MOT12N65T
N-CHANNEL 650V,0.62Ω ,12A

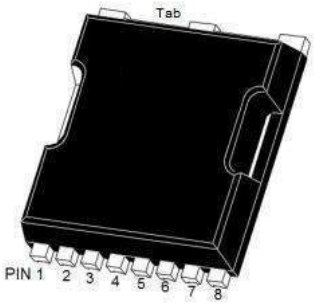
Features

- Low On-Resistance (RDS(on)≤0.72Ω)
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% avalanche tested
- Pb-free plating; RoHS compliant

Applications

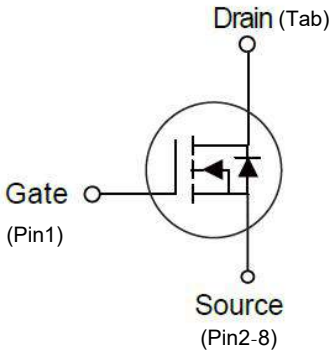
- Motor control and drive
- Synchronous rectification
- Switching applications

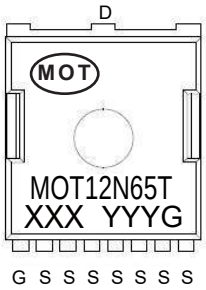
Pin configuration (Top view)



TOLL-8

Symbol





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

Marking

Key Performance Parameters

Parameter	Value	Unit
V_{DS}	650	V
R_{DS}(on),typ.	0.62	Ω
I_D	12	A

Ordering information

Type/Ordering Code	Package	Marking	Packing&Qty.(pcs)
MOT12N65T	TOLL-8	MOT12N65T	2000/Reel

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

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	650	V
Gate-Source Voltage	V_{GSS}	±30	V
Drain Current	I_D	12	A
Avalanche Energy	E_{AS}	1280	mJ
Power Dissipation	P_D	208	W
Junction Temperature	T_J	+150	°C
Operating Temperature	T_{OPR}	-55 ~ +150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Off characteristics						
Drain to Source Breakdown Voltage	V_{DSS}	V_{GS}=0V, I_D=250μA	650	-	-	V
Drain to Source Leakage Current	I_{DSS}	V_{DS} =650V, V_{GS}= 0V,	-	-	1	μA
Gate to Source Forward Leakage	$I_{GSS(F)}$	V_{GS}=+30V	-	-	100	nA
Gate to Source Reverse Leakage	$I_{GSS(R)}$	V_{GS} =-30V	-	-	-100	nA
On characteristics						
Drain-to- Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=6A	-	0.62	0.72	Ω
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} =V_{GS} ,I_D=250uA	2	-	4	V
Forward Transconductance	g_{fs}	V_{GS}=10V, I_D=5A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	V_{GS}=0V,V_{DS}=25V, f = 1.0MHz	-	2100	-	PF
Output Capacitance	C_{oss}		-	158	-	PF
Reverse Transfer Capacitance	C_{rss}		-	15	-	PF
Switching characteristics						
Turn-On Delay Time	$t_{d(ON)}$	I_D=12A, V_{DD} =100V, V_{GS} =10V,RG =25Ω	-	27	-	ns
Rise Time	tr		-	20	-	ns
Turn-Off Delay Time	$t_{d(OFF)}$		-	92	-	ns
Fall Time	t_f		-	31	-	ns
Total Gate Charge	Q_g	I_D=12A, V_{DD} =100V, V_{GS} =10V,	-	45	-	nC
Gate to Source Charge	Q_{gs}		-	10	-	nC
Gate to Drain Charge	Q_{gd}		-	5	-	nC
Source-drain diode characteristics						
Maximum Body-Diode Continuous Current	I_S		-	-	12	A
Maximum Body-Diode Pulsed Current	I_{SM}		-	-	24	A
Diode Forward voltage	V_{SD}	V_{GS}=0V, I_S=12A	-	-	1.2	V
Reverse Recovery Time	T_{rr}	I_S=12A, T_j = 25°C dIF/dt=100A/us,	-	392	-	ns
Reverse Recovery Charge	Q_{rr}		-	5.2	-	uC

