MOT4582HT
N-MOSFET 40V,0.85mΩ,395A

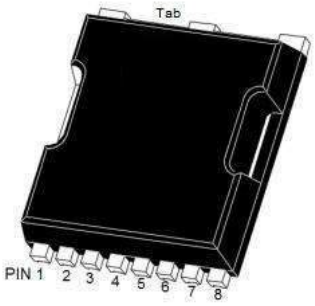
Features

- Uses MOT advanced double trench technology
- Low On-Resistance (RDS(on)≤1mΩ)
- Low Gate Charge
- Low Reverse transfer capacitances
- 100% avalanche tested
- Pb-free plating; RoHS compliant

Applications

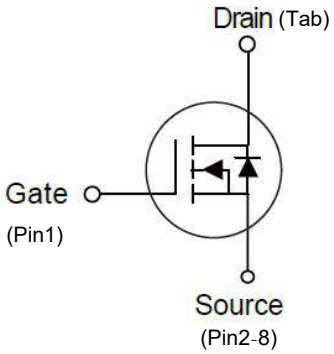
- Battery management
- Motor control and drive
- Synchronous rectification
- Switching applications

Pin configuration (Top view)



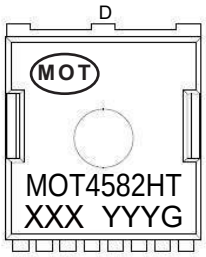
TOLL-8

Symbol



Key Performance Parameters

Parameter	Value	Unit
V_{DS}	40	V
R_{DS}(on),typ.	0.85	mΩ
I_D	395	A



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

Marking

Ordering information

Type/Ordering Code	Package	Marking	Packing&Qty.(pcs)
MOT4582HT	TOLL-8	MOT4582HT	2000/Reel

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	40	V
Gate-Source Voltage	V_{GS}	±20	V
Drain Current-Continuous	I_D	395	A
Drain Current-Continuous(T_C=100℃)	I_D (100℃)	249	A
Pulsed Drain Current	I_{DM}	1582	A
Maximum Power Dissipation	P_D	250	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	0.5	℃/W
Single pulse avalanche energy	E_{AS}	3081	mJ
Operating Junction and Storage Temperature Range	T_J,T_{STG}	-55 To 150	℃

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2.0	3.0	4.0	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=75A	-	0.85	1.0	mΩ
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=5A	-	22	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=20V,V_{GS}=0V, F=1.0MHz	-	6300	-	pF
Output Capacitance	C_{oss}		-	4400	-	pF
Reverse Transfer Capacitance	C_{rss}		-	1900	-	pF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V,I_D=20A V_{GS}=10V,R_G=1.6Ω	-	25	-	nS
Turn-on Rise Time	t_r		-	48	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	75	-	nS
Turn-Off Fall Time	t_f		-	30	-	nS
Total Gate Charge	Q_g	V_{DS}=20V,I_D=20A, V_{GS}=10V	-	130	-	nC
Gate-Source Charge	Q_{gs}		-	27	-	nC
Gate-Drain Charge	Q_{gd}		-	30	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=20A	-	-	1.2	V
Diode Forward Current	I_S		-	-	353	A
Reverse Recovery Time	t_{rr}	T_J = 25°C, I_F =20A	-	98	-	nS
Reverse Recovery Charge	Qrr	di/dt = 100A/μs	-	64	-	nC

