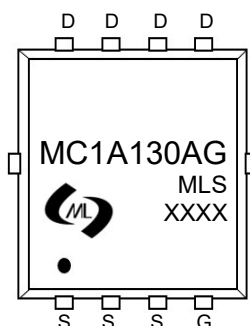


Features

- Advanced SGT technology
- Enhanced Body diode DV/DT capability
- Enhanced Avalanche Ruggedness
- 100% UIS Tested, 100% Rg Tested
- Lead Free, Halogen Free

Application

- DC/DC Converter
- Motor Drivers
- Ideal for high-frequency switching and synchronous rectification

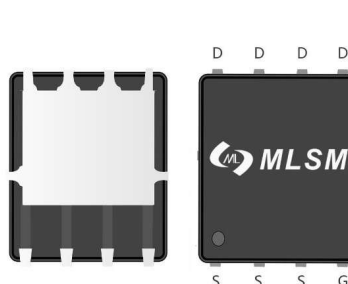


MC1A130AG: Device code
XXXX: Code

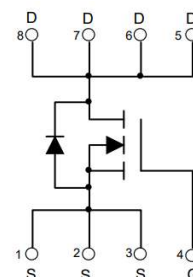
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)} \text{ MAX}$	$I_D \text{ MAX}$
100V	4.5mΩ@10V	130A
	9mΩ@4.5V	



PDFN5X6-8L 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	100	V
V_{GS}	Gate-Source Voltage	±20	V
E_{AS}	Single pulse avalanche energy ^{Note1}	400	mJ
T_J, T_{STG}	Storage Temperature Range	-55 to 150	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ 130	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ 600	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ 130	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 140	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	30	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC1A130AG	PDFN5X6-8L	MC1A130AG	5,000	10,000	70,000	13"reel

