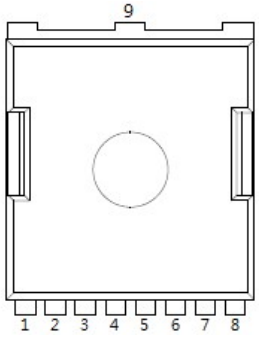
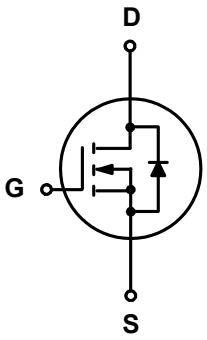
80V/500A N-Channel MOSFET

$V_{(BR)DSS}$	$R_{DS(ON)}$ Typ	I_D Max
80V	0.85mΩ @ 10V	500A
	1.25mΩ @6V	

TOLL -8L



Top View



1 Gate(G)
2,3,4,5,6,7,8 Source(S)
9 Drain(D)

Features

- ☑ **Surface-mounted package**
- ☑ **Super Trench**
- ☑ **Tj max 175℃**
- ☑ **Advanced trench cell design**
- ☑ **MSL1**

Applications

- ☑ **Power appliances**
- ☑ **E- Tool appliances**
- ☑ **High power inverter system**
- ☑ **BMS**

Order Information

Product	Package	Marking	Packing
M007N08TS	TOLL-8L	AYWWZZ	2000PCS/REF

Limiting Values

Symbol	Parameter	Conditions	Min	Max	Unit
V_{DS}	Drain-Source Voltage	T_C = 25 ℃	80	-	V
V_{GS}	Gate-Source Voltage	T_C = 25 ℃	-	±20	V
I_D*	Drain Current (DC)	T_C = 25 ℃, V_{GS} = 10 V	-	500	A
		T_C = 100 ℃, V_{GS} = 10 V	-	355	A
I_{DM}*,**	Drain Current (Pulsed)	T_C = 25 ℃, V_{GS} = 10 V	-	1200	A
P_{tot}	Drain power dissipation	T_C = 25 ℃	-	450	W
T_{stg}	Storage Temperature		-55	175	℃
T_J	Junction Temperature		-	175	℃
I_S	Continuous-Source Current	T_C = 25 ℃	-	500	A
E_{AS}*	Single Pulsed Avalanche Energy	V_{DD}= 50 V , L= 1.0 mH	-	3042	mJ
$R_{\theta JA}$*	Thermal Resistance- Junction to Ambient		-	40	℃/W
$R_{\theta JC}$*	Thermal Resistance- Junction to Case		-	0.33	

Notes：

* Surface Mounted on 1 in^2 pad area, t ≤ 10 sec

** Pulse width ≤ 300 μs, duty cycle ≤ 2 %

*** limited by bonding wire

Electrical Characteristics (T_A=25 ° Unless Otherwise Noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_{DS} = 250 μA	80	-	-	V
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_{DS} = 250 μA	2	-	4	V
I_{DSS}	Drain Leakage Current	V_{DS} = 64 V, V_{GS} = 0 V	-	-	1	μA
I_{GSS}	Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	-	-	±100	nA
$R_{DS(ON)}$[a]	On-State Resistance	V_{GS} = 10 V, I_{DS} = 50 A	-	0.7	0.85	mΩ
		V_{GS} = 6 V, I_{DS} = 30 A	-	1.1	1.25	
Diode Characteristics						
V_{SD}[a]	Diode Forward Voltage	I_{SD} = 50 A, V_{GS} = 0 V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_{DS} = 50 A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs	-	137	-	nS
Q_{rr}	Reverse Recovery Charge		-	369	-	nC
Dynamic Characteristics[b]						
C_{iss}	Input Capacitance	V_{GS} = 0 V, V_{DS} = 40 V Frequency = 1 MHz	-	20427	-	pF
C_{oss}	Output Capacitance		-	2566	-	
C_{rss}	Reverse Transfer Capacitance		-	611	-	
t_d(on)	Turn-on Delay Time	V_{DS} = 40 V, V_{GEN} = 10 V, R_G = 3.9 Ω, R_L = 0.8 Ω, I_{DS} = 50 A	-	47	-	nS
t_r	Turn-on Rise Time		-	122	-	
t_d(off)	Turn-off Delay Time		-	226	-	
t_f	Turn-off Fall Time		-	126	-	
Gate Charge Characteristics[b]						
Q_g	Total Gate Charge	V_{DS} = 40 V, V_{GS} = 10 V, I_{DS} = 50 A	-	338	-	nC
Q_{gs}	Gate-Source Charge		-	100	-	
Q_{gd}	Gate-Drain Charge		-	74	-	

