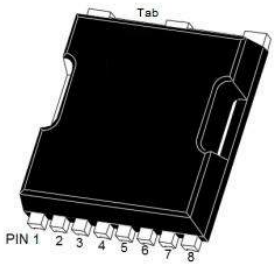
■ PRODUCT CHARACTERISTICS

VDSS	80V
R_{DS} (on)Typ(V_{GS}@=10 V)	1.5mΩ
ID	280A



TOLL-8L

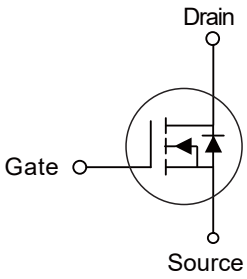
■ FEATURES

Surface-mounted package Advnced terch cell design Super trench

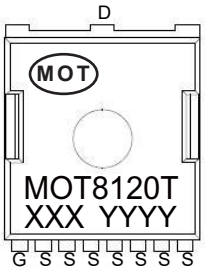
■ APPLICATIONS

High power system inverter
Light electric wehicles
BMS
Drones

■ SYMBOL



Pin configuration (Top view)



XXX = Lot Number
YYYY = Year Week

Marking

Order information

Device	Package	Shipping
MOT8120T/TR	TOLL-8L	2000/Tape&Reel

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

Parameter	Symbol	Conditions	Min	Max	Unit
Drain-Source Voltage	V_{DS}	T_C = 25 ℃	80	-	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
Drain Current (Pulsed) ***	I_{DM}	T_C = 25 ℃, V_{GS} = 10 V	-	160	A
		T_C = 100℃, V_{GS} = 10 V	-	100	A
Drain power dissipation	P_{tot}	T_C = 25 ℃	-	208	W
Storage Temperature	T_{stg}		-55	175	℃
Junction Temperature	T_J		-	175	℃
Continuous-Source Current	I_S	T_C = 25 ℃	-	280	A
Single Pulsed Avalanche Energy	E_{AS}	V_{DD}= 40V , L= 0.5 mH	-	2800	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	80	-	-	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} = 64 V, V_{GS} = 0 V	-	-	1	μA
Gate Leakage Current	I_{GSS}	V_{GS} = 0 V, V_{GS} = ± 20 V	-	-	±100	nA
On-State Resistance [a]	$R_{DS(ON)}$	V_{GS} = 10 V, I_{DS} = 30A	-	1.5	2.0	mΩ
Diode Characteristics						
Diode Forward Voltage [a]	V_{SD}	I_{SD} = 30A, V_{GS} = 0 V	-	-	1.2	V
Reverse Recovery Time	t_{rr}	I_{DS} = 30A, V_{GS} = 0 V dI_{SD}/dt = 100 A/μs	-	80	-	nS
Reverse Recovery Charge	Q_{rr}		-	196	-	nC
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = 40 V Frequency = 1 MHz	-	8237	-	pF
Output Capacitance	C_{oss}		-	1549	-	
Reverse Transfer Capacitance [b]	C_{rss}		-	152	-	
Turn-on Delay Time	t_d (on)	V_{DS} = 40 V, V_{GEN} = 10 V, R_G = 4.5 Ω, R_L = 1.3 Ω, I_{DS} = 30A	-	32	-	nS
Turn-on Rise	t_r		-	115	-	
Turn-off Delay Time	t_d (off)		-	93	-	
Turn-off Fall Time	t_f		-	140	-	
Gate Charge Characteristics [b]						
Total Gate Charge	Q_g	V_{DS} = 40 V, V_{GS} = 10 V, I_{DS} = 30A	-	138	-	nC
Gate-Source Charge	Q_{gs}		-	39	-	
Gate-Drain Charge	Q_{gd}		-	36	-	

