Features

- Uses MOT advanced double trench technology
- Low On-Resistance (RDS(on)≤2.0mΩ)
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% avalanche tested
- Pb-free plating; RoHS compliant

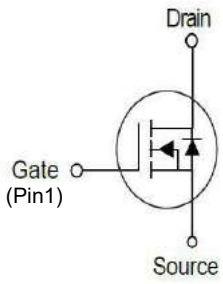
Applications

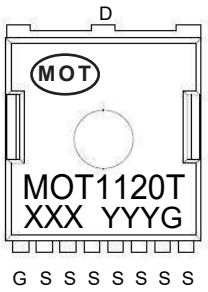
- Battery management
- Motor control and drive
- Synchronous rectification
- Switching applications

Pin configuration (Top view)

TOLL-8

Symbol





XXX= Lot Number
YYY = Year Week
G=Vth Range

Marking

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	100	V
R_{DS}(on),typ.	1.62	mΩ
I_D	280	A

Ordering information

Type/Ordering Code	Package	Marking	Packing&Qty.(pcs)
MOT1120T	TOLL-8	MOT1120T	2000/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Unit
Drain-Source Voltage	V_{DS}	T_C = 25 ℃	100	-	V
Gate-Source Voltage	V_{GS}	T_C = 25 ℃	-	± 20	V
Drain Current (DC) *	I_D	T_C = 25 ℃, V_{GS} = 10 V	-	280	A
		T_C = 100 ℃, V_{GS} = 10 V	-	190	A
Drain Current (Pulsed)***	I_{DM}	T_C = 25 ℃, V_{GS} = 10 V	-	1200	A
Drain power dissipation	P_{tot}	T_C = 25 ℃	-	278	W
Storage Temperature	T_{stg}		- 55	150	℃
Junction Temperature	T_J		-	150	℃
Continuous-Source Current	I_S	T_C = 25 ℃	-	280	A
Single Pulsed Avalanche Energy	E_{AS}	V_{DD}= 40 V , L= 1.0 mH	-	2162	mJ
Thermal Resistance- Junction to Ambient**	$R_{\theta JA}$		-	32.8	℃/W
Thermal Resistance- Junction to Case**	$R_{\theta JC}$		-	0.45	℃/W

■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0 V, I_{DS} = 250 μA	100	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_{DS} = 250 μA	2	-	4	V
Drain Leakage Current	I_{DSS}	V_{DS} = 80 V, V_{GS} = 0 V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = ± 20 V, V_{DS} = 0 V	-	-	± 100	nA
On-State Resistance[a]	$R_{DS(ON)}$	V_{GS} = 10 V, I_{DS} = 20 A	-	1.62	2.0	mΩ
Diode Characteristics						
Diode Forward Voltage[a]	V_{SD}	I_{SD} = 20 A, V_{GS} = 0 V	-	-	1.3	V
Reverse Recovery Time	t_{rr}	I_{DS} = 20 A, V_{GS} = 0 V dI^{SD}/dt = 100 A/μs	-	80	-	nS
Reverse Recovery Charge	Q_{rr}		-	195	-	nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 20 V Frequency = 1 MHz	-	11000	-	pF
Output Capacitance	C_{oss}		-	4000	-	pF
Reverse Transfer Capacitance[b]	C_{rss}		-	1200	-	pF
Turn-on Delay Time	t_d(on	V_{DS} = 50 V, V_{GEN} = 10 V, R_G = 4.5 Ω, R_L = 2.5 Ω, I_{DS} = 20 A	-	32	-	nS
Turn-on Rise Time	t_r		-	40	-	nS
Turn-off Delay Time	t_d(off)		-	80	-	nS
Turn-off Fall Time	t_f		-	35	-	nS
Gate Charge Characteristics[b]						
Total Gate Charge	Q_g	V_{DS} = 50 V, V_{GS} = 10 V, I_{DS} = 20 A	-	131	-	nC
Gate-Source Charge	Q_{gs}		-	50	-	nC
Gate-Drain Charge	Q_{gd}		-	24.5	-	nC