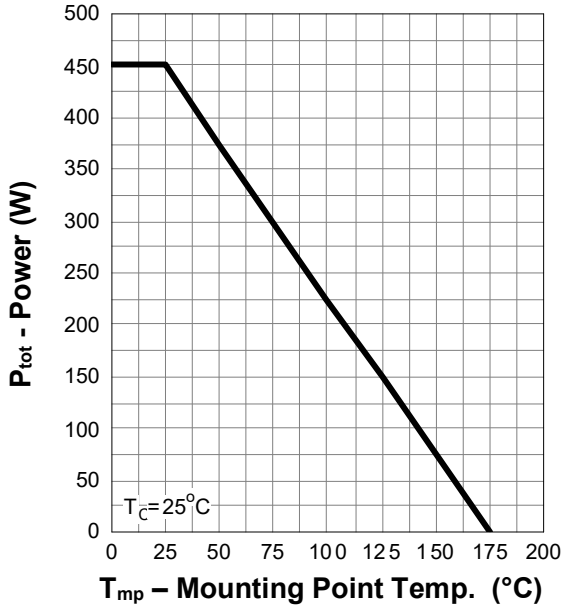
Notes：

a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%

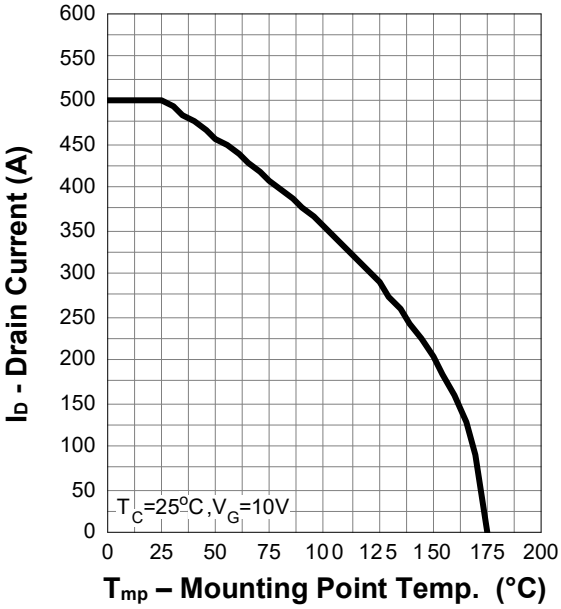
b : Guaranteed by design, not subject to production testing