Notes：

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

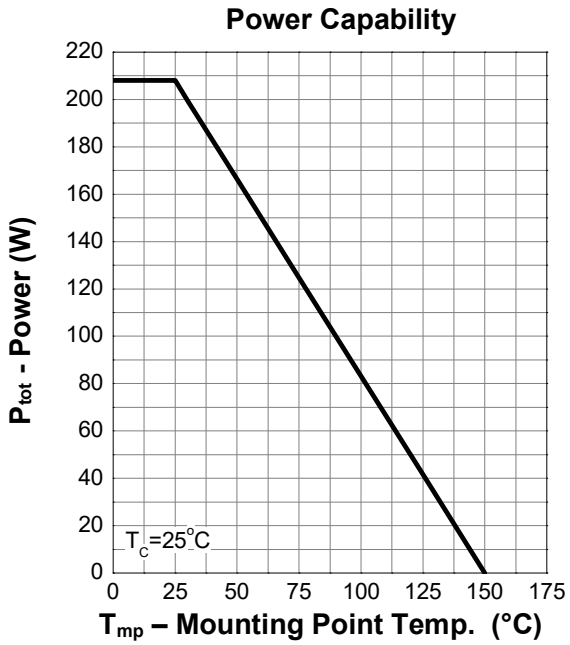
** Surface Mounted on minimum footprint pad area.

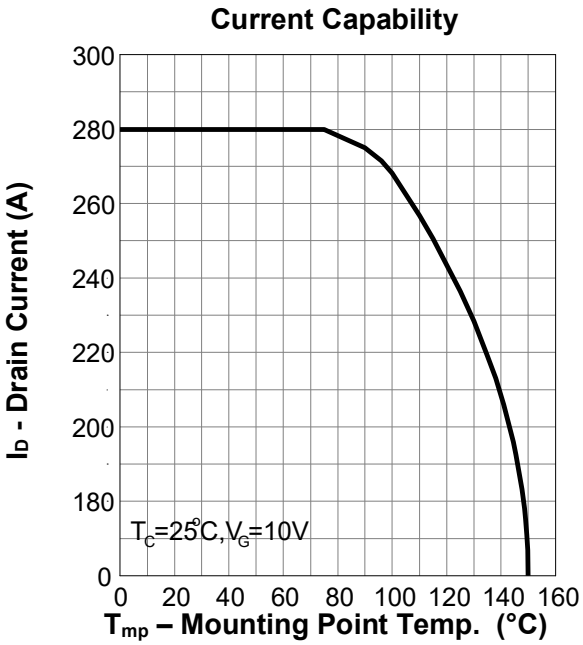
*** Limited by bonding wire

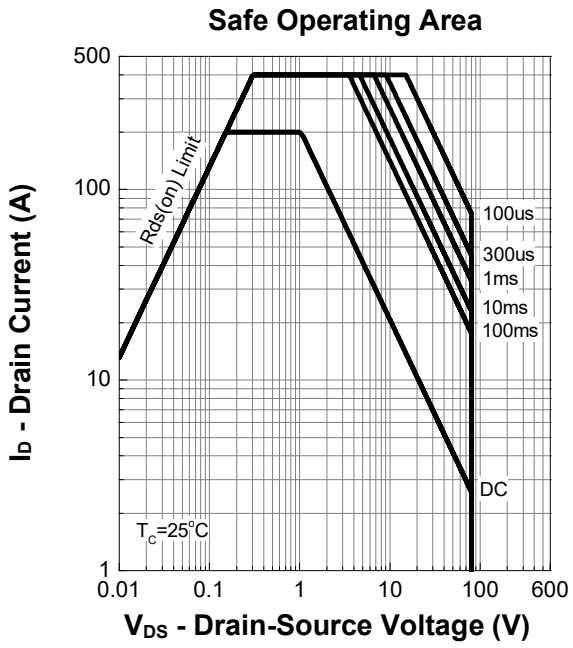
a : Pulse test ; pulse width ≤ 300 μs, duty cycle ≤ 2%

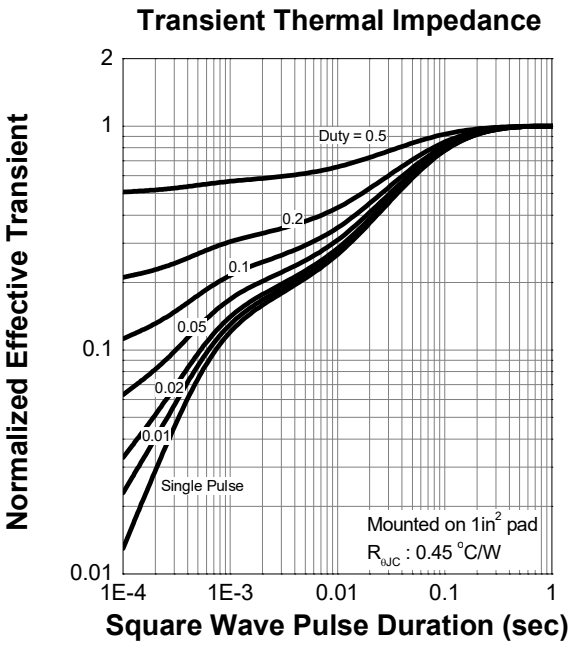
b : Guaranteed by design, not subject to production testing

