

N-Channel Enhancement Mode MOSFET

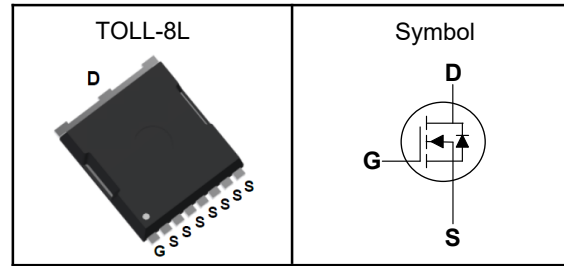
Features

- Advanced SGT technology
- 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}	100	V
$R_{DS(ON)-Typ}$	1.0	m Ω
I_D	300	A

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

Symbol	Parameter		Rating	Unit	
V_{DSS}	Drain-Source Voltage		100	V	
V_{GSS}	Gate-Source Voltage		± 20	V	
T_J	Maximum Junction Temperature		-55 to 150	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range		-55 to 150	$^\circ\text{C}$	
E_{AS}	Single Pulse Avalanche Energy		2592	mJ	
$I_{DM}^{①}$	Pulse Drain Current Tested		1200	A	
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	300	A	
	Continuous Drain Current	$T_C=100^\circ\text{C}$	282	A	
P_D	Maximum Power Dissipation		$T_C=25^\circ\text{C}$	500	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	40	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.25	$^\circ\text{C/W}$

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

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

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



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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	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	---	4.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=30A$	---	1.0	1.2	$m\Omega$
		$V_{GS}=4.5V, I_D=20A$	---	1.3	2.0	$m\Omega$
Dynamic Characteristics^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V, V_{DS}=50V, \text{Freq.}=1.0\text{MHz}$	---	13765	---	pF
C_{oss}	Output Capacitance		---	2155	---	
C_{riss}	Reverse Transfer Capacitance		---	100	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DD}=50V, I_D=30A, R_G=3.9\Omega$	---	36	---	nS
T_r	Turn-on Rise Time		---	85	---	
$T_{d(off)}$	Turn-off Delay Time		---	182	---	
T_f	Turn-off Fall Time		---	113	---	
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DD}=50V, I_D=30A$	---	284	---	nC
Q_{gs}	Gate-Source Charge		---	73	---	
Q_{gd}	Gate-Drain Charge		---	85	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=30A, V_{GS}=0V$	---	---	1.3	V
t_{rr}	Reverse recovery time	$I_S=30A, diF/dt=100A/\mu s$	---	121	---	ns
Q_{rr}	Reverse recovery charge		---	405	---	nC