Notes：

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

** Surface Mounted on minimum footprint pad area.

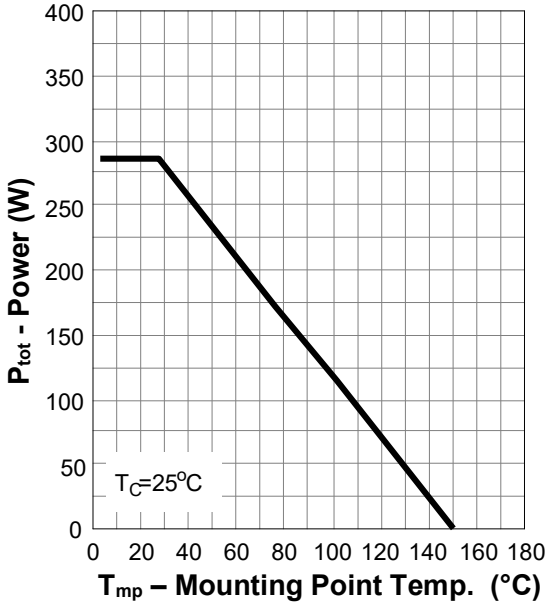
*** Limited by bonding wire

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

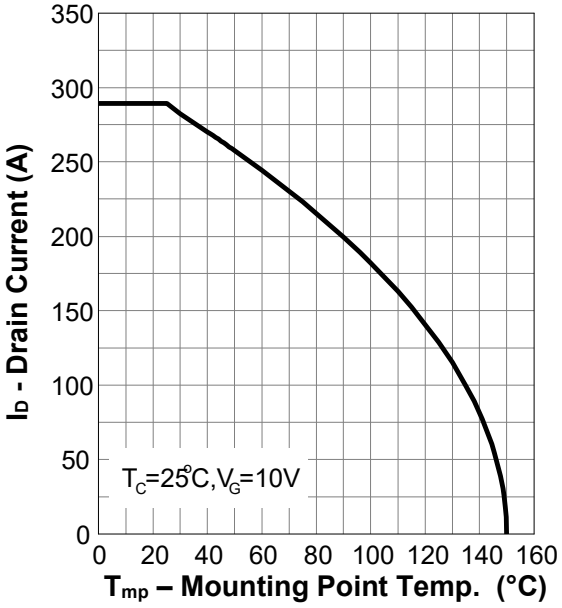
b : Guaranteed by design, not subject to production testing

