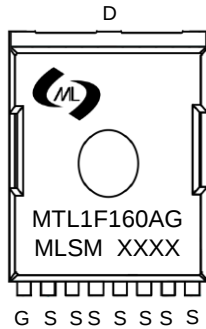


Features

- Fast switching speed
- Low On-Resistance
- Excellent FoM(figure of merit)
- 100% UIS and Rg tested

Application

- Motor Driver
- DC/DC Converter
- Battery Management System

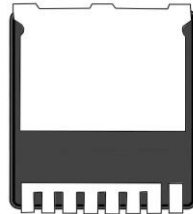


MTL1F160AG: Device code
XXXX : Code

Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
150V	6mΩ@10V	160A



TOLL-8L view



Schematic diagram



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		150	V
V _{GS}	Gate-Source Voltage		±20	V
T _J	Maximum Junction Temperature		150	°C
T _{STG}	Storage Temperature Range		-50 to 155	°C
E _{AS}	Single Pulse Avalanche Energy ^{Note1}		545	mJ
I _S	Diode Continuous Forward Current	Tc=25°C	160	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	Tc=25°C	640	A
I_D	Continuous Drain Current	Tc=25°C	160	A
P_D	Maximum Power Dissipation	Tc=25°C	300	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient		55	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MTL1F160AG	TOLL-8L	MTL1F160AG	2,000	2,000	14,000	13"reel

Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
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Static Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	150	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =150V, V _{GS} =0V	--	--	1.0	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	3.0	4.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =30A	--	6	8.0	mΩ

Dynamic Electrical Characteristics @ T_J = 25°C (unless otherwise stated)

C _{ISS}	Input Capacitance	V _{DS} =75V, V _{GS} =0V, f=1MHz	--	5290	--	pF
C _{OSS}	Output Capacitance		--	380	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	16	--	pF

Switching Characteristics

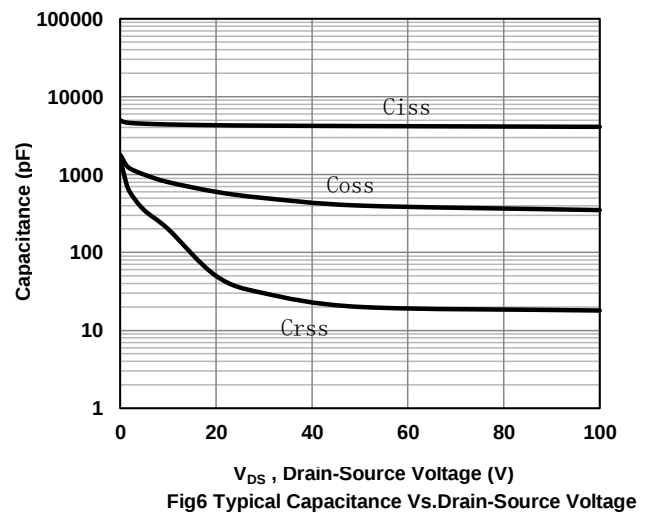
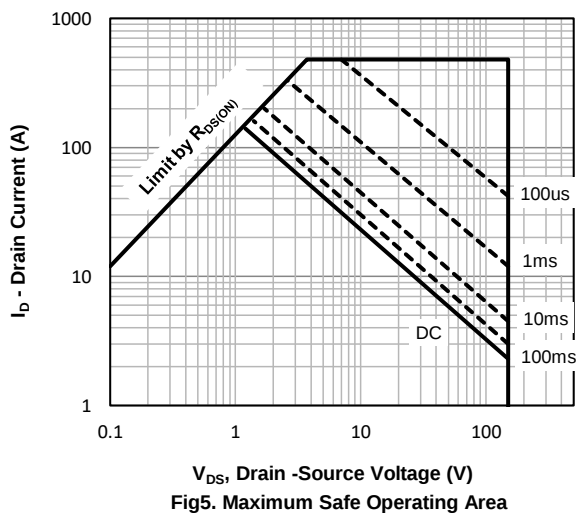
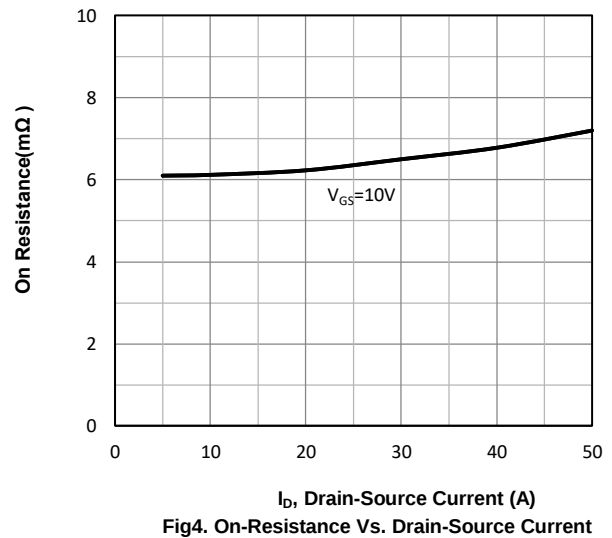
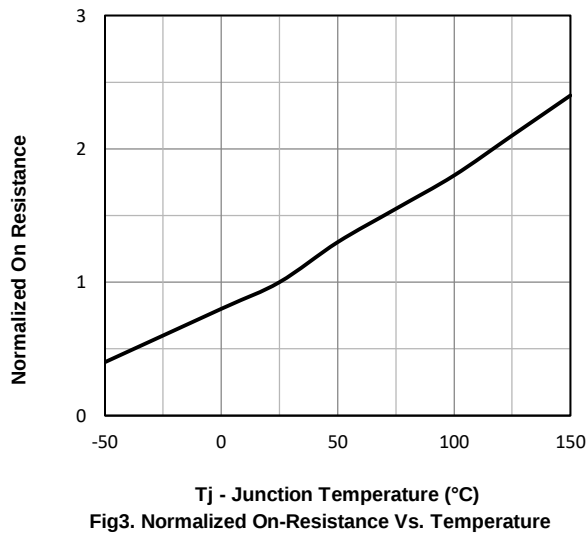
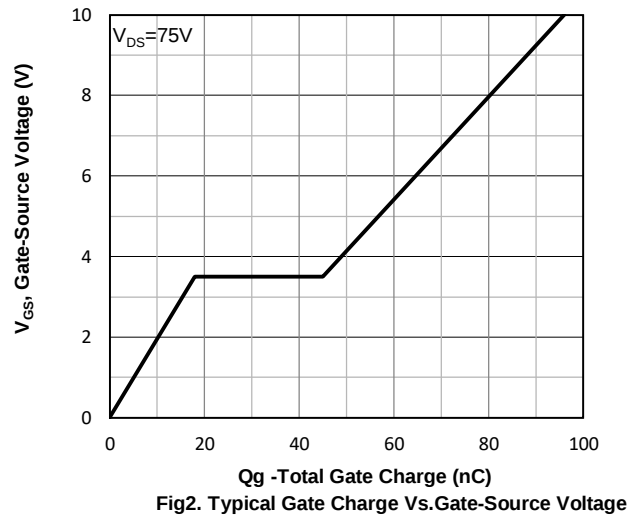
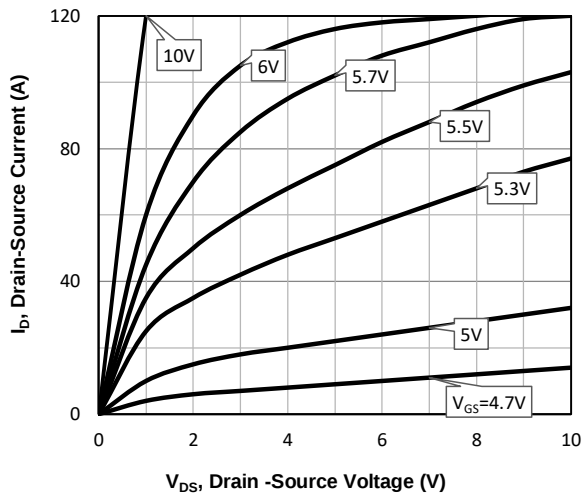
Q _g	Total Gate Charge	V _{DS} =75V, I _D =40A, V _{GS} =10V	--	95	--	nC
Q _{gs}	Gate-Source Charge		--	18	--	nC
Q _{gd}	Gate-Drain Charge		--	35	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =75V, I _D =10A, V _{GS} =10V, R _G =6Ω	--	21	--	nS
t _r	Turn-on Rise Time		--	35	--	nS
t _{d(off)}	Turn-Off Delay Time		--	30	--	nS
t _f	Turn-off fall Time		--	50	--	nS