■ TYPICAL CHARACTERISTICS

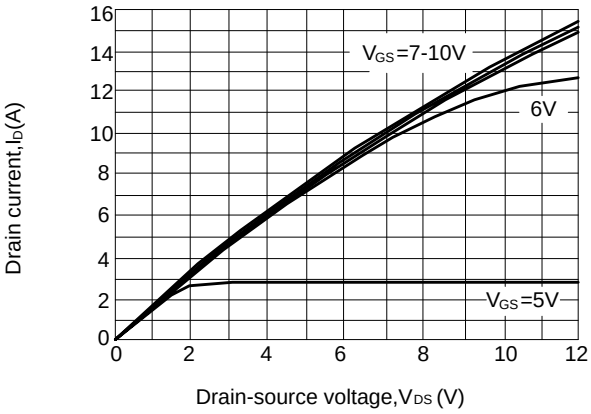


Figure 1: Drain-current vs.drain-source voltage

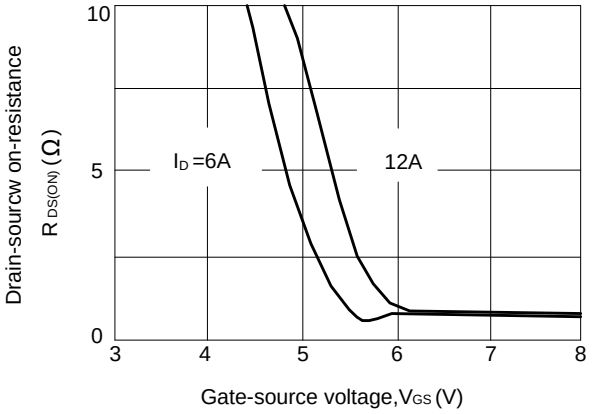


Figure 2: Drain-source on-resistance vs gate-source voltage

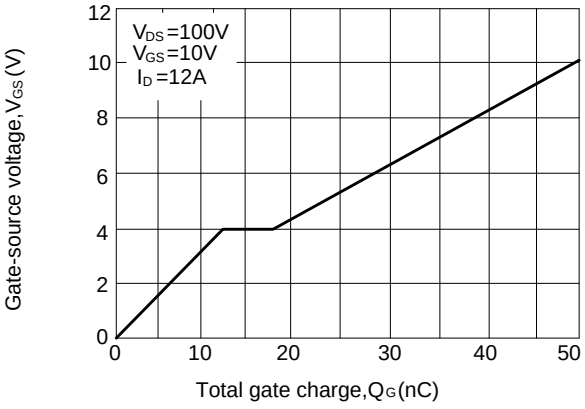


Figure 3: Gate charge characteristics

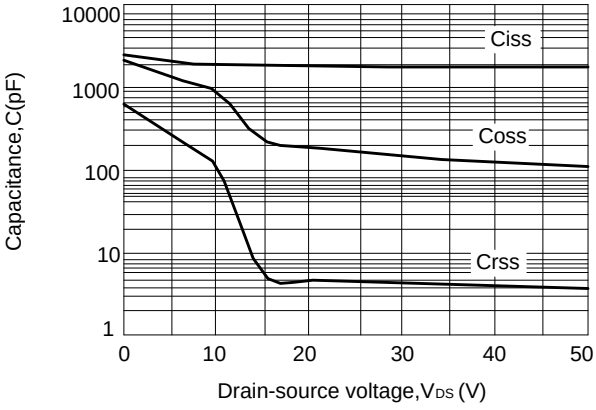


Figure 4: Capacitance characteristics

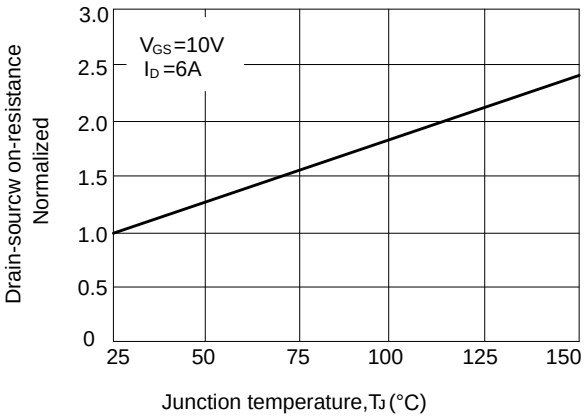


Figure 5: Drain-source on-resistance vs. junction temperature

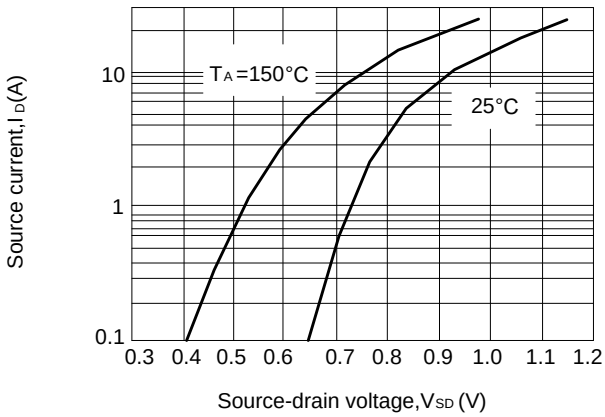


Figure 6: Source current vs. source-drain voltage

■ TYPICAL CHARACTERISTICS(Cont.)

