

N-Channel Enhancement Mode MOSFET

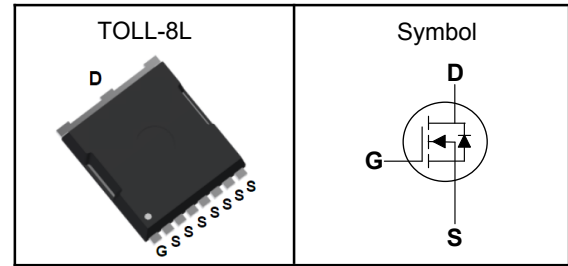
Features

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

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description



V_{DSS}	85	V
$R_{DS(ON)-Typ}$	1.8	mΩ
I_D	280	A

Absolute Maximum Ratings($T_C=25^{\circ}C$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit
V_{DSS}	Drain-Source Voltage	85	V
V_{GSS}	Gate-Source Voltage	± 20	V
T_J	Maximum Junction Temperature	-55 to 150	$^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
$I_{DM}^{①}$	Pulse Drain Current Tested	1000	A
I_D	Continuous Drain Current	280	A
P_D	Maximum Power Dissipation	260	W
E_{AS}	Avalanche Energy, Single pulse	1605	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	38	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	0.45	$^{\circ}C/W$

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

Note ② : UIS tested and pulse width are limited by maximum junction temperature $150^{\circ}C$.

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

**N-Channel Enhancement Mode MOSFET****Electrical Characteristics** ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