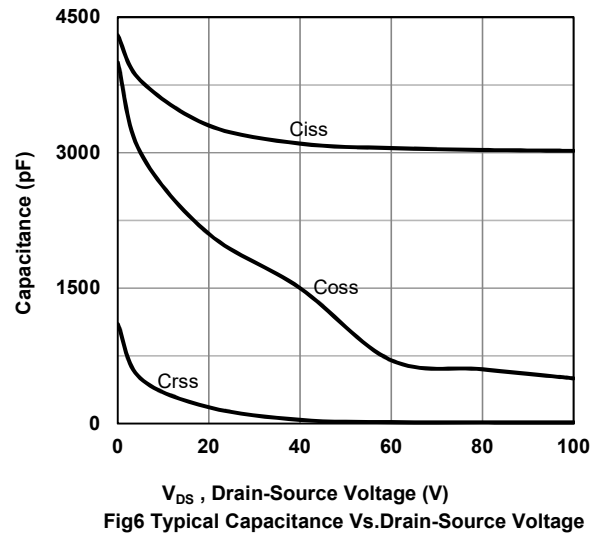
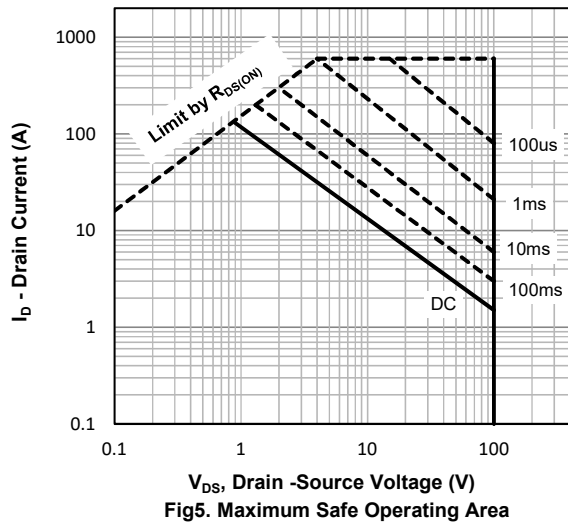
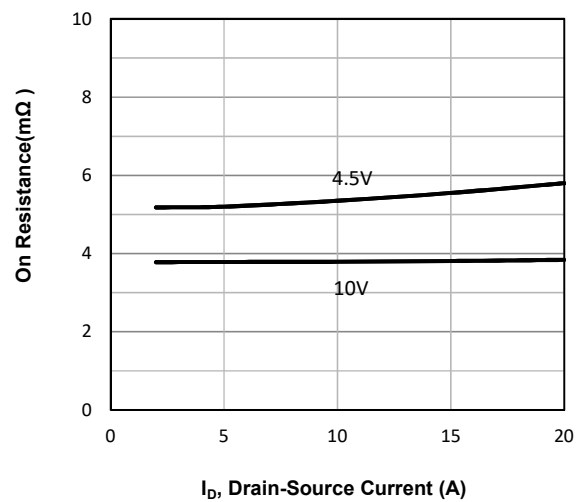
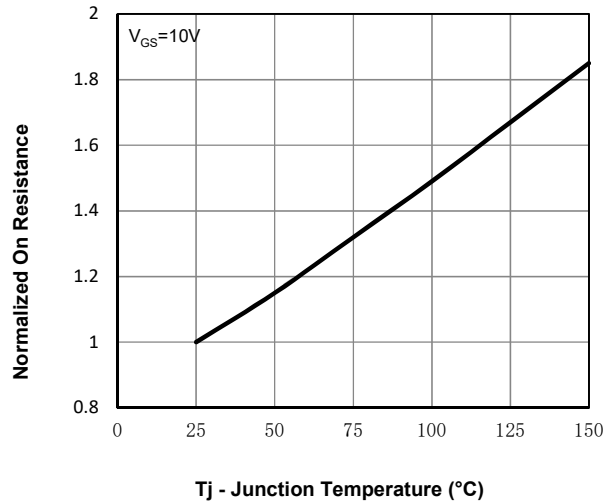
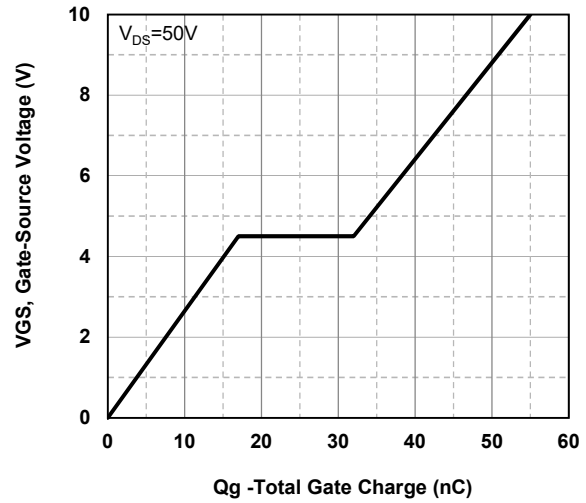
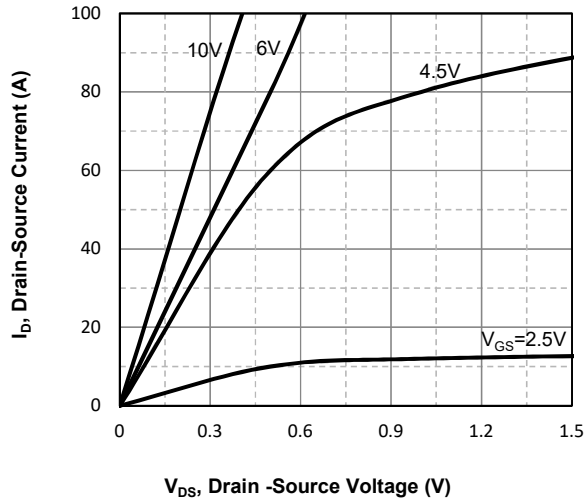
Electrical Characteristics (T_J=25°C unless otherwise noted)

Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
BV(BR)DSS	Drain-Source Breakdown Voltage	VGS=0V, ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1	1.8	2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=30A	--	3.8	4.5	mΩ
		VGS=4.5V, ID=20A	--	5.0	9	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=50V, VGS=0V, f=1MHz	--	3930	--	pF
COSS	Output Capacitance		--	1650	--	pF
CRSS	Reverse Transfer Capacitance		--	35	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDD=50V, ID=20A, VGS=10V	--	65	--	nC
Qgs	Gate Source Charge		--	15.5	--	nC
Qgd	Gate Drain Charge		--	10.5	--	nC
td(on)	Turn-on Delay Time	VDD=50V, ID=20A, VGS=10V, RG=2.2Ω	--	17.5	--	nS
tr	Turn-on Rise Time		--	35	--	nS
td(off)	Turn-Off Delay Time		--	43.5	--	nS
tf	Turn-Off Fall Time		--	61.5	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	Tj=25°C, Is=30A	--	--	1.2	V