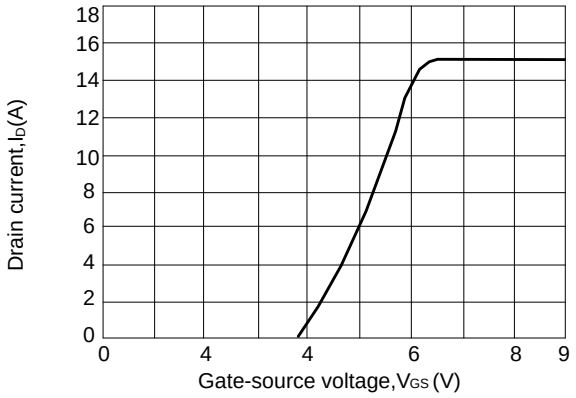


Figure 7: Drain-source vs gate-source v oltage

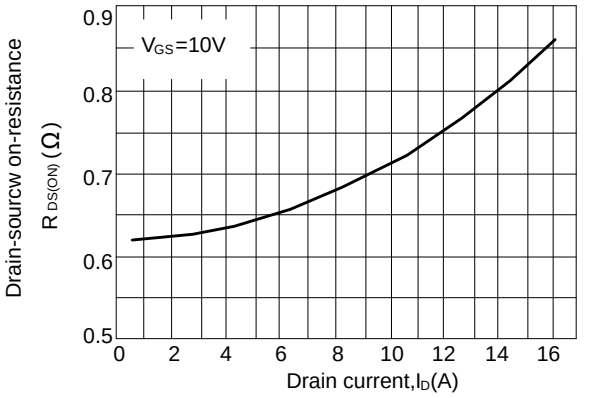


Figure 8: Drain-source on-resistance vs. drain current

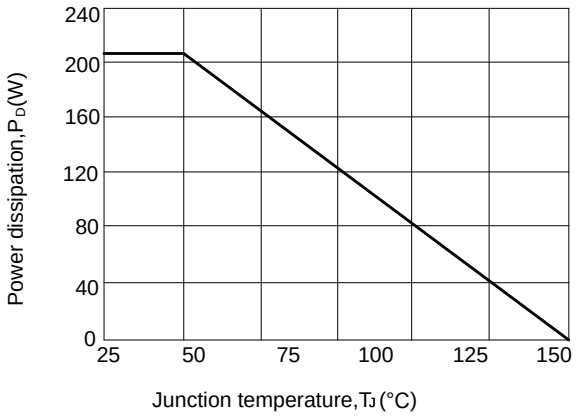


Figure 9: Power dissipatin vs. junction temperature

