

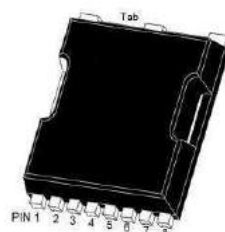
Features

- Uses MOT advanced double trench technology
- Low On-Resistance ($R_{DS(on)} \leq 3m\Omega$)
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% avalanche tested
- Pb-free plating; RoHS compliant

Applications

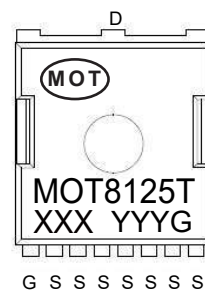
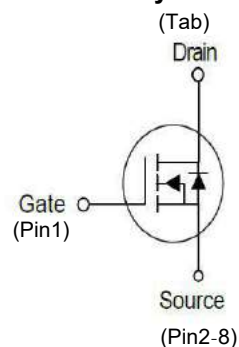
- Battery management
- Motor control and drive
- Synchronous rectification
- Switching applications

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}	85	V
$R_{DS(on),typ.}$	2.5	mΩ
I_D	220	A

Ordering information

Type/Ordering Code	Package	Marking	Packing&Qty.(pcs)
MOT8125T	TOLL-8	MOT8125T	2000/Reel