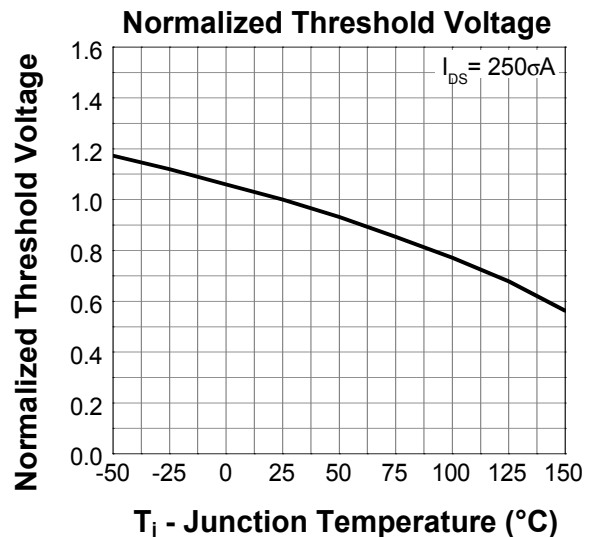
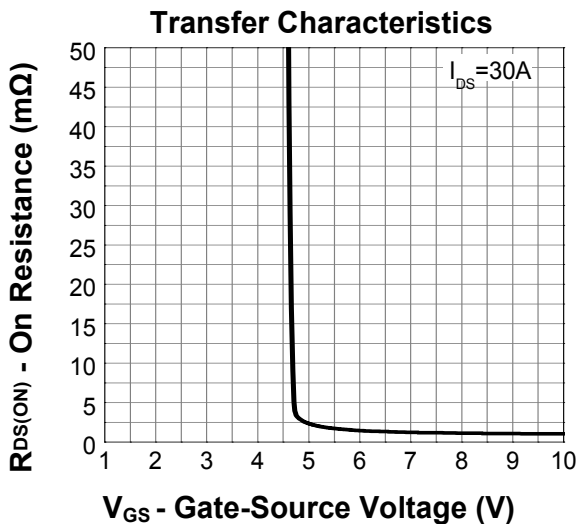
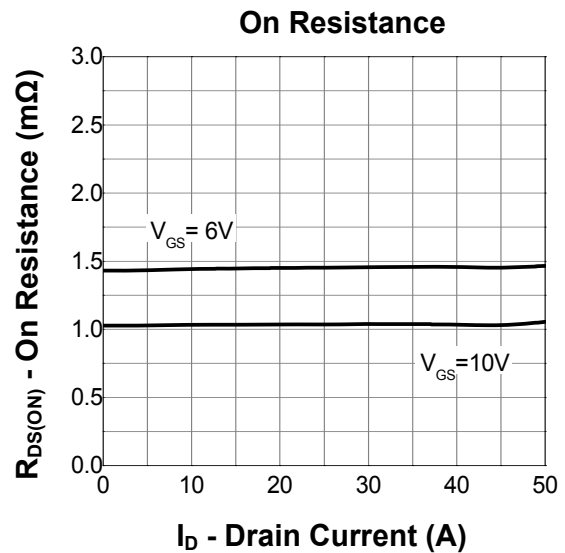
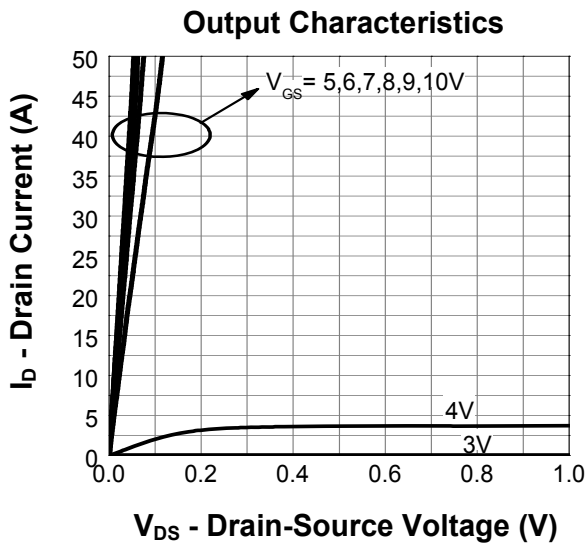
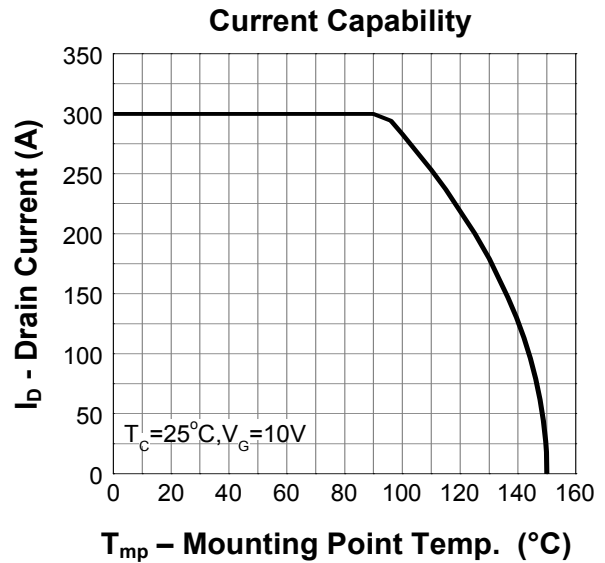
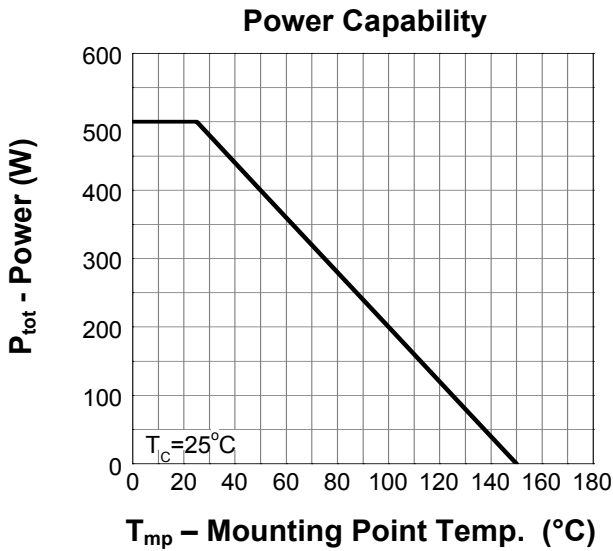
Note ④: Pulse test (pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$).