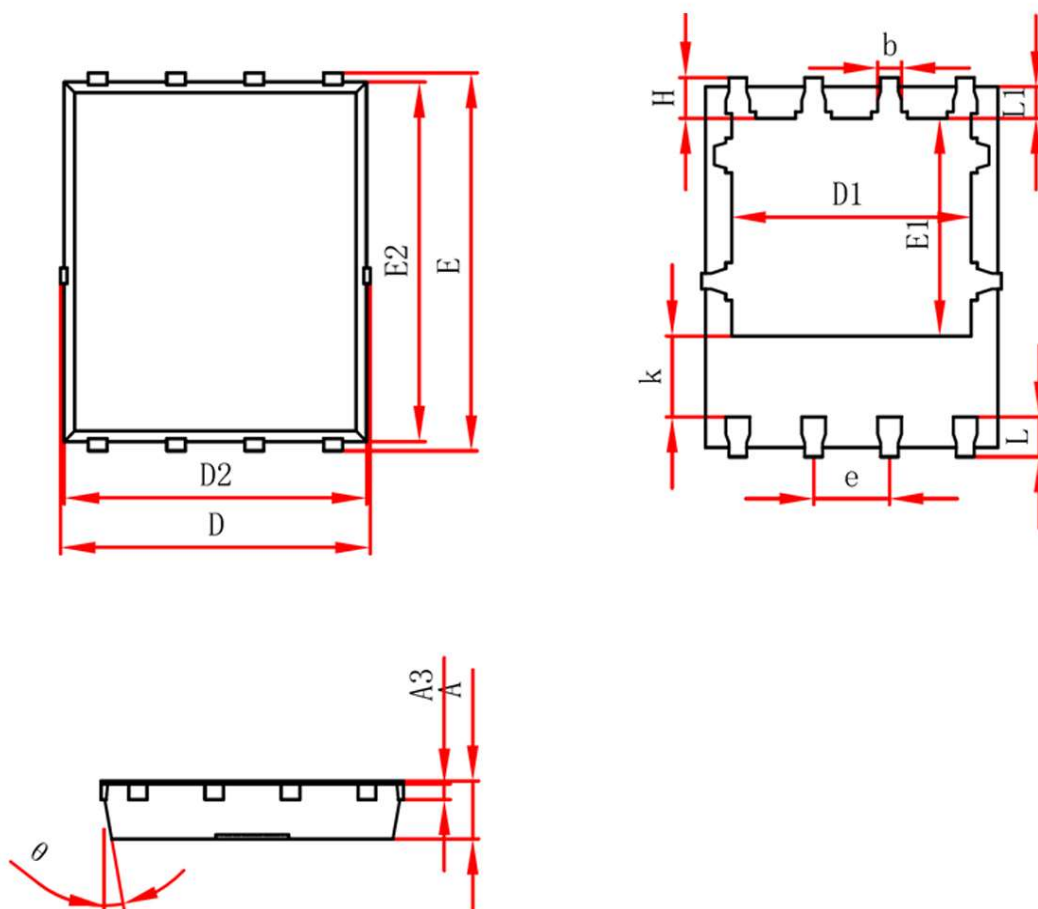
Note :

 1、 The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L=0.5mH,I_{AS}=40A

Typical Operating Characteristics



PDFN5X6-8L Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.950	1.050	0.035	0.039
A3	0.254REF.		0.010REF.	
D	4.950	5.050	0.196	0.200
E	5.950	6.050	0.235	0.239
D1	4.026	4.126	0.159	0.163
E1	3.510	3.610	0.139	0.143
D2	4.850	4.950	0.192	0.196
E2	5.700	5.800	0.225	0.229
k	1.190	1.390	0.047	0.055
b	0.300	0.400	0.012	0.016
e	1.270TYP.		0.050TYP.	
L	0.559	0.711	0.022	0.028
L1	0.424	0.576	0.017	0.023
H	0.574	0.726	0.023	0.029
θ	10°	12°	10°	12°