

Features

- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high EAS

Application

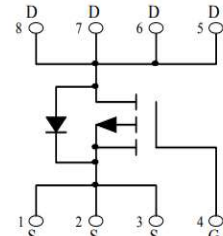
- Battery and loading switching
- Excellent package for good heat dissipation

Product Summary

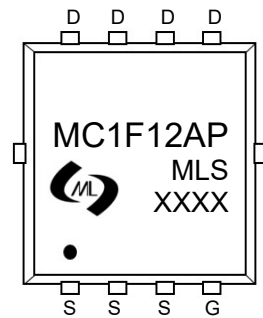
V_{DS}	$R_{DS(ON)}$ MAX	I_D MAX
-150V	345mΩ@-10V	-12A



PDFN5X6-8L view



Schematic diagram



Marking and pin assignment

MC1F12AP: Device code
XXXX : Code



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
I_S	Diode Continuous Forward Current	$T_c=25^\circ\text{C}$ -12	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ -48	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ -12	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 85	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	35	°C/W

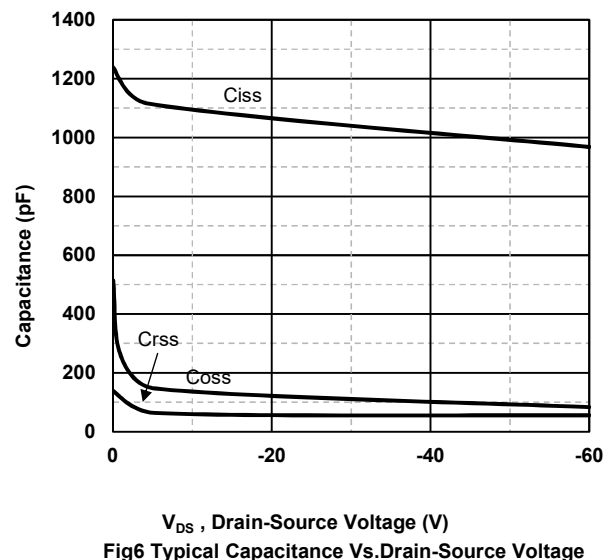
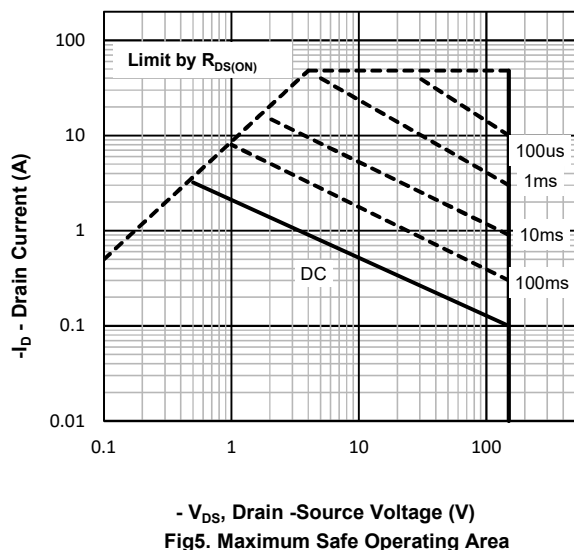
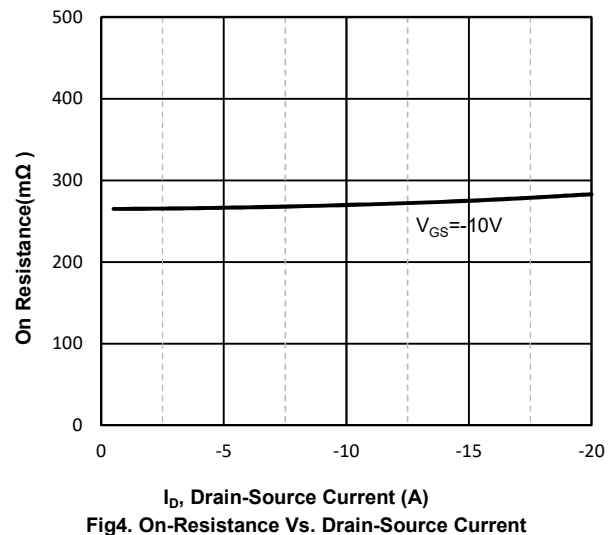
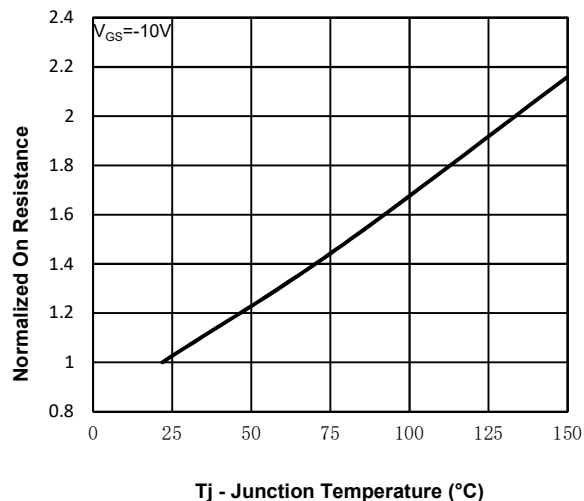
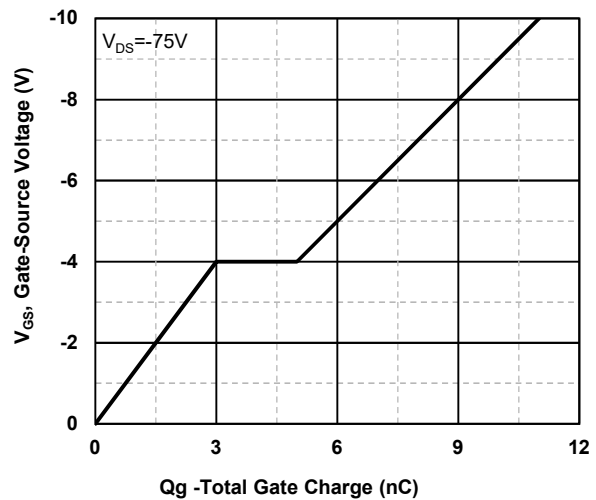