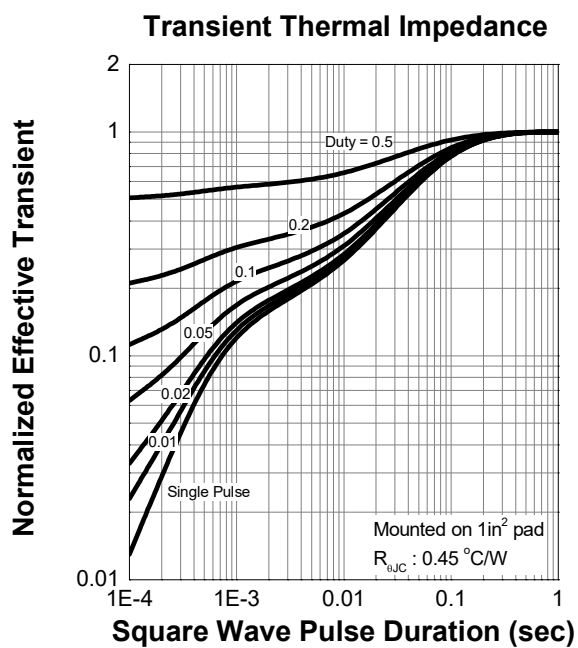
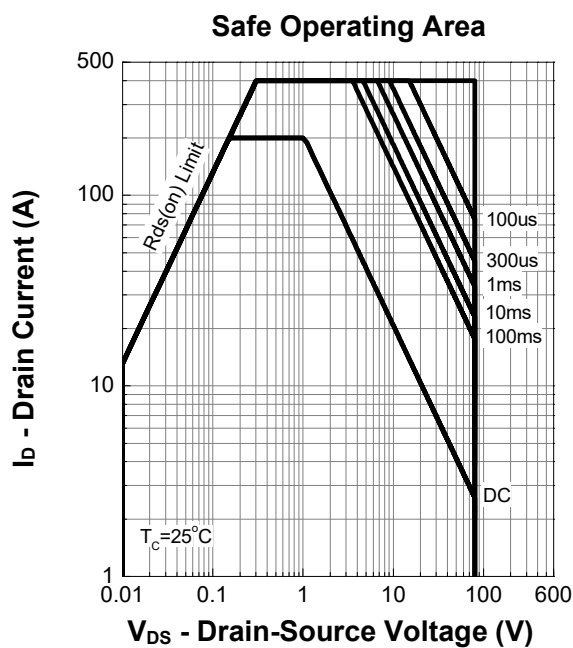
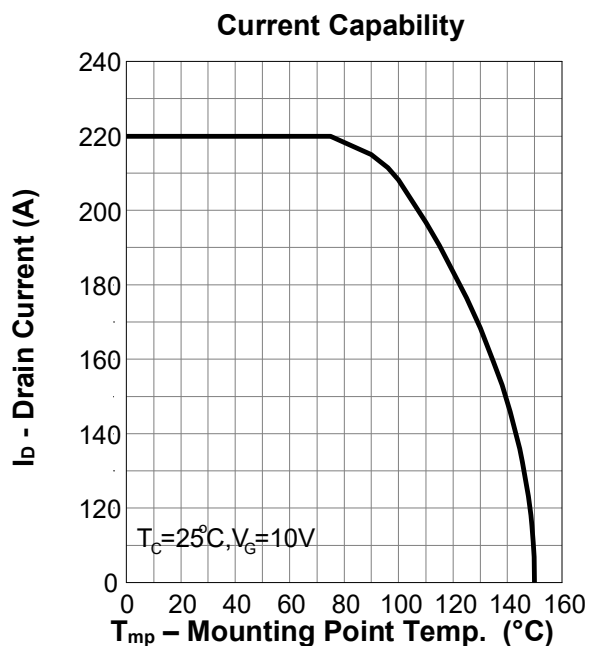
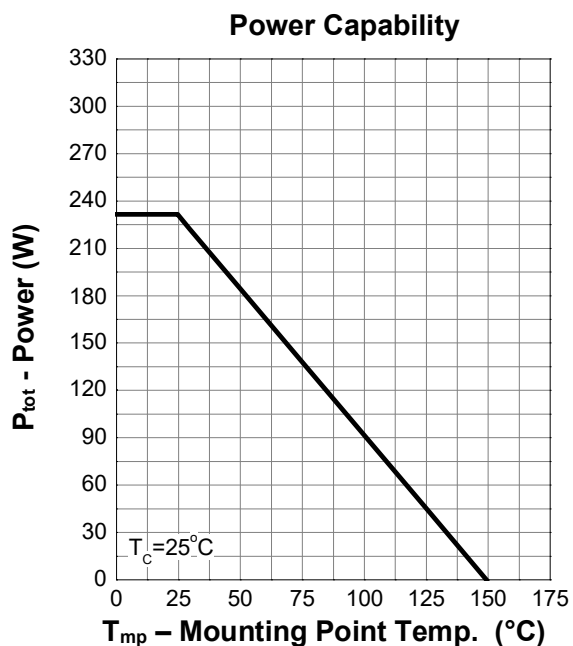
■ ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Max	Unit
Drain-Source Voltage	V_{DS}	$T_C = 25^\circ\text{C}$	85	-	V
Gate-Source Voltage	V_{GS}	$T_C = 25^\circ\text{C}$	-	± 20	V
Drain Current (DC) *	I_D	$T_C = 25^\circ\text{C}, V_{GS} = 10\text{ V}$	-	220	A
Drain Current (Pulsed) ***	I_{DM}	$T_C = 100^\circ\text{C}, V_{GS} = 10\text{ V}$	-	156	A
		$T_C = 25^\circ\text{C}, V_{GS} = 10\text{ V}$	-	800	A
Drain power dissipation	P_{tot}	$T_C = 25^\circ\text{C}$	-	232	W
Storage Temperature	T_{stg}		-55	150	$^\circ\text{C}$
Junction Temperature	T_J		-	150	$^\circ\text{C}$
Continuous-Source Current	I_S	$T_C = 25^\circ\text{C}$	-	220	A
Single Pulsed Avalanche Energy	E_{AS}	$V_{DD} = 40\text{ V}, L = 1\text{mH}$	-	2935	mJ
Thermal Resistance- Junction to Ambient**	$R_{\theta JA}$		-	40	$^\circ\text{C/W}$
Thermal Resistance- Junction to Case**	$R_{\theta JC}$		-	0.54	