■ TYPICAL CHARACTERISTICS

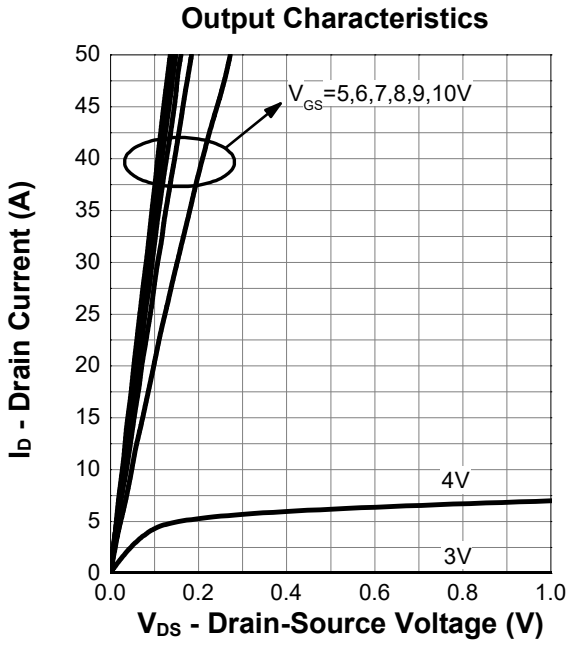


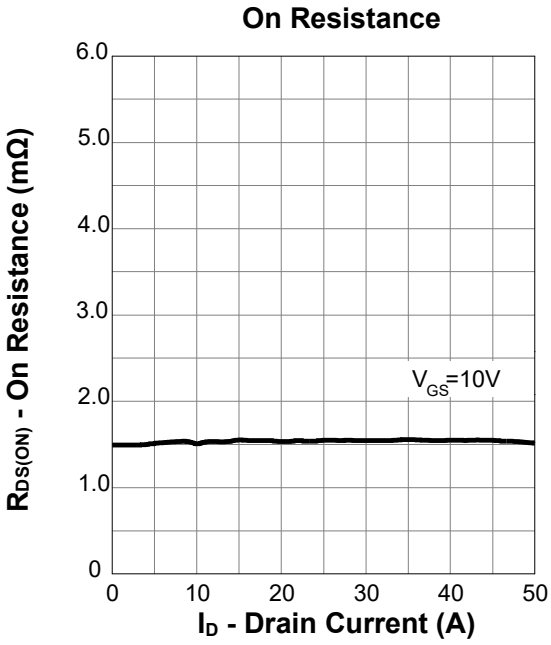


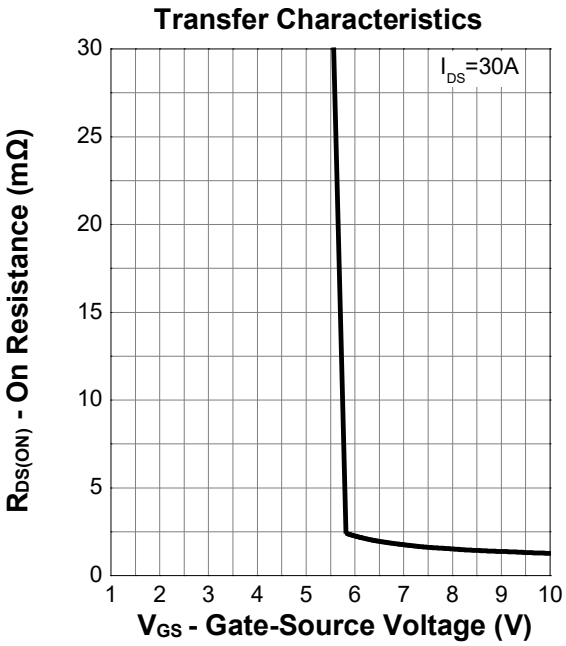


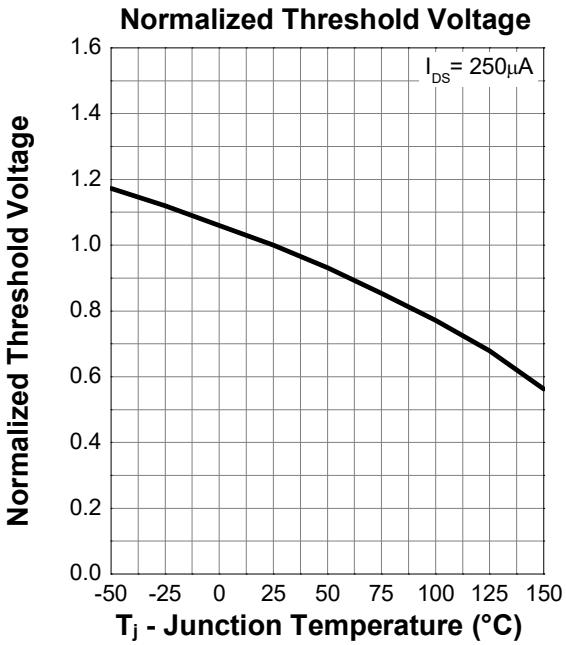


■ TYPICAL CHARACTERISTICS(Cont.)

