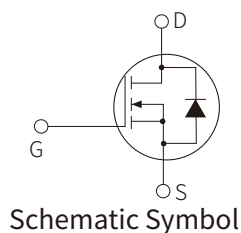


FEATURES

- Ultra Low Gate Charge cause lower driving requirements
- 100% Avalanche Tested

APPLICATION

- Battery management
- Motor drive and control
- UPS



APPROVALS

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

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60	V
Pulse Drain Current Tested ⁽²⁾	I_{DM}	1040	A
Continuous Drain current (Silicon limit) $T_c=25^{\circ}\text{C}$	I_D	260	A
Continuous Drain current (Package limit) $T_c=25^{\circ}\text{C}$		200	A
Gate-Source Voltage	V_{GSS}	± 20	V
Maximum Power Dissipation ($T_c=25^{\circ}\text{C}$)	P_D	214	W
Single Pulse Avalanche Energy ⁽¹⁾	E_{AS}	930	mJ
Diode Continuous Forward Current ($T_c=25^{\circ}\text{C}$)	I_S	260	A
Junction Temperature	T_J	$-55 \sim +175$	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	$-55 \sim +175$	$^{\circ}\text{C}$
Thermal Resistance- Junction to Case	$R_{\theta JC}$	0.7	$^{\circ}\text{C/W}$
Thermal Resistance Junction—to—Ambient ⁽³⁾	$R_{\theta JA}$	50	$^{\circ}\text{C/W}$

ELECTRICAL CHARACTERISTICS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	60			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2		4	V
Drain Leakage Current	I_{DSS}	$V_{DS}=60V, V_{GS}=0V$			1	μA
Gate Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
On-State Resistance ⁽⁴⁾	$R_{DS(on)}$	$V_{GS}=10V, I_D=50A$		1.3	1.6	m Ω
Dynamic Characteristics						
Total Gate Charge	Q_g	$V_{GS}=10V$ $V_{DS}=30V, I_D=50A$		95		nC
Gate Source Charge	Q_{gs}			36		nC
Gate Drain("Miller") Charge	Q_{gd}			20		nC
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=30V,$ $f=1MHz$		6960		pF
Output capacitance	C_{oss}			1380		pF
Reverse transfer capacitance	C_{rss}			56		pF
Gate Resistance	R_g	$f=1MHz$		1.9		Ω
Switching Characteristics ⁽⁵⁾						
Turn-on Delay Time	$t_{d(on)}$	$V_{DS}=30V, V_{GS}=10V$ $R_G=1.6\Omega, I_D=50A$		64		nS
Turn-on Rise Time	t_r			45		nS
Turn-Off Delay Time	$t_{d(off)}$			61		nS
Turn-Off Fall Time	t_f			33		nS
Drain-Source Diode Characteristics and Max Ratings						
Drain to Source Diode Forward Voltage	V_{SD}	$I_S=50A, V_{GS}=0V$			1.2	V
Reverse Recovery Time	t_{rr}	$V_{DS}=30V, I_S=50A$ $di/dt=100A/\mu s$		56		ns
Reverse Recovery Charge	Q_{rr}			74		nC

Note:

- Limited by T_{Jmax} , starting $T_J=25^{\circ}\text{C}$, $R_G=25\Omega$, $V_D=30V$, $V_{GS}=10V$. Part not recommended for use above this value.
- Repetitive Rating: Pulse width limited by maximum junction temperature.
- The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz. Copper, in a still air environment with $T_A=25^{\circ}\text{C}$
- Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
- Guaranteed by design, not subject to production testing