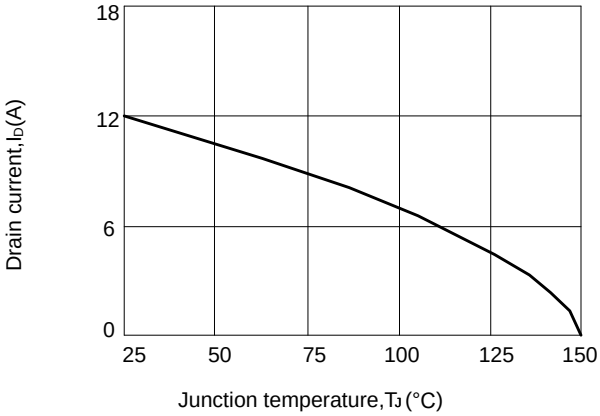


Figure 10: Drain current vs. junction temperature

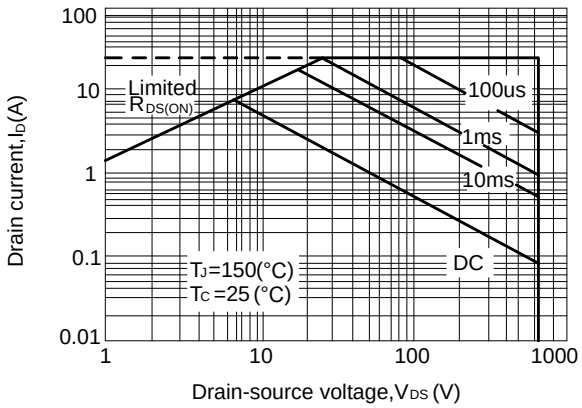
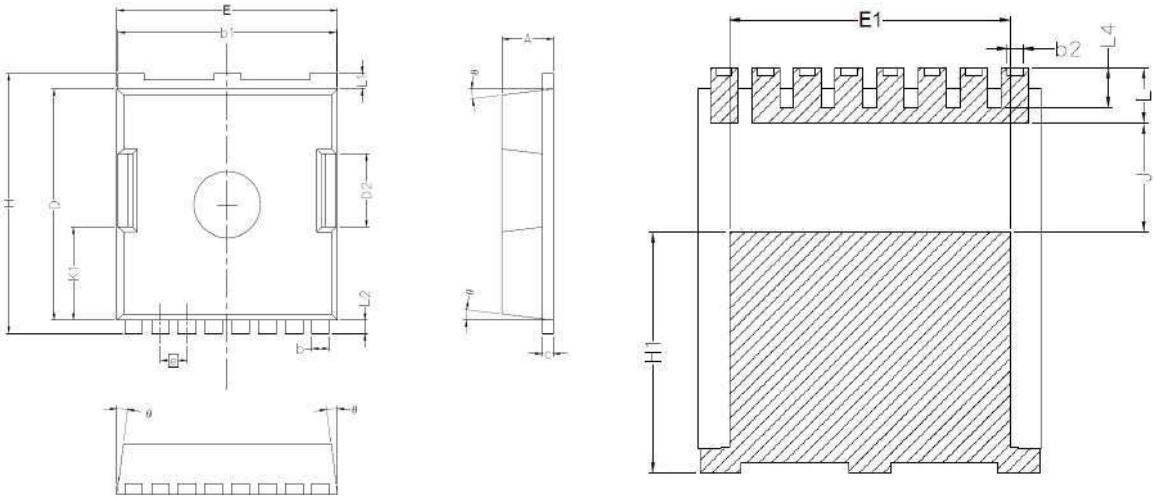


Figure 11: Safe operating area

■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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