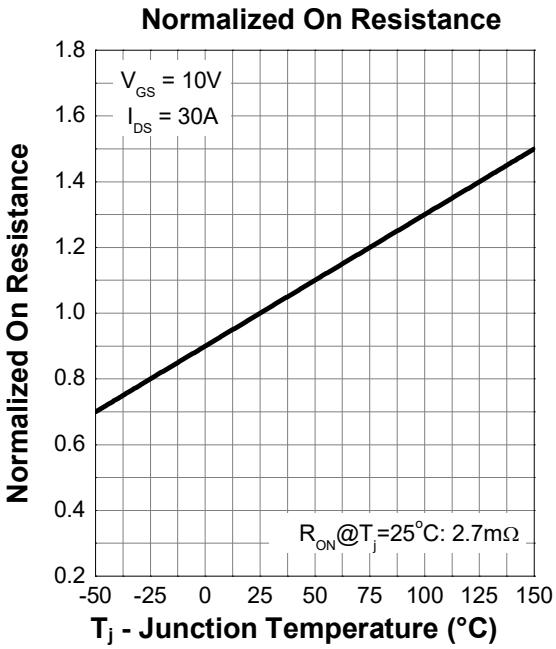


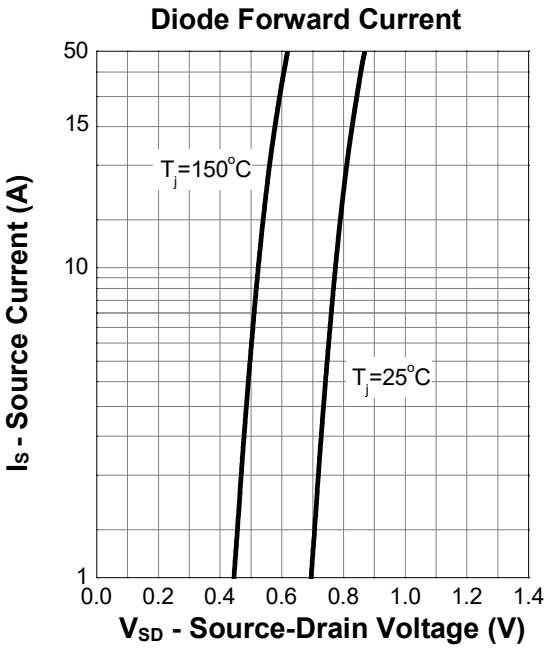


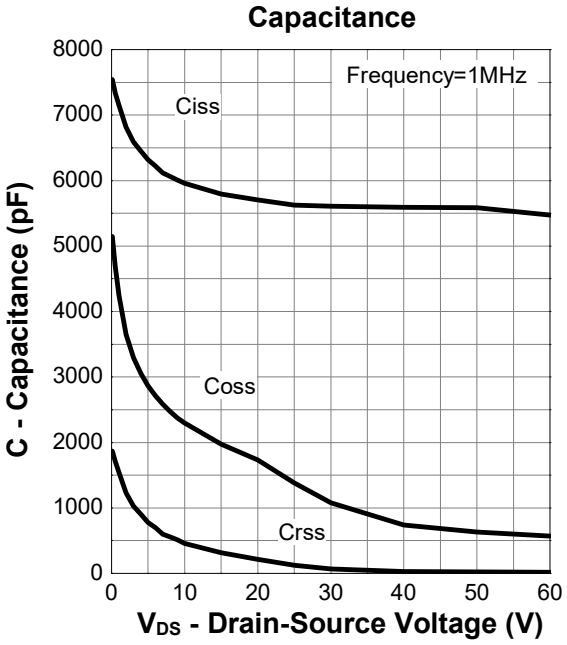


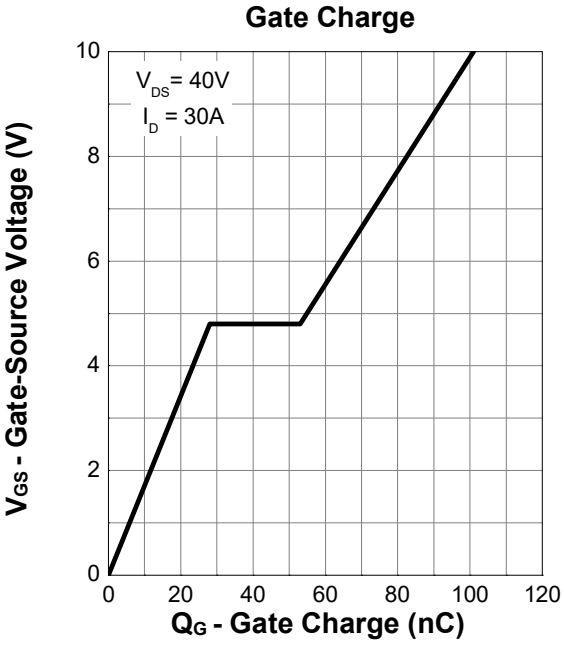


■ TYPICAL CHARACTERISTICS(Cont.)