PARAMETER CHARACTERISTIC CURVE

Fig 1: Power De-rating

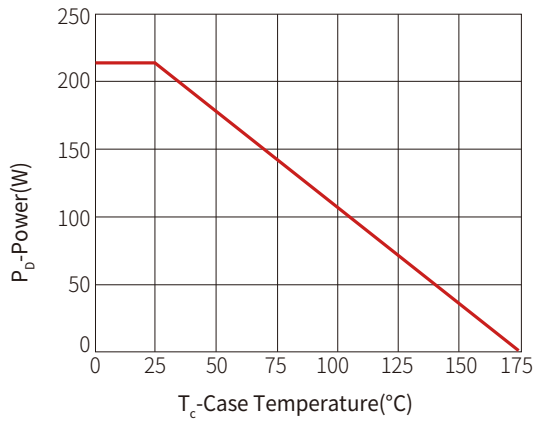


Figure 2: R_{DS(on)} -Drain Current

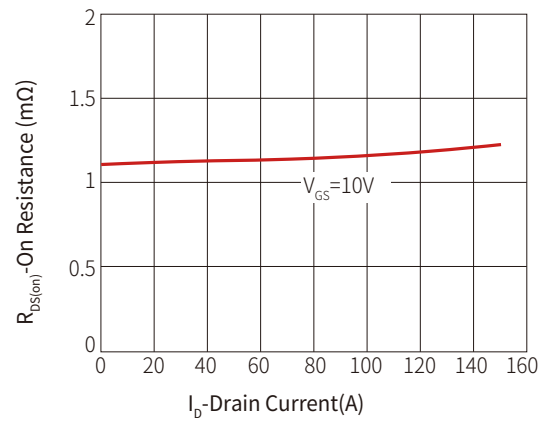


Figure 3: R_{DS(on)} -Junction Temperature

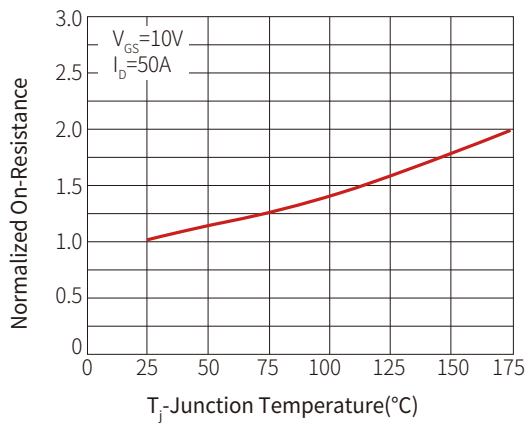


Figure 4: Output Characteristics

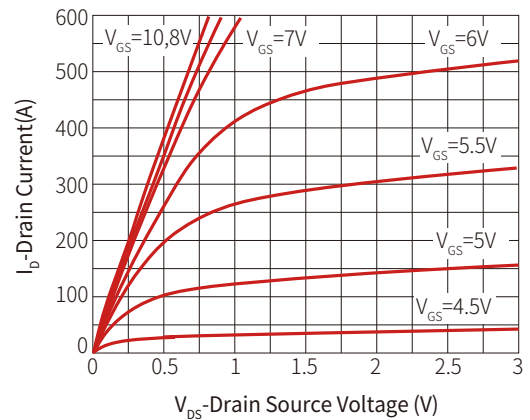