Source- Drain Diode Characteristics

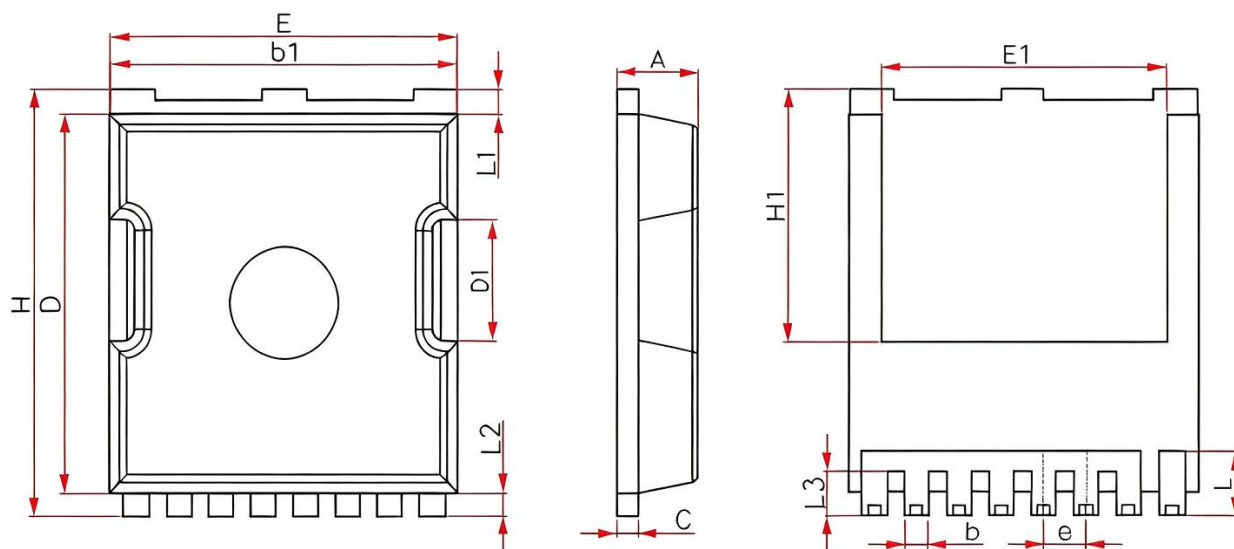
V _{SD}	Forward on voltage	T _J =25°C, I _S =30A	--	0.83	1.2	V
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Note 1: L=0.5mH, R_G=25Ω, V_{GS}=20V, V_{DD}=30V, Start T_J=25°C

Typical Operating Characteristics



PDFN5X6-8L 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