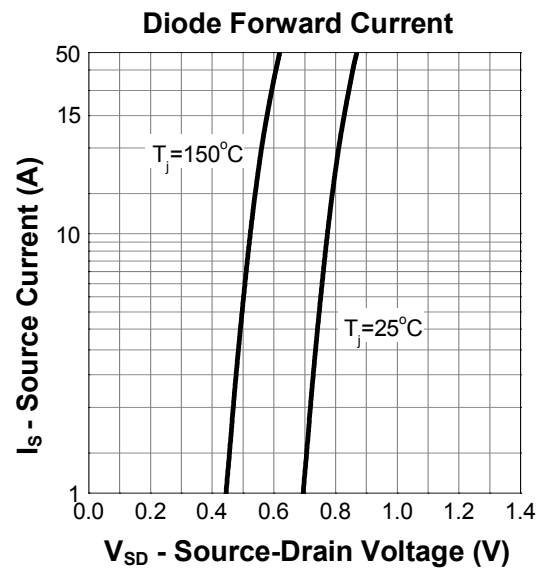
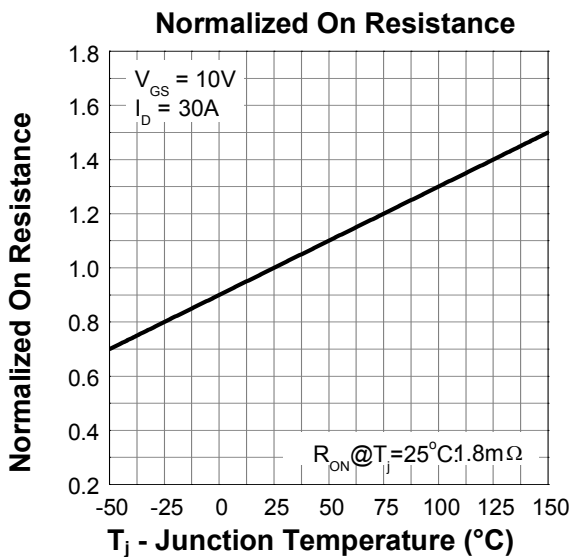
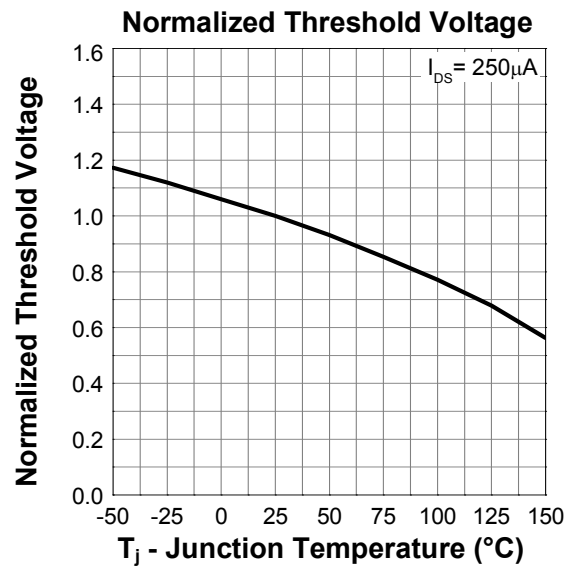
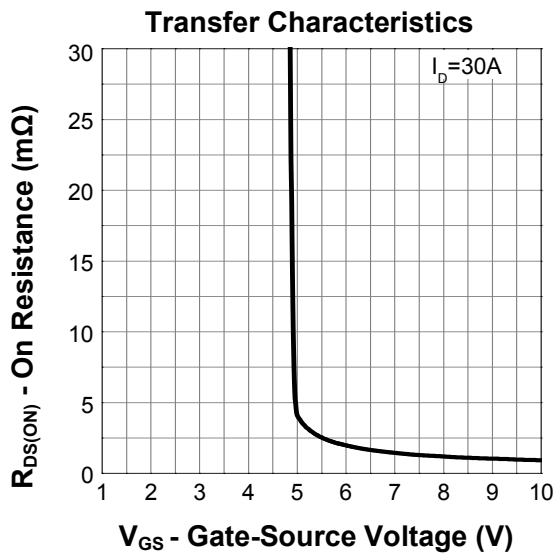
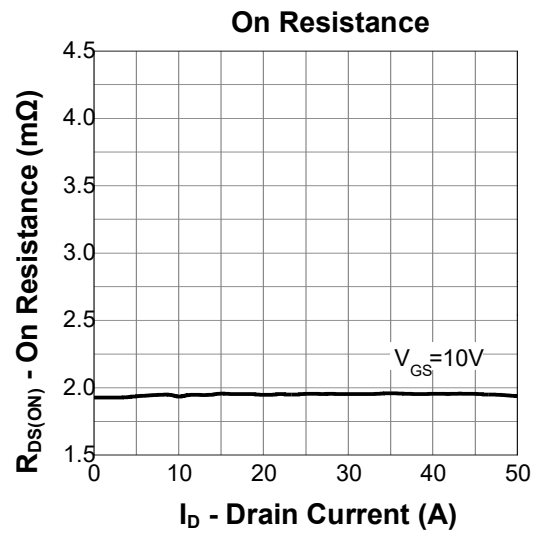
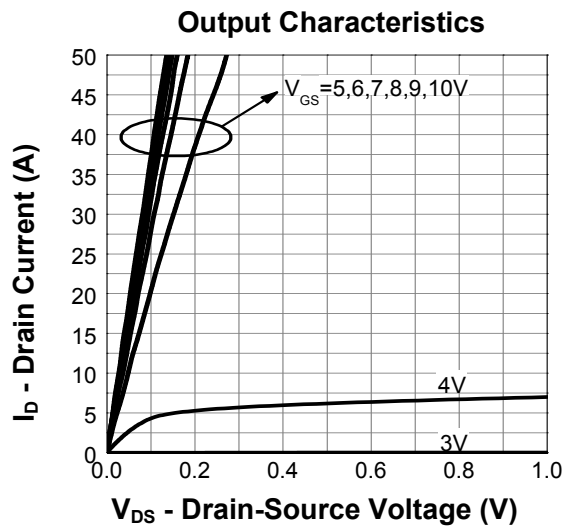
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	85	---	---	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =85V, V _{GS} =0V	---	---	1	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , 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 =30A	---	1.8	2.0	mΩ
Dynamic Characteristics ^⑤						
C _{iss}	Input Capacitance	V _{DS} =40V, V _{GS} =0V, Freq.=1MHz	---	8230	---	pF
C _{oss}	Output Capacitance		---	1550	---	
C _{rss}	Reverse Transfer Capacitance		---	150	---	
T _{d(on)}	Turn-on Delay Time	V _{DS} =40V,V _{GS} =10V, I _D =30A,R _G =4.5Ω	---	32	---	nS
T _r	Turn-on Rise Time		---	115	---	
T _{d(off)}	Turn-off Delay Time		---	93	---	
T _f	Turn-off Fall Time		---	140	---	
Q _g	Total Gate Charge	V _{DS} =40V,V _{GS} =10V, I _D =30A	---	138	---	nC
Q _{gs}	Gate-Source Charge		---	39	---	
Q _{gd}	Gate-Drain Charge		---	36	---	
Source-Drain Characteristics						
V _{SD}	Diode Forward Voltage	I _S =30A, V _{GS} =0V	---	---	1.2	V
t _{rr}	Reverse Recovery Time	I _F =30A,V _{GS} =0V, dI _F /dt=100A/us	---	80	---	nS
Q _{rr}	Reverse Recovery Charge		---	190	---	nC