■ TYPICAL CHARACTERISTICS

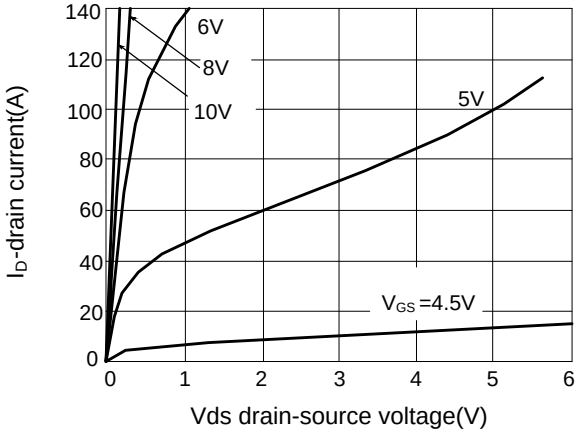


Figure 1: Output characteristics

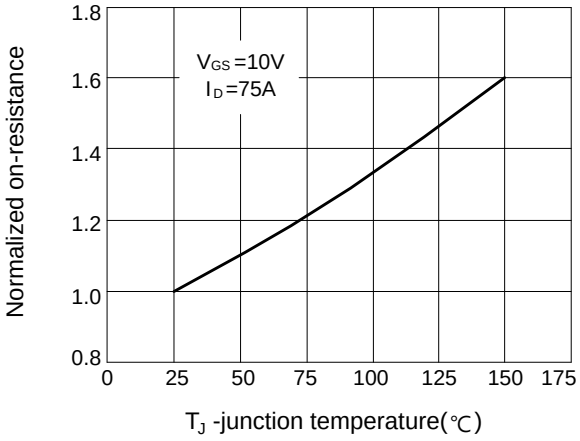


Figure 2: Rdson-junction temperature

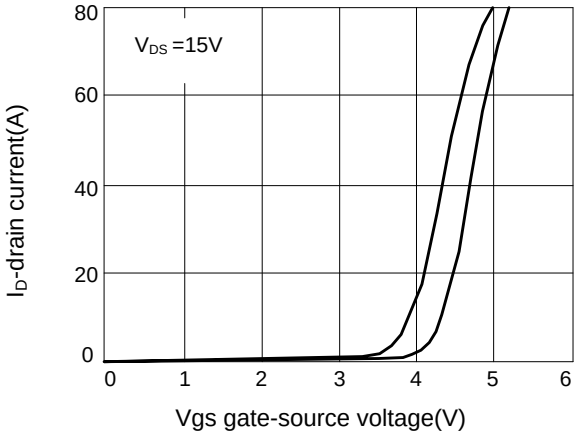


Figure 3: Transfer characteristics

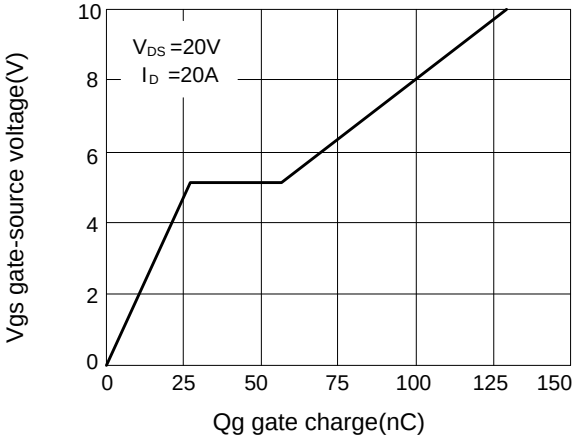


Figure 4: Gate charge

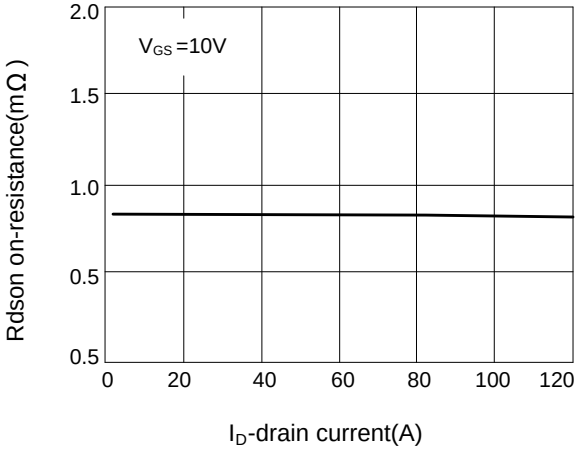


Figure 5: Rdson-drain current

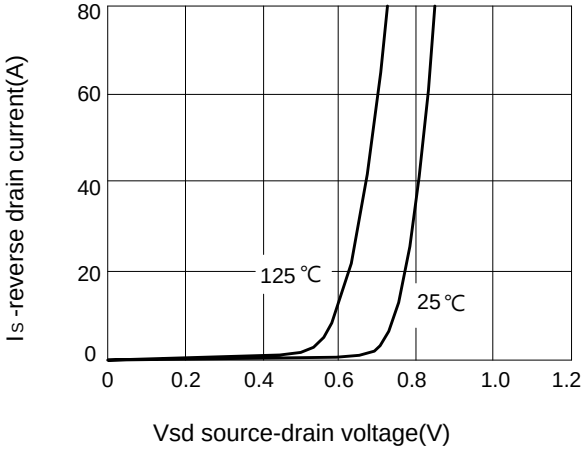


