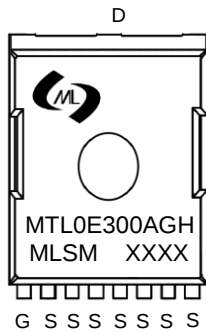


Features

- Split gate trench MOSFET technology
- High density cell design for ultra low RDS(ON)
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

- Power switching application
- Load Switch

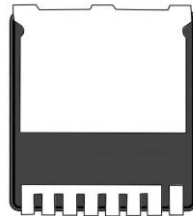


MTL0E300AGH: Device code
 XXXX : Code

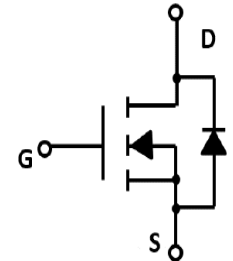
Marking and pin assignment

Product Summary

V _{DS}	R _{DS(ON)} TYP	I _D MAX
40V	1mΩ@10V	300A



TOLL-8L top view



Schematic diagram



Pb-Free



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V _{DS}	Drain-Source Breakdown Voltage		40	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
I _S	Diode Continuous Forward Current	Tc=25°C	300	A

Mounted on Large Heat Sink

I _{DM}	Pulse Drain Current Tested	Tc=25°C	1200	A
I _D	Continuous Drain Current	Tc=25°C	300	A
P _D	Maximum Power Dissipation	Tc=25°C	300	W
E _{AS}	Single Pulsed Avalanche Energy ^{Note1}		950	mJ
R _{θJA}	Thermal Resistance Junction-to-Ambient		45	°C/W