Typical Characteristics

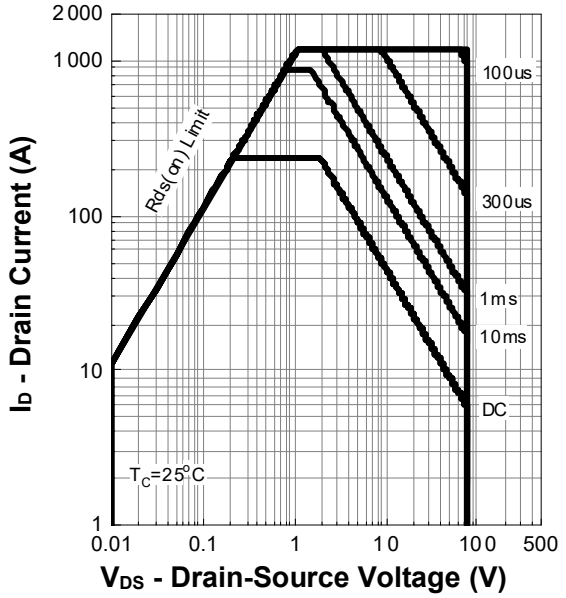
Power Capability



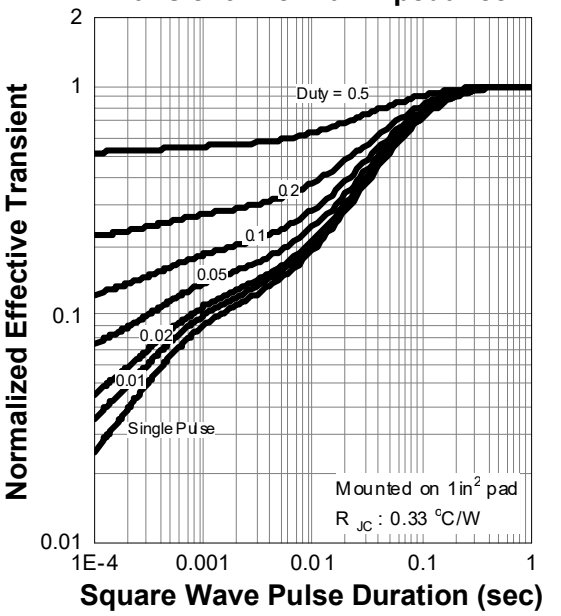
Current Capability



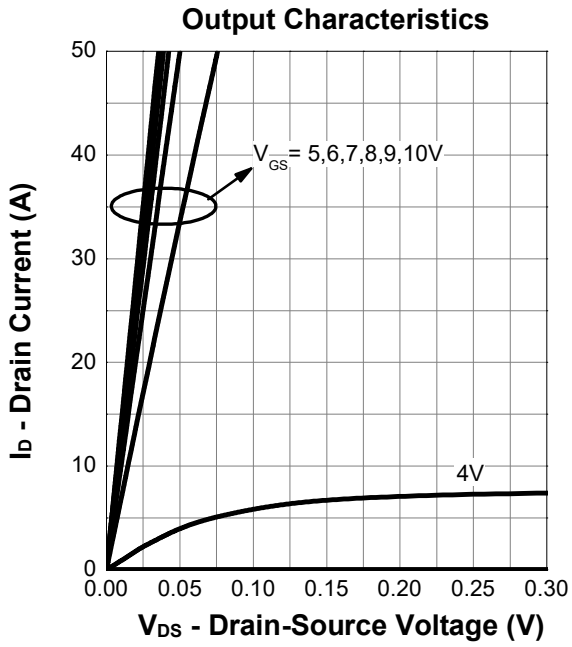