■ TYPICAL CHARACTERISTICS

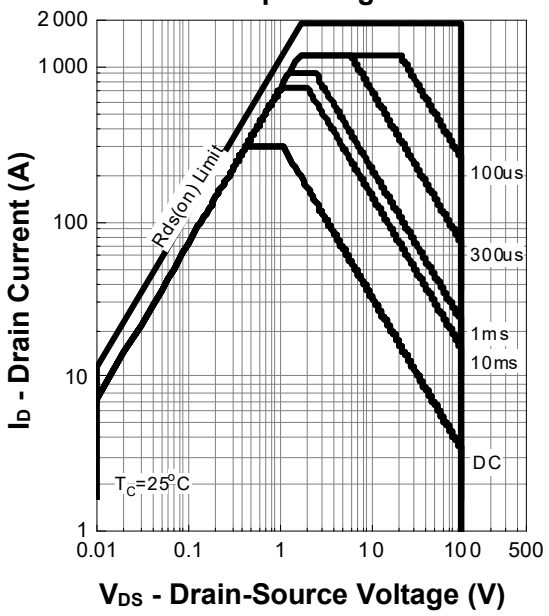
Power Capability



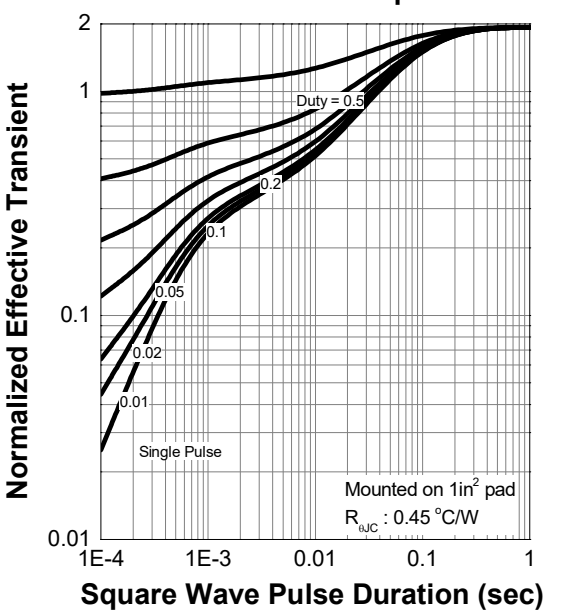
Current Capability



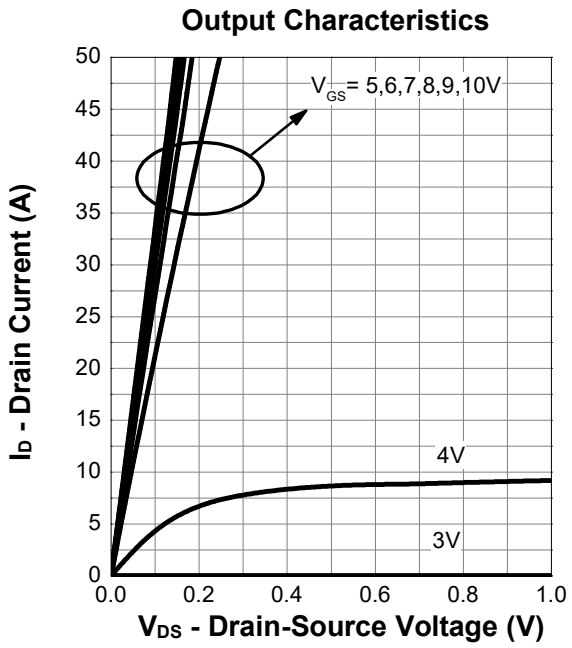