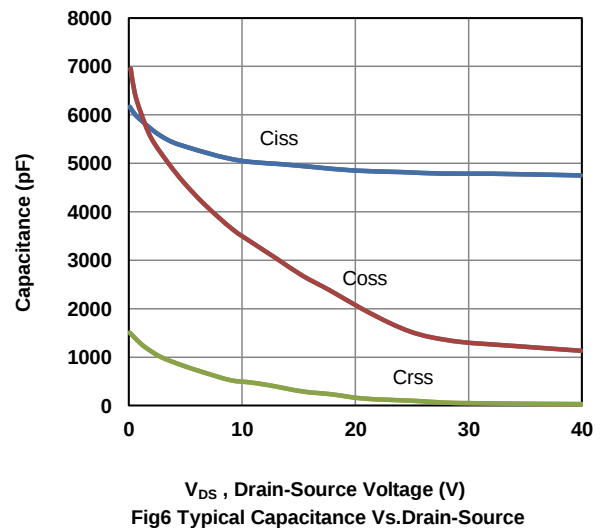
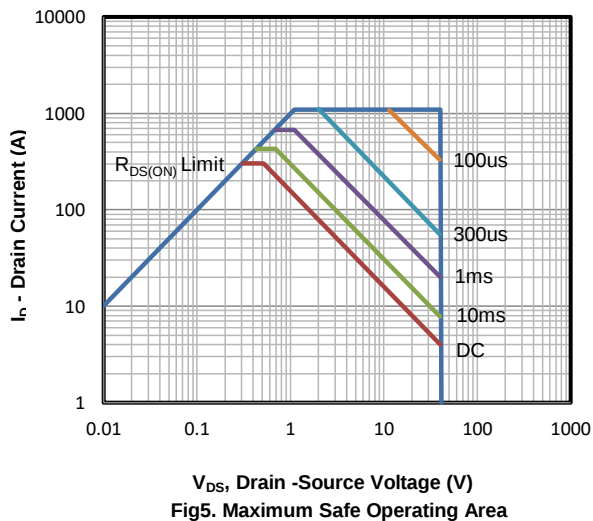
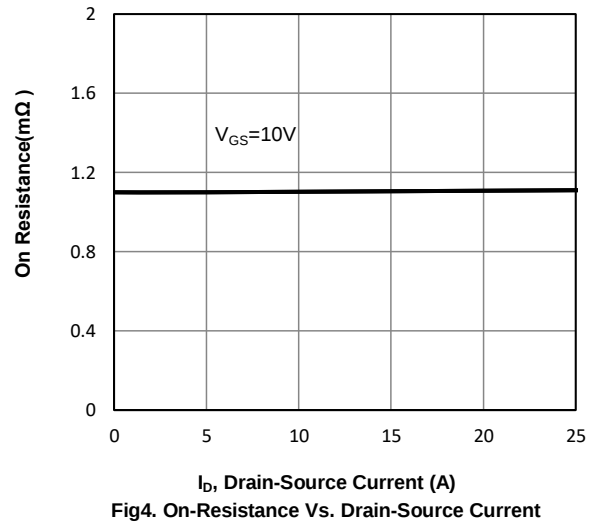
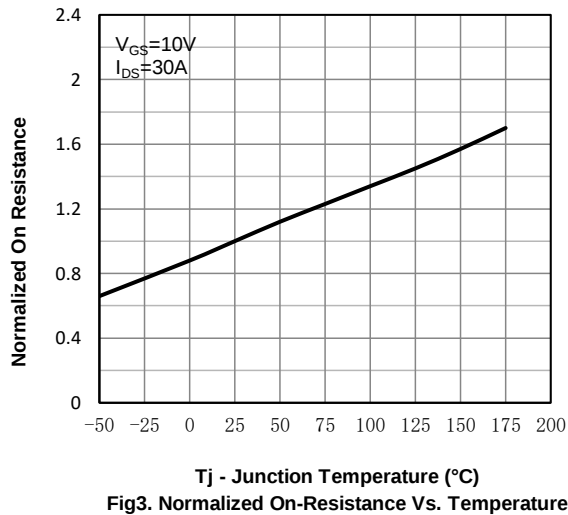
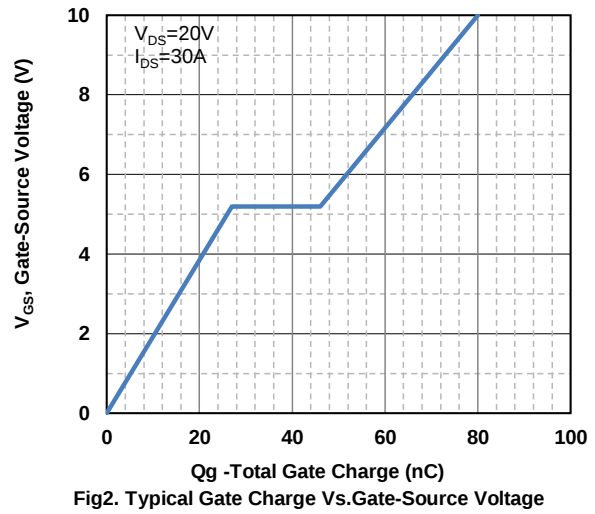
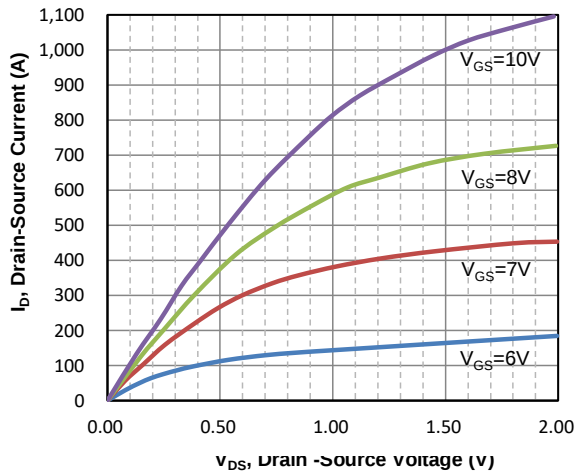
Ordering Information (Example)