Safe Operating Area

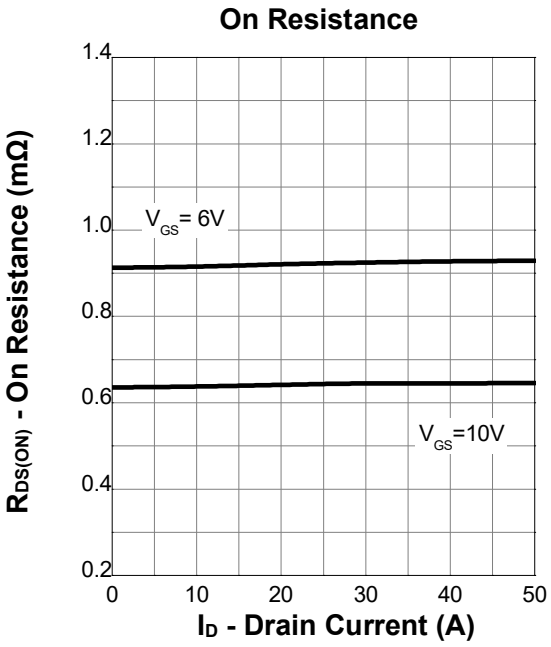


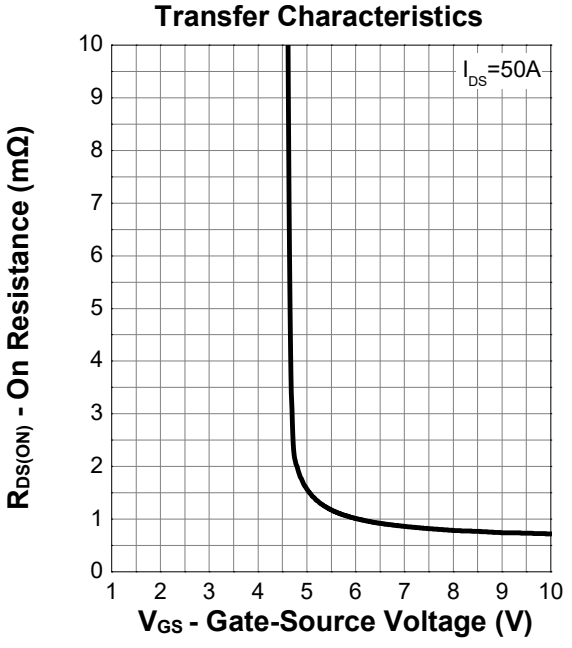
Transient Thermal Impedance

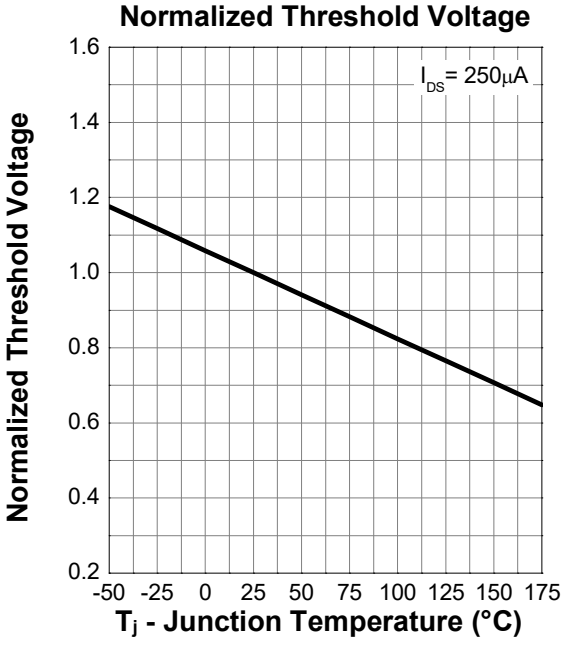


Typical Characteristics (cont.)