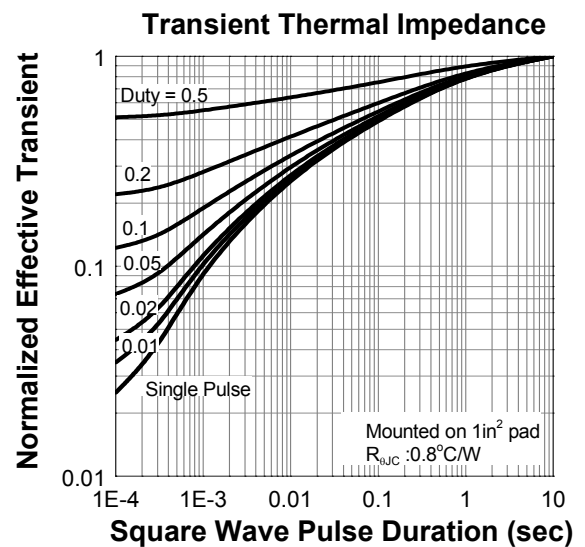
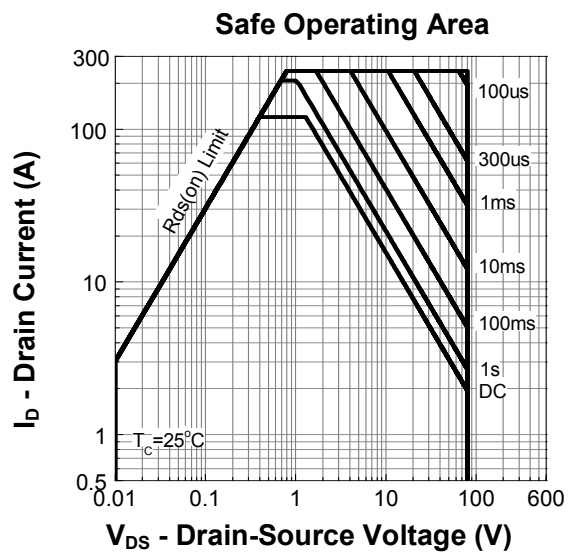
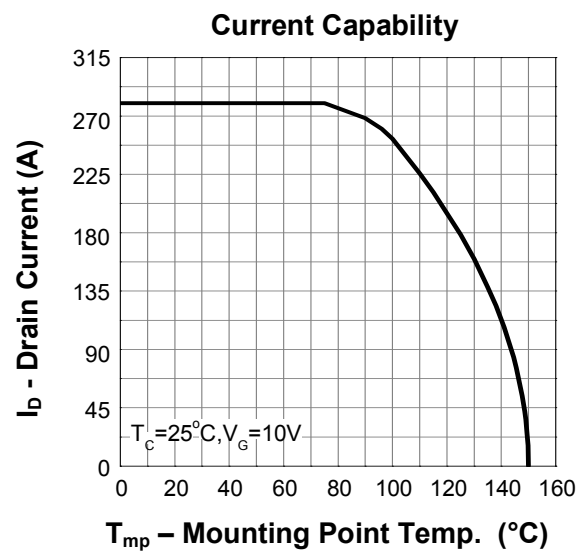
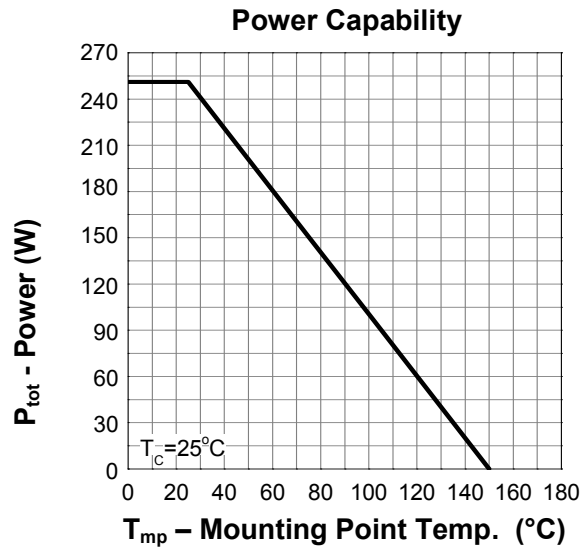
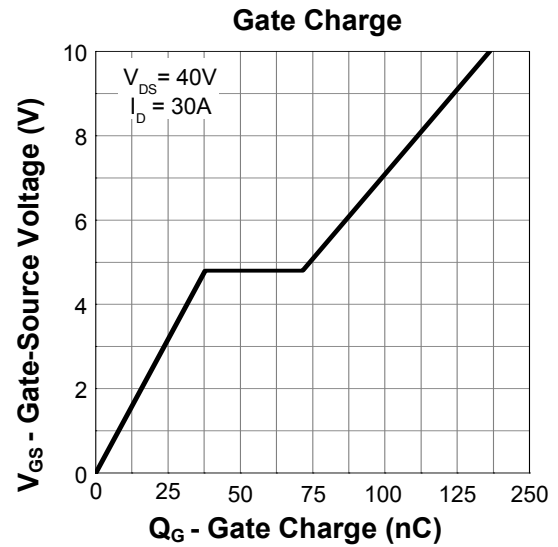
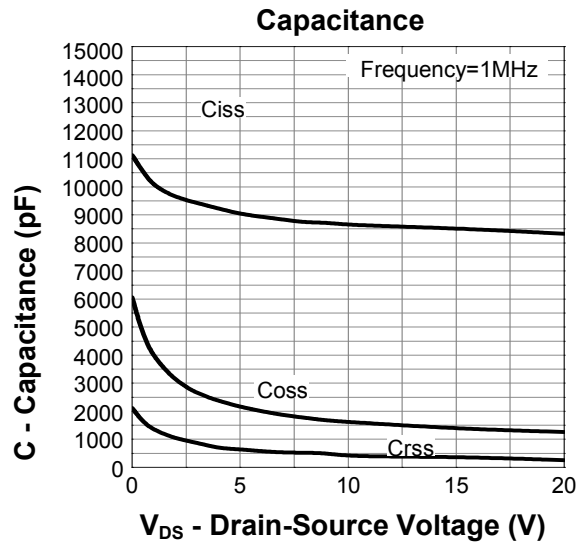
Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