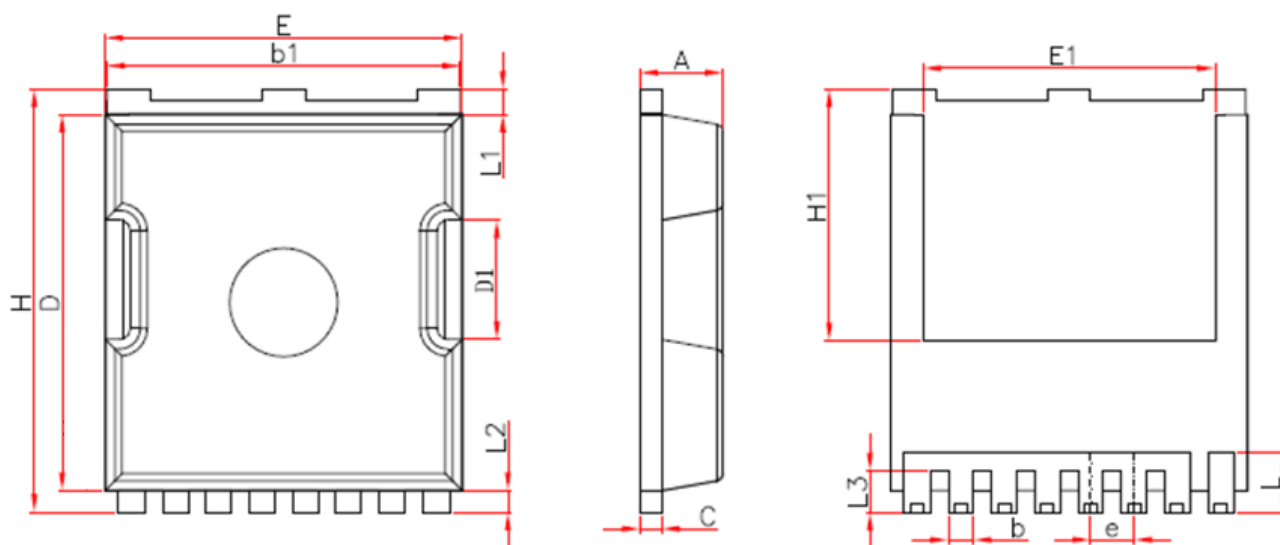
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MTL0E300AGH	TOLL-8L	MTL0E300AGH	2,000	2,000	14,000	13"reel

Electrical Characteristics (TJ=25°C unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	40	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =40V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	2.0	2.9	3.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =30A	--	1.0	1.3	mΩ
		V _{GS} =6V, I _D =15A	--	2.7	3.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =20V, V _{GS} =0V, f=1MHz	--	5300	--	pF
C _{OSS}	Output Capacitance		--	3600	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	86	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =20V, I _D =30A, V _{GS} =10V	--	80	--	nC
Q _{gs}	Gate Source Charge		--	27	--	nC
Q _{gd}	Gate Drain Charge		--	19	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =20V, I _D =30A, V _{GS} =10V, R _G =3.9Ω	--	19	--	nS
t _r	Turn-on Rise Time		--	79	--	nS
t _{d(off)}	Turn-Off Delay Time		--	52	--	nS
t _f	Turn-Off Fall Time		--	44	--	nS
Source- Drain Diode Characteristics						
Q _{rr}	Reverse Recovery Charge	VDS=20V,VGS=0V,IS=50A di/dt= 100A/μs		66.6		nC
t _{rr}	Reverse Recovery Time			62.3		nS
V _{SD}	Forward on voltage	Tj=25°C, Is=30A	--	--	1.2	V

Note 1: L=0.5mH, R_G=25Ω, V_{GS}=20V, V_{DD}=30V, Start T_J=25 °C

Typical Operating Characteristics



TOLL-8L Package information


Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	2.150	2.450	0.085	0.096
b	0.600	0.900	0.024	0.035
b1	9.650	9.950	0.380	0.392
C	0.350	0.650	0.014	0.026
D	10.180	10.700	0.401	0.421
D1	3.150	3.450	0.124	0.136
E	9.700	10.100	0.382	0.398
E1	7.350	8.450	0.289	0.333
e	1.100	1.300	0.043	0.051
H	11.450	11.950	0.451	0.470
H1	6.550	7.500	0.258	0.295
L	1.350	2.100	0.053	0.083
L1	0.600	0.800	0.024	0.031
L2	0.500	0.700	0.020	0.028
L3	1.050	1.300	0.041	0.051