Safe Operating Area

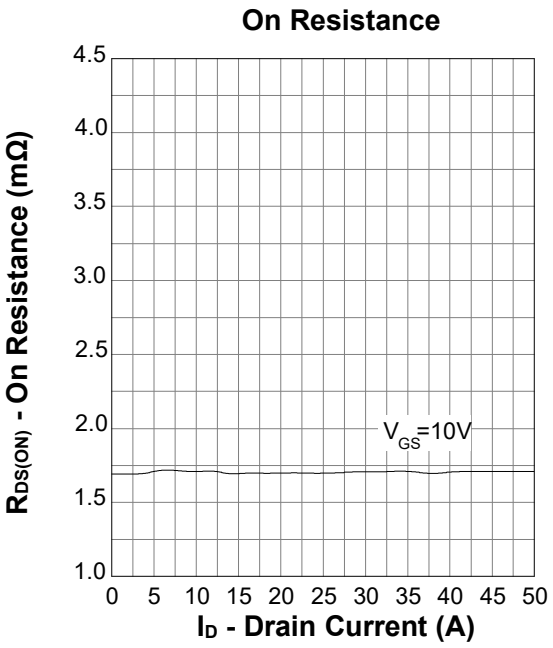


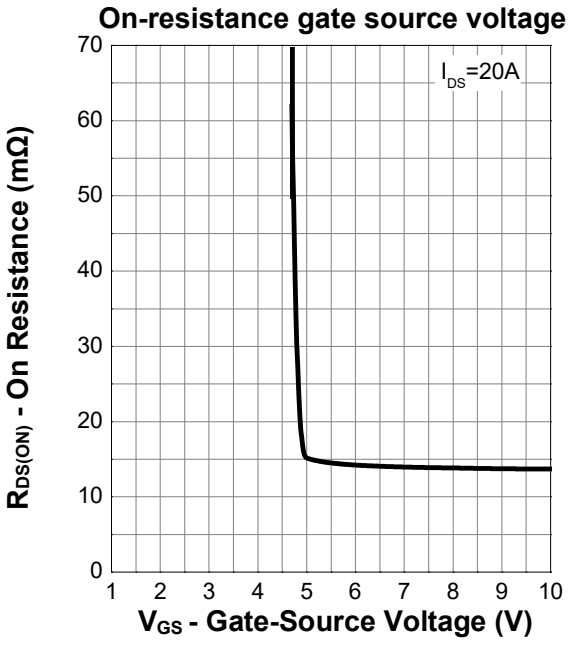
Transient Thermal Impedance

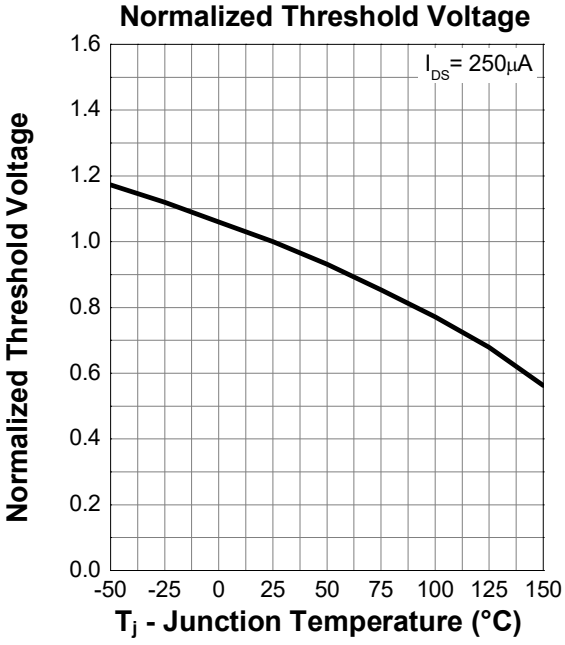


■ TYPICAL CHARACTERISTICS(Cont.)