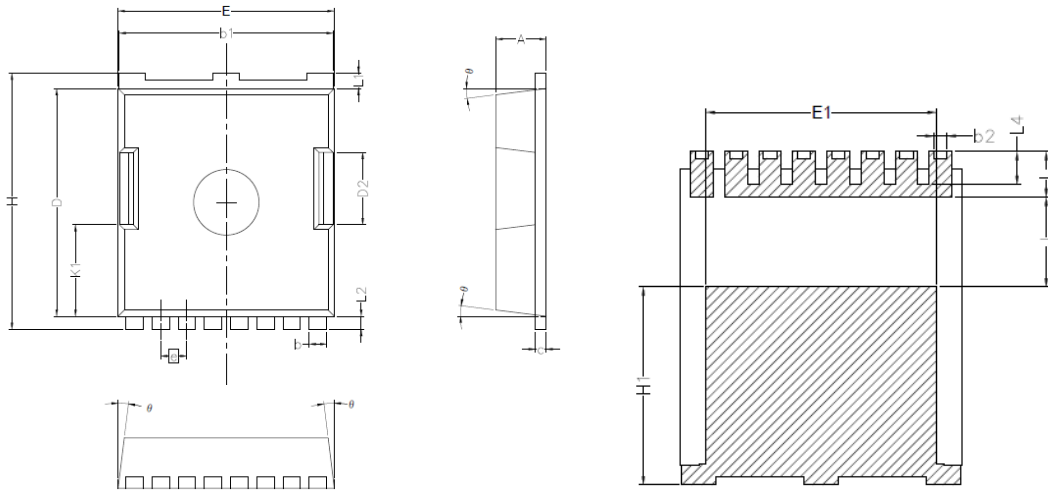
Note ⑤: Guaranteed by design, not subject to production testing.

N-Channel Enhancement Mode MOSFET

Typical Characteristics



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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°