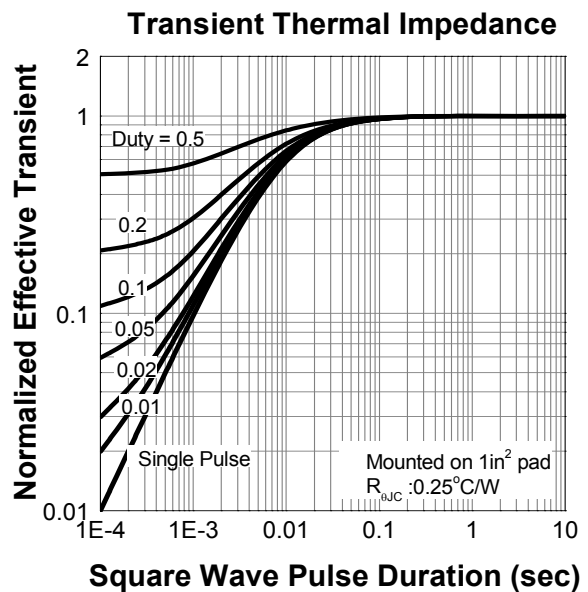
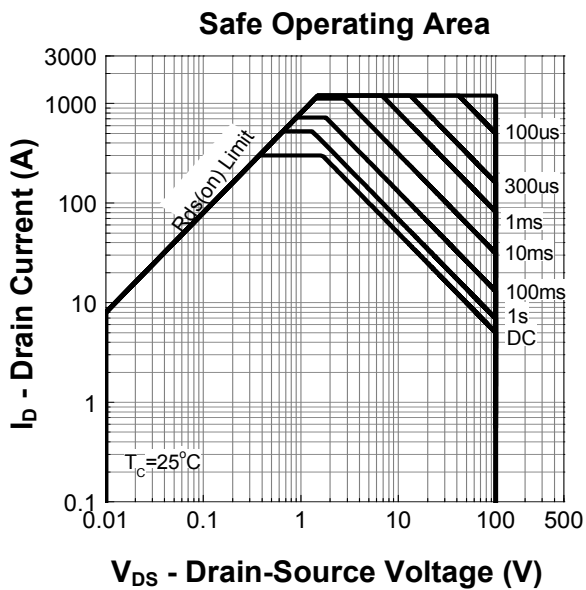
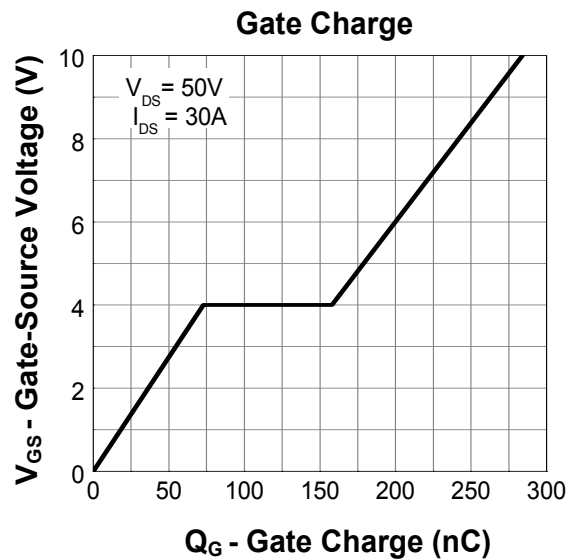
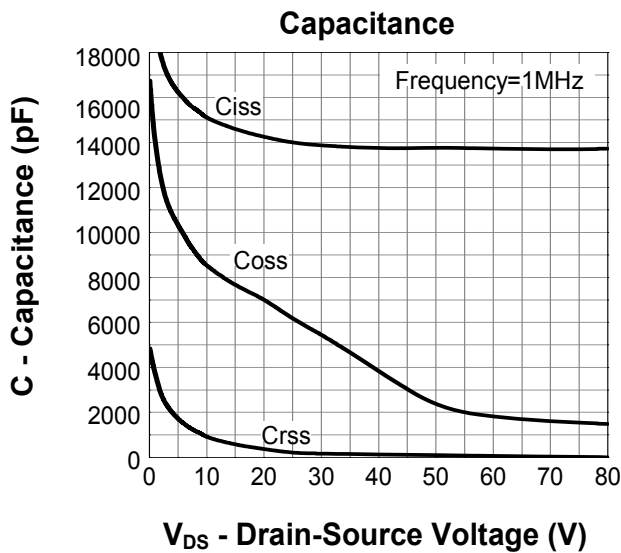
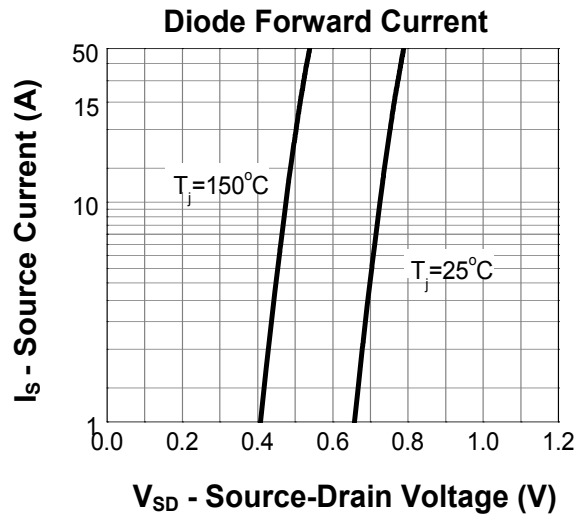
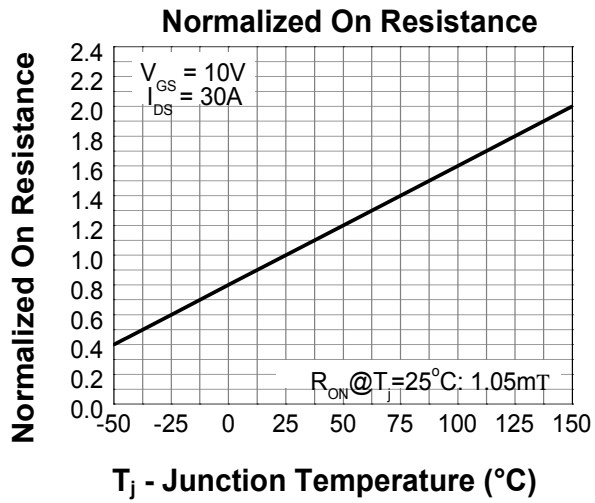
Note ⑤: Guaranteed by design, not subject to production testing.