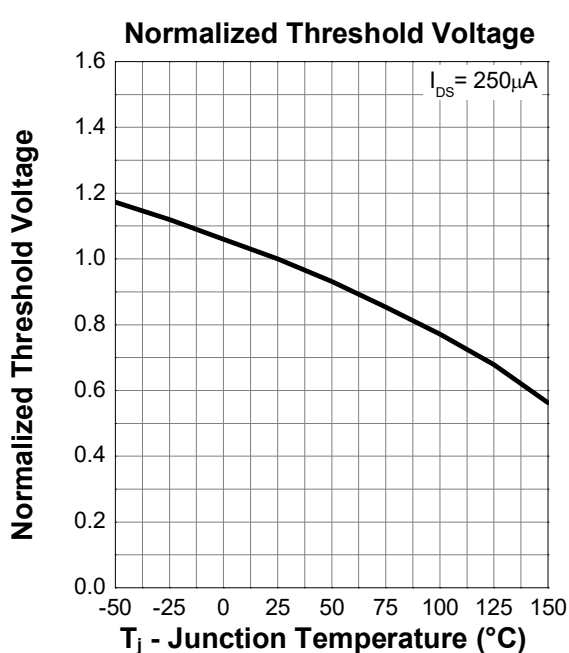
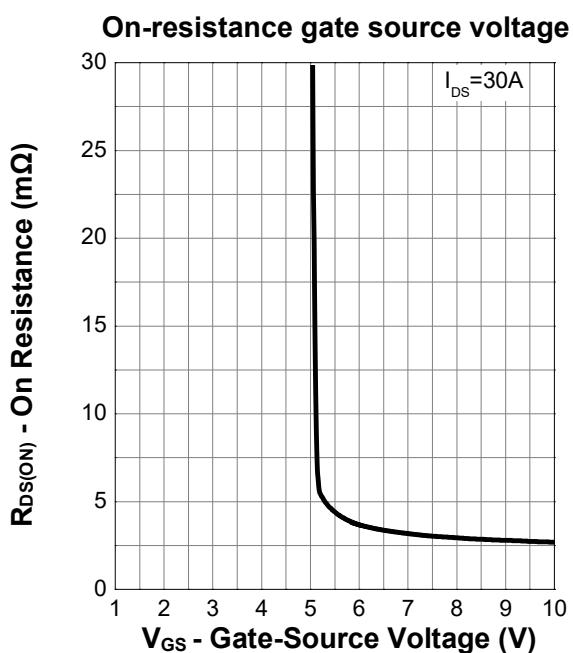
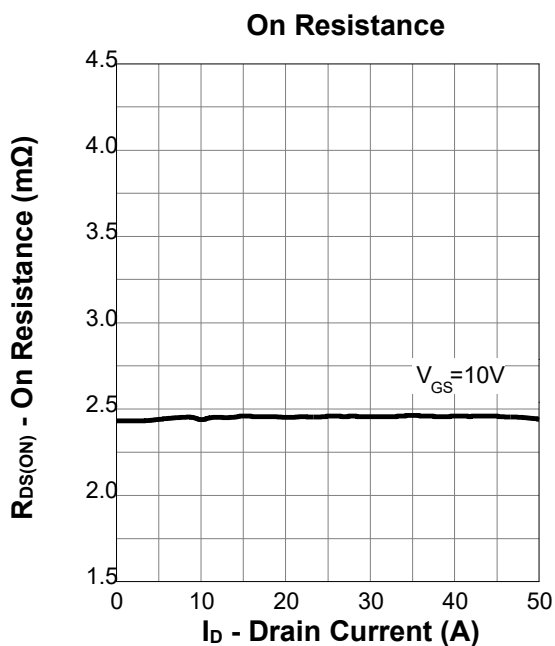
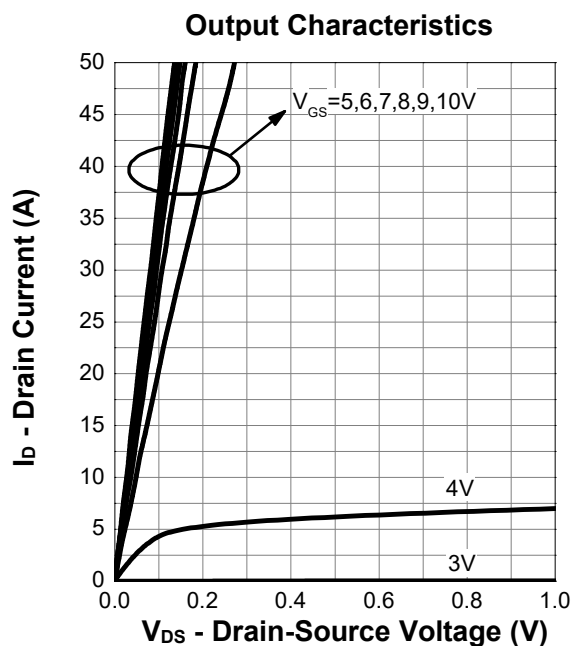
■ ELECTRICAL CHARACTERISTICS (T_C=25°C, unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} = 0 V, I _{DS} = 250 μA	85	-	-	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} = 0 V, V _{GS} = ± 20 V	-	-	±100	nA
On-State Resistance ^a	R _{DS(ON)}	V _{GS} = 10 V, I _{DS} = 30A	-	2.5	3.0	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	-	78	-	nS
Reverse Recovery Charge	Q _{rr}		-	110	-	nC
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 20 V Frequency = 1 MHz	-	6600	-	pF
Output Capacitance	C _{oss}		-	2700	-	
Reverse Transfer Capacitance ^b	C _{rss}		-	1300	-	
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	-	41	-	nS
Turn-on Rise	t _r		-	68	-	
Turn-off Delay Time	t _{d (off)}		-	76	-	
Turn-off Fall Time	t _f		-	44	-	
Gate Charge Characteristics ^b						
Total Gate Charge	Q _g	V _{DS} = 40 V, V _{GS} = 10 V, I _{DS} = 30A	-	124	-	nC
Gate-Source Charge	Q _{gs}		-	31.2	-	
Gate-Drain Charge	Q _{gd}		-	39	-	