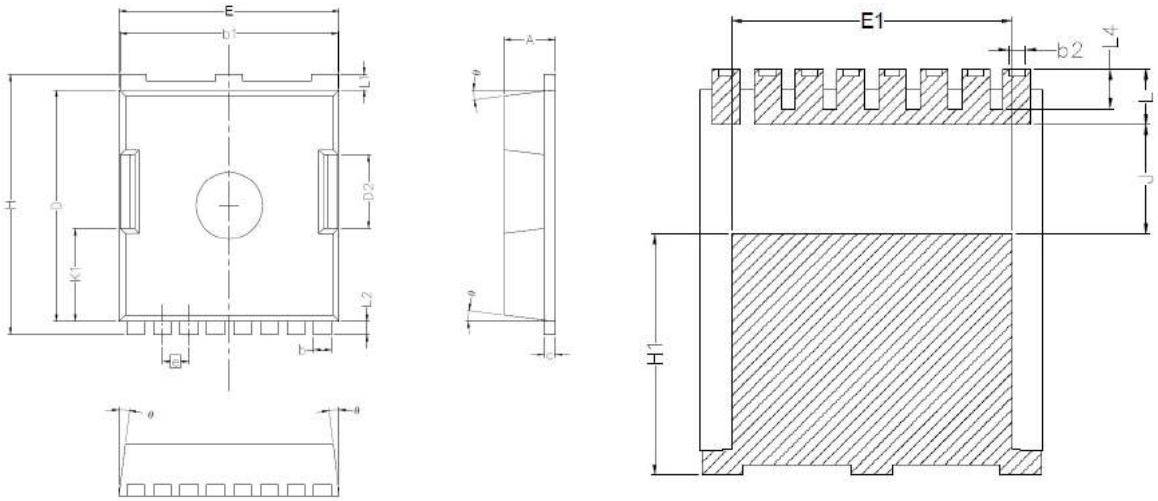








■TOLL-8L PACKAGE OUTLINE DIMENSIONS



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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