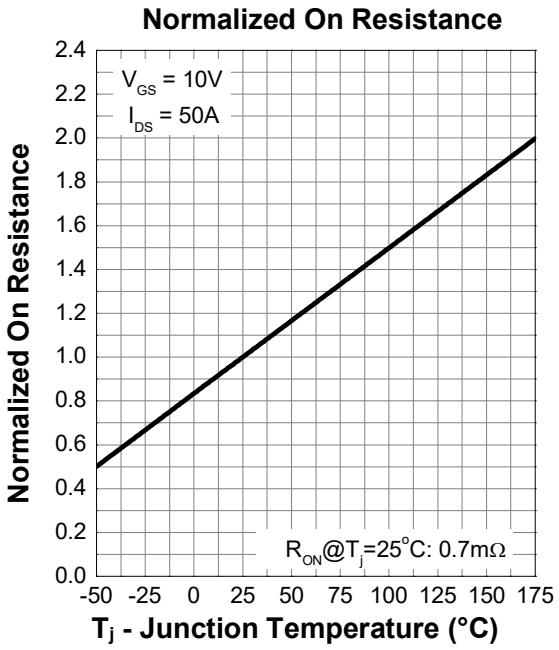


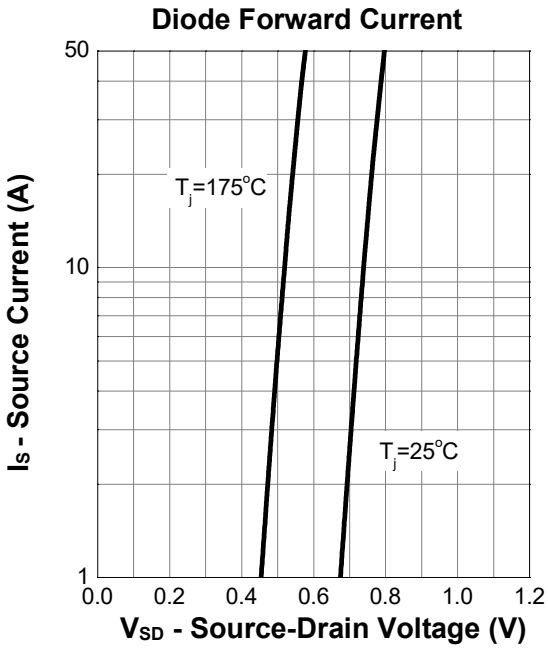


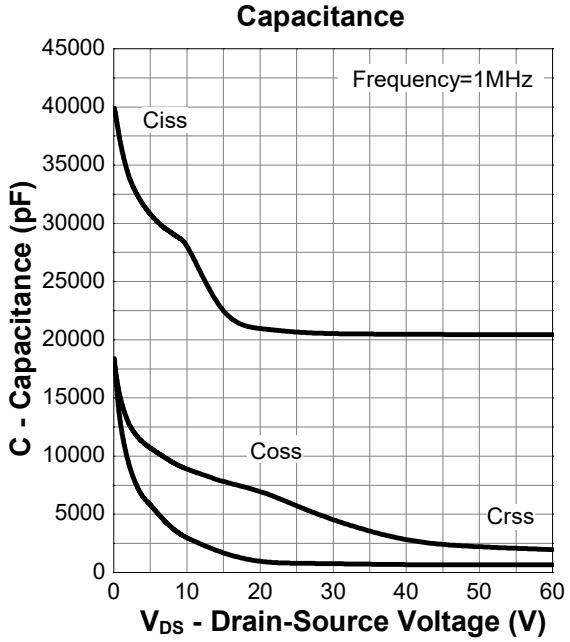


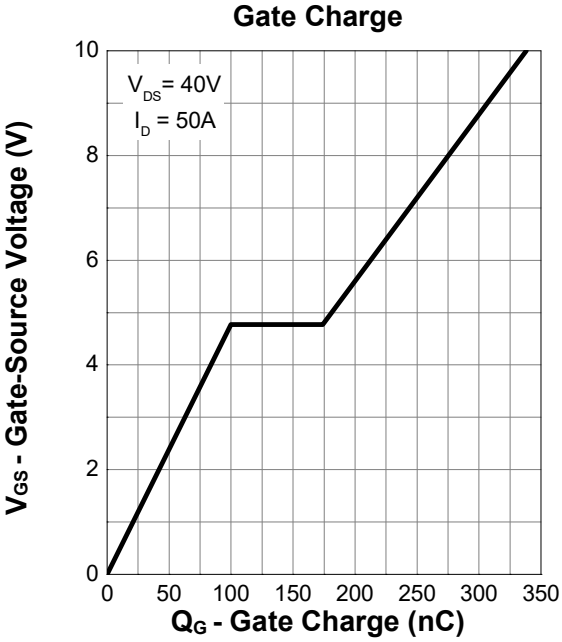


Typical Characteristics (cont.)





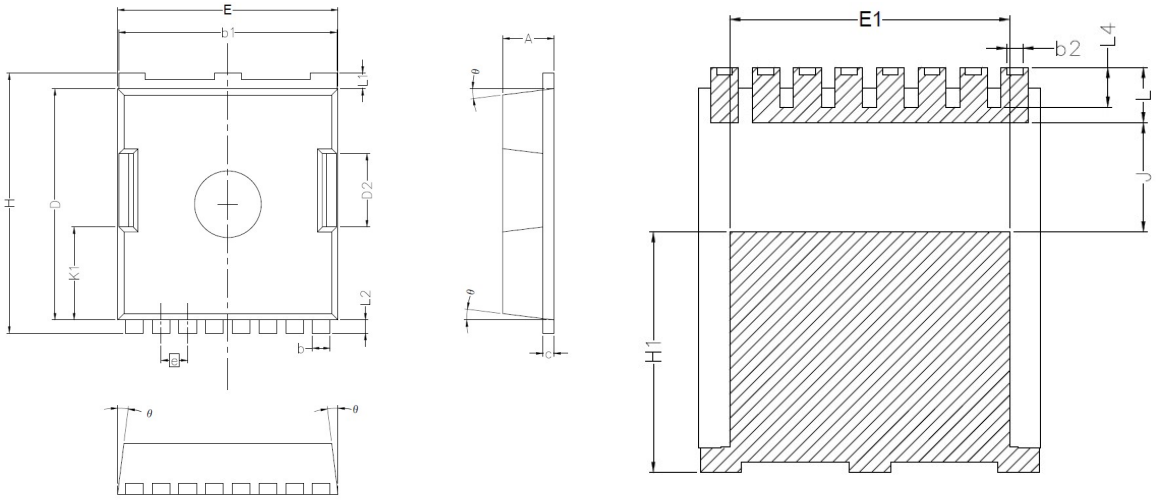




80V/500A N-Channel MOSFET

Package Dimensions

TOLL-8L Package



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	3.50
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°