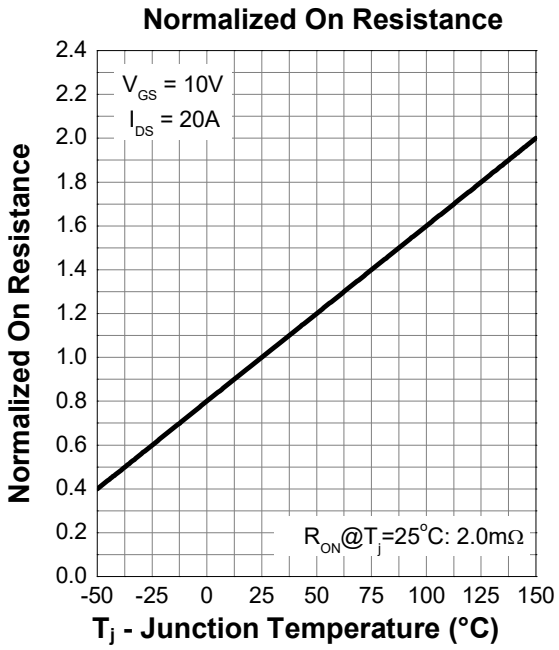


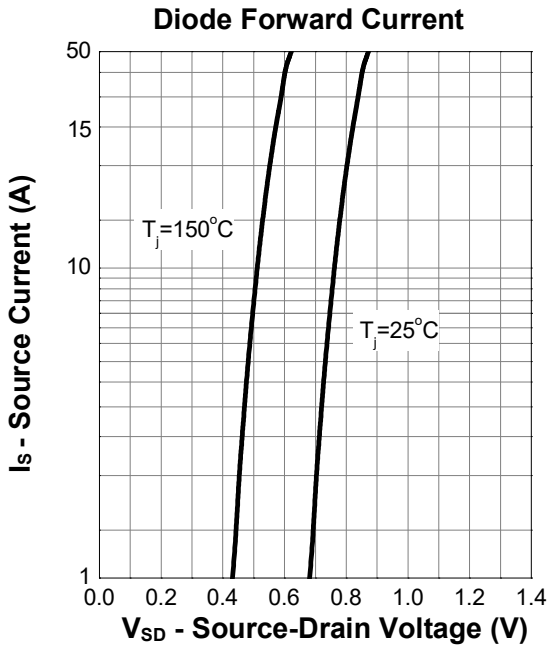


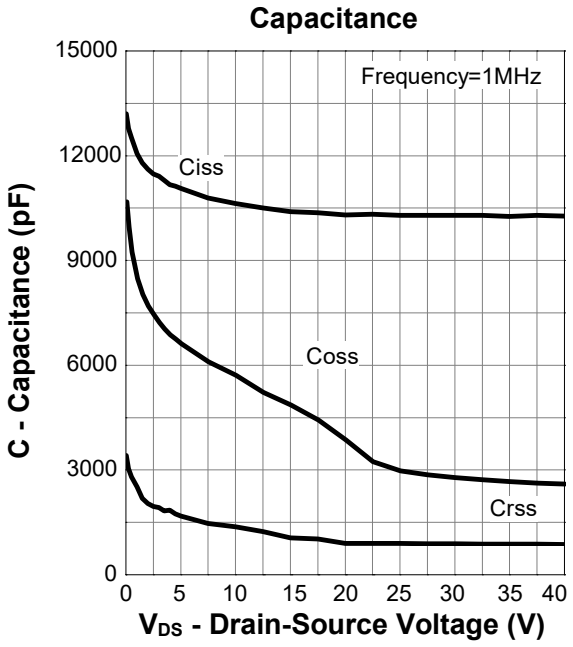


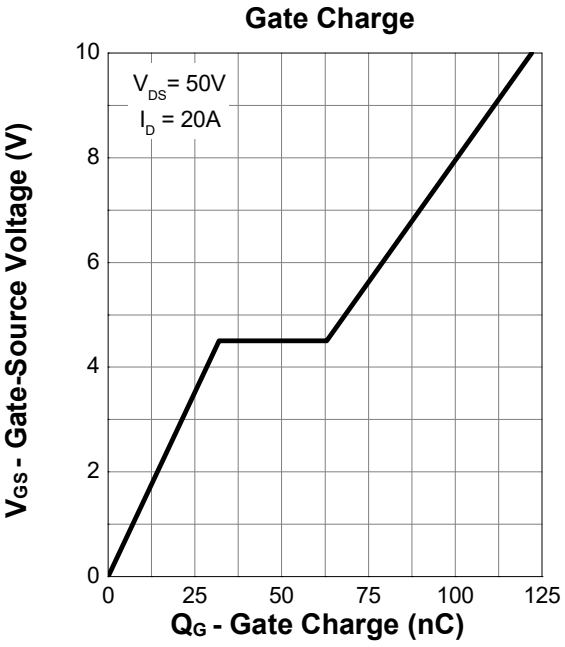


■ TYPICAL CHARACTERISTICS(Cont.)

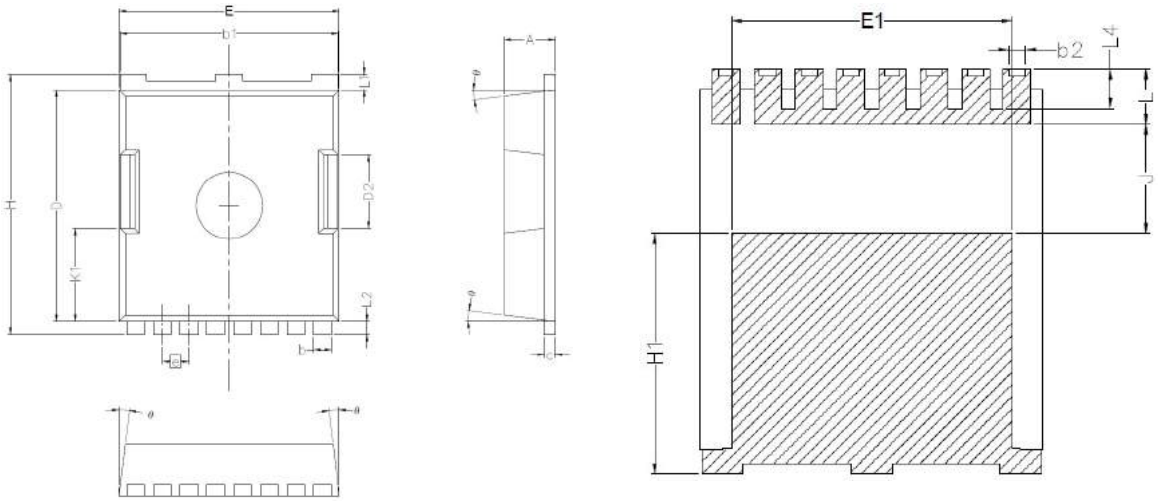








■TOLL-8L PACKAGE OUTLINE DIMENSIONS



Symbol	Dimesions 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°

- The information contained hSurface-mounted package Advnced terch cell design Super trencherein is subject to change without notice.

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