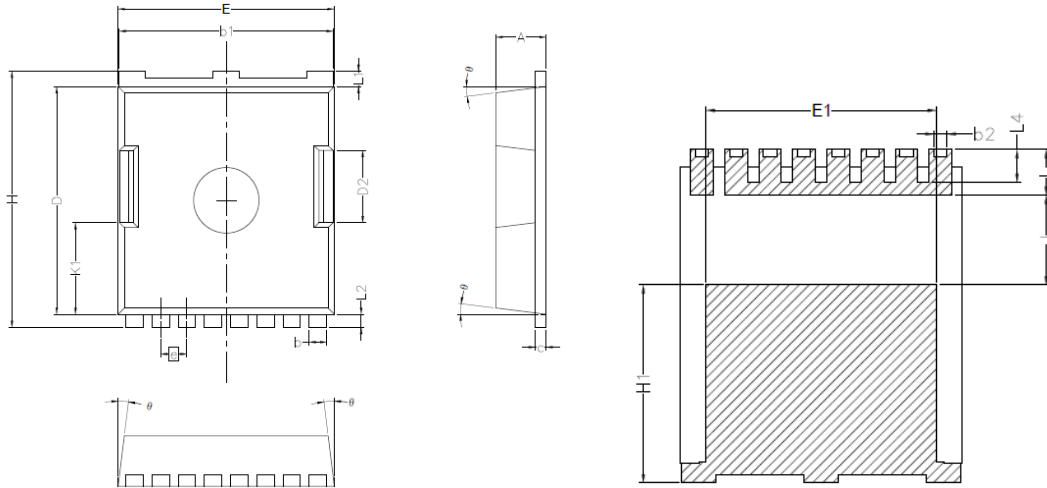


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Typical Characteristics



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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°



印字说明

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FSH10N01AX
AABBCC

第一行标记为物料型号代码

第二行为AA为内部识别码，BB为表示年份，例如22即表示2022年，CC表示周期，例如01即表示第一周；2201即表示2022年第一周生产。