Figure 6: Source -drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

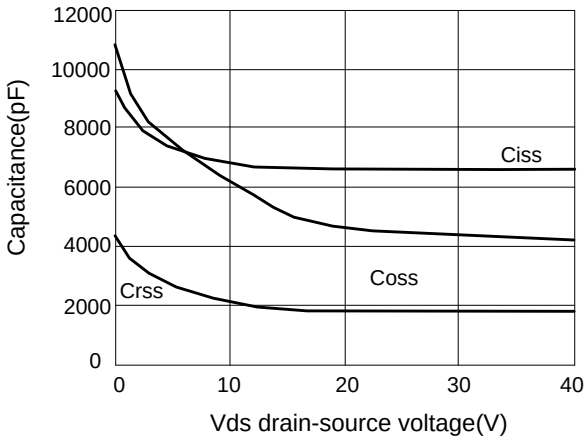


Figure 7: Capacitance vs vds

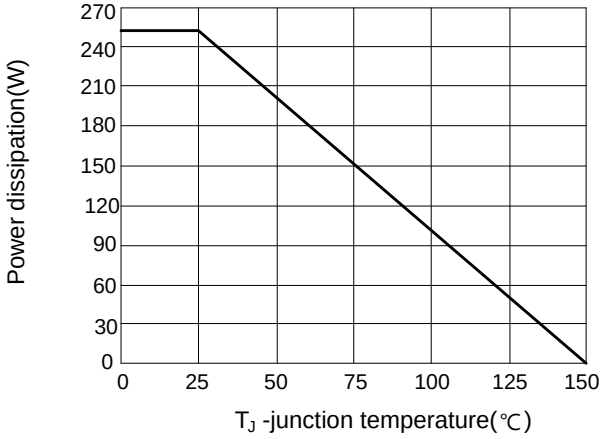


Figure 8: Power de-rating

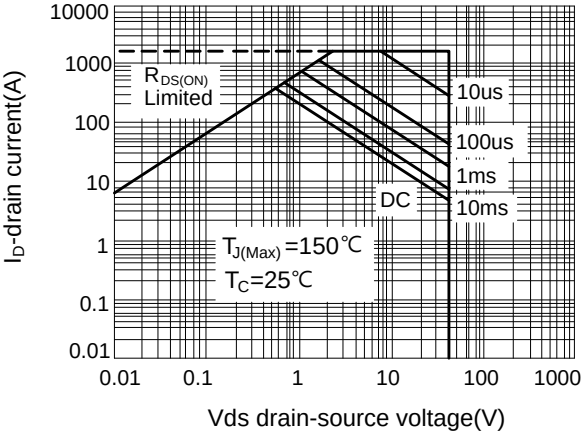


Figure 9: Safe operation area

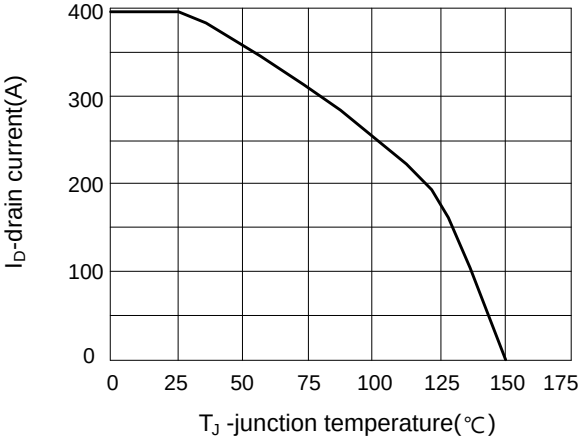
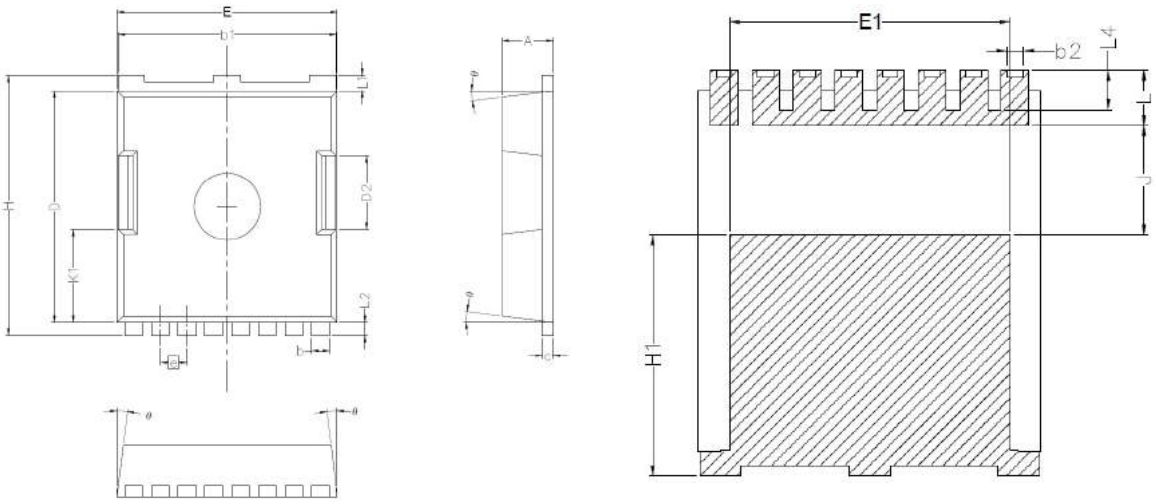


Figure 10: Current de-rating

■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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