Figure 5: Capacitance -V_{DS}

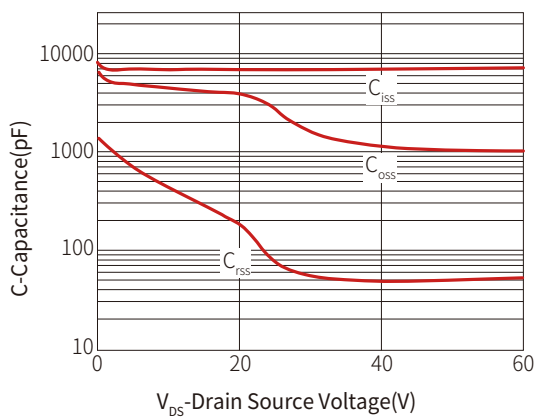


Figure 6: Gate Charge

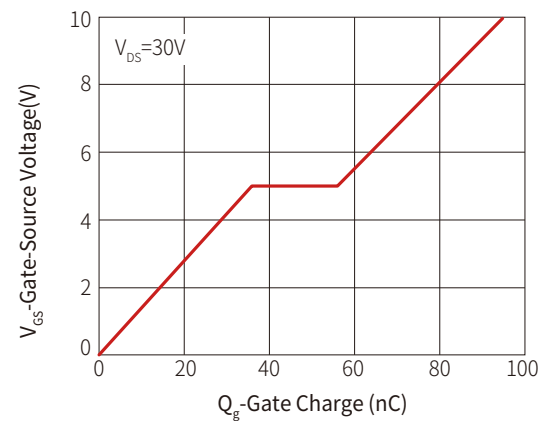
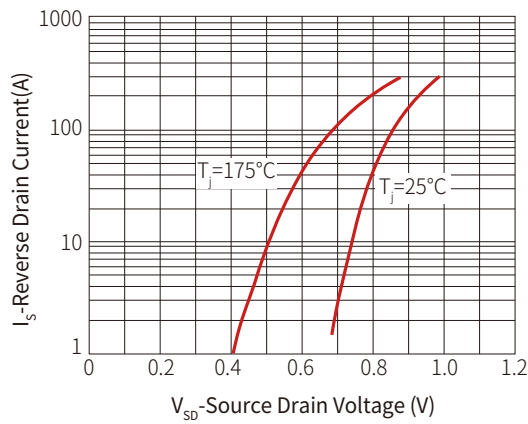
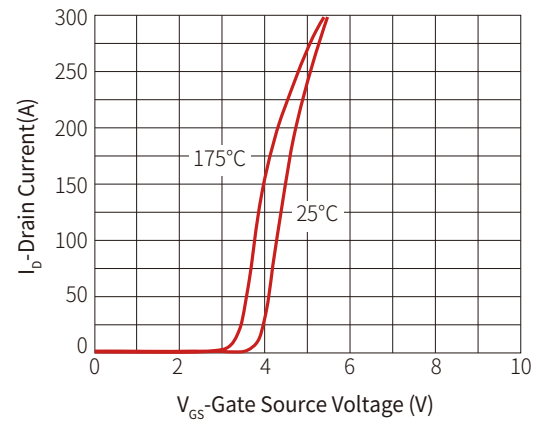
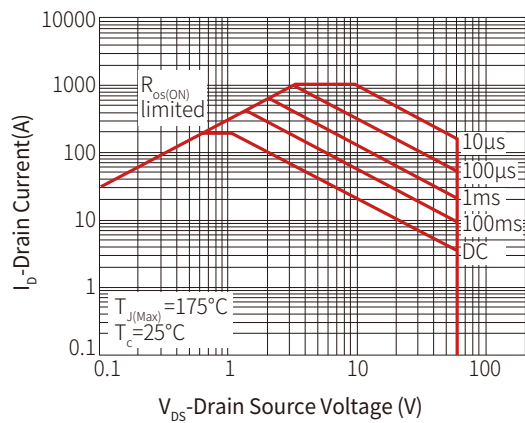
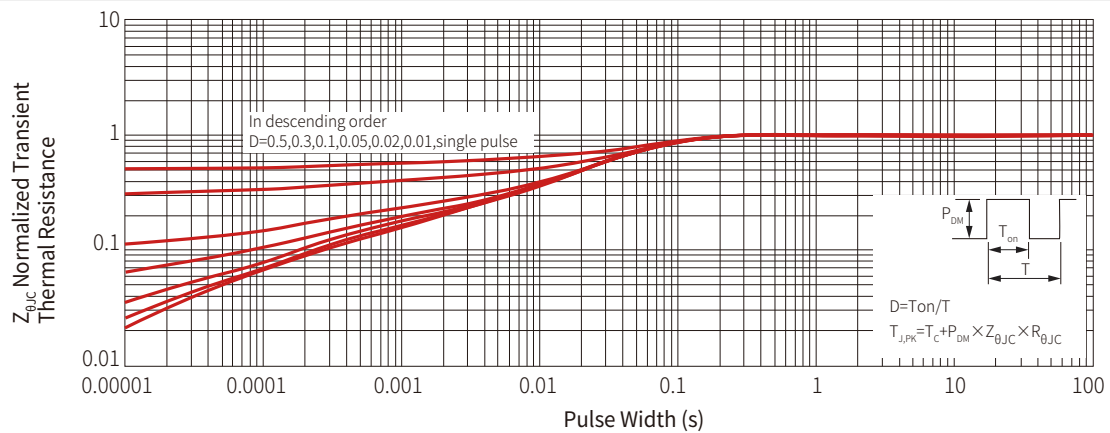
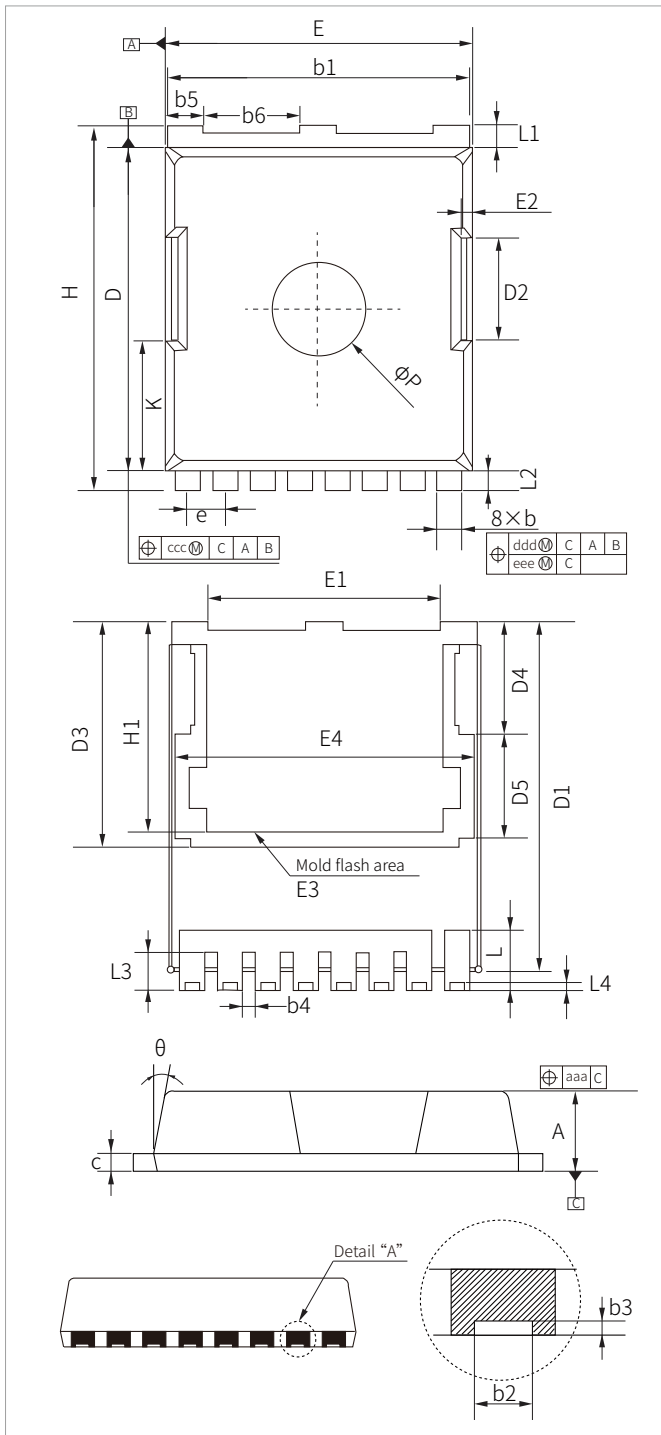


**Fig 7: Source-Drain Diode Forward Voltage****Figure 8: Transfer Characteristics****Figure 9: Safe Operation Area****Figure 10: Normalized Maximum Transient Thermal Impedance**

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	Carton
SNM200N60L	TOLL-8L	 200N60 XXXX	1500PCS	12000PCS

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