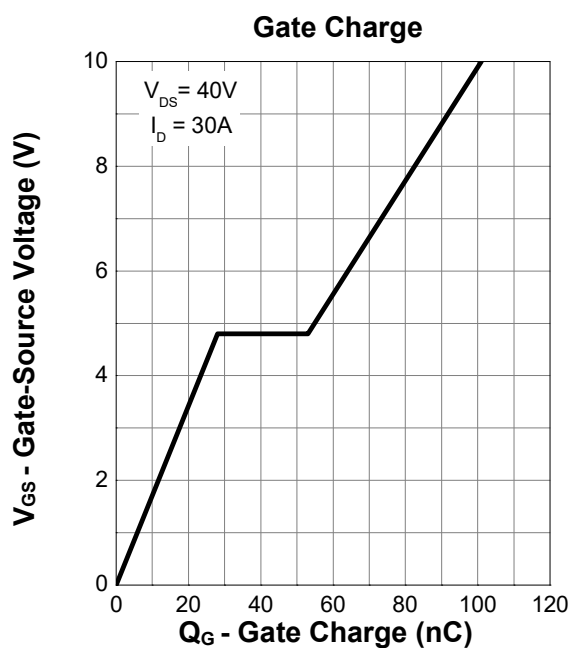
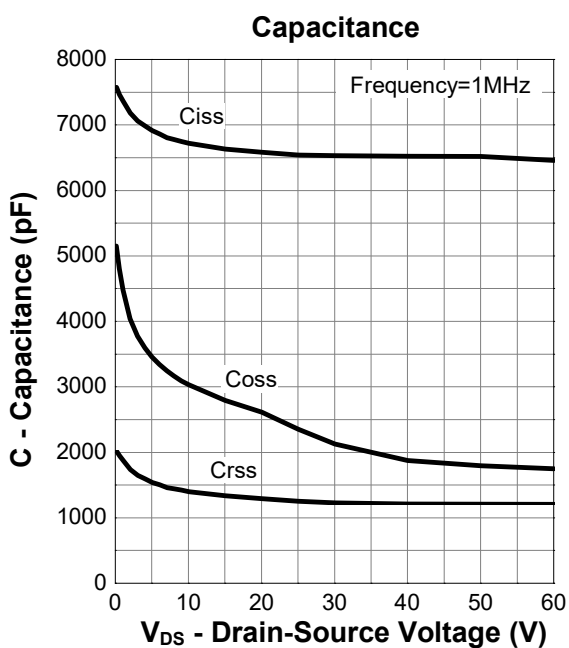
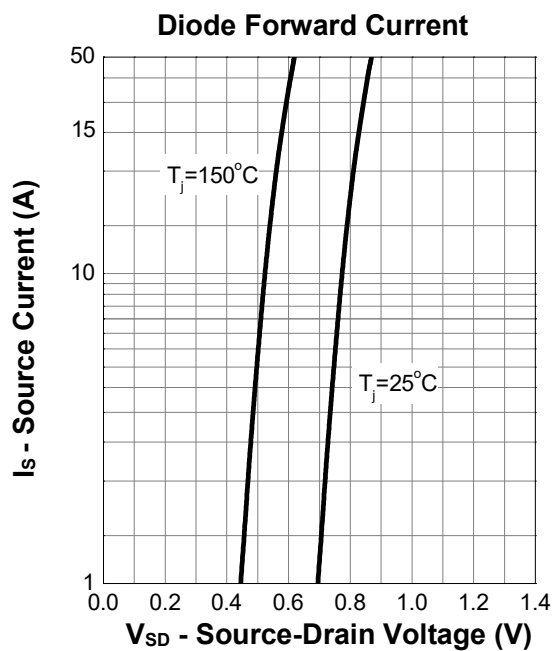
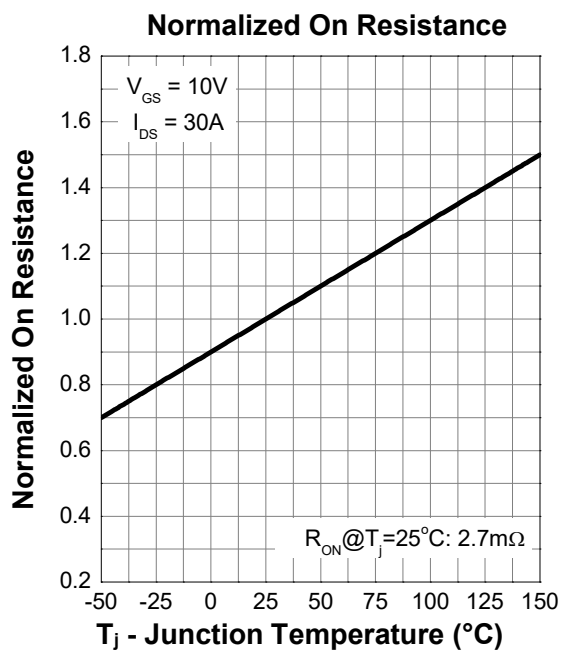
■ TYPICAL CHARACTERISTICS



