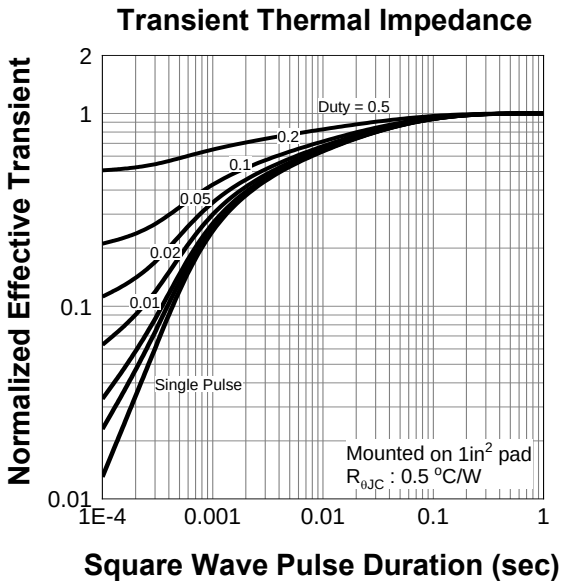

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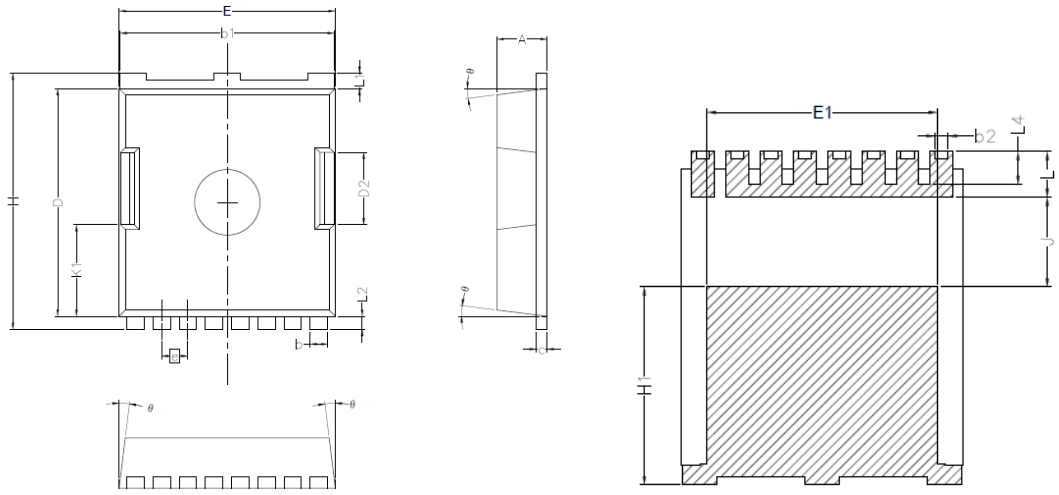
TOLL-8L Package Outline Data



Symbol	Dimensions In Millimeters	
	MIN.	MAX.
A	2.20	2.40
b	0.70	0.90
b1	9.70	9.90
b2	0.42	0.50
c	0.40	0.60
D	10.28	10.58
D2	3.10	3.60
E	9.70	10.10
E1	7.90	8.30
e	1.20BSC	
H	11.48	11.88
H1	6.75	7.15
N	8	
J	3.00	3.30
K1	3.98	4.38
L	1.40	1.80
L1	0.60	0.80
L2	0.50	0.70
L4	1.00	1.30
θ	4°	10°