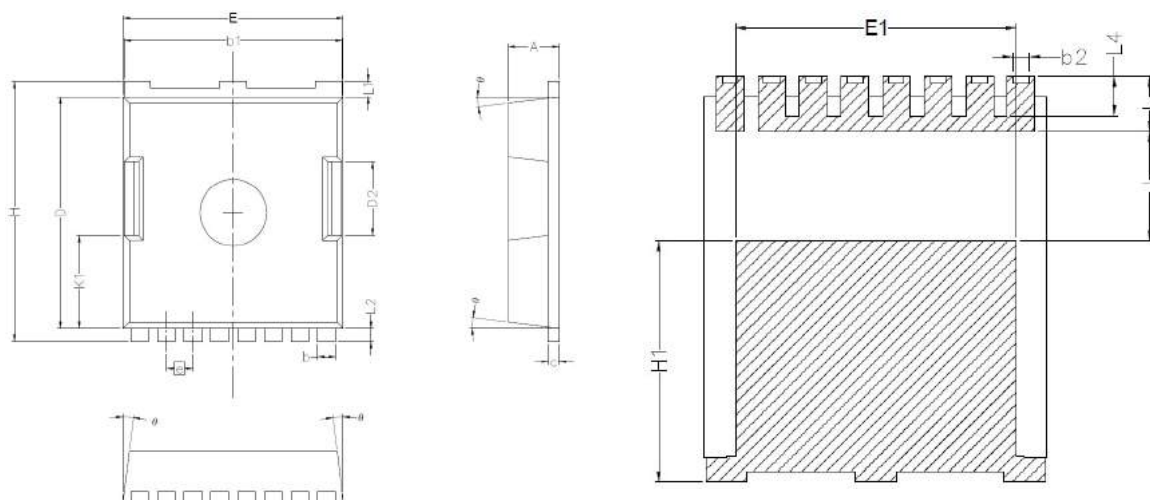
■ TYPICAL CHARACTERISTICS(Cont.)



■ 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 herein is subject to change without notice.
- GUANGDONG INMARK ELECTRONICS CO. LTD(MOT) exerts the greatest possible effort to ensure high quality and reliability. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing MOT products, to comply with the standards of safety in making a safe design for the entire system, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue. In developing your designs, please ensure that MOT products are used within specified operating ranges as set forth in the most recent MOT products specifications.
- The MOT products listed in this document are intended for usage in general electronics applications (computer, personal equipment, office equipment, measuring equipment, industrial robotics, domestic appliances, etc.). These MOT products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury ("Unintended Usage"). Unintended Usage include atomic energy control instruments, airplane or spaceship instruments, transportation instruments, traffic signal instruments, combustion control instruments, medical instruments, all types of safety devices, etc.. Unintended Usage of MOT products listed in this document shall be made at the customer's own risk.
- Thank you for your interest in Renmao Electronics. If you need any business inquiries, please contact us.
- Shenzhen Headquarters:
19th Floor, Shencheng Investment Center Building, Guiyuan Street, Luohu District, Shenzhen
E-mail:sales@mot-mos.com

Shenzhen Base:

Renmao Industrial Park, No. 2 Songgang Avenue, Bao'an District, Shenzhen

Jiangsu base:

Hongshi Intelligent Industrial Park, No. 33, the Taihu Lake Road, Tinghu District, Yancheng City

Taipei Design Center:

10th Floor, No. 107, Section 1, Chengde Road, Taipei

Nanjing Design Center:

Block B, Tianyu Xi'an Garden, No. 688 Longmian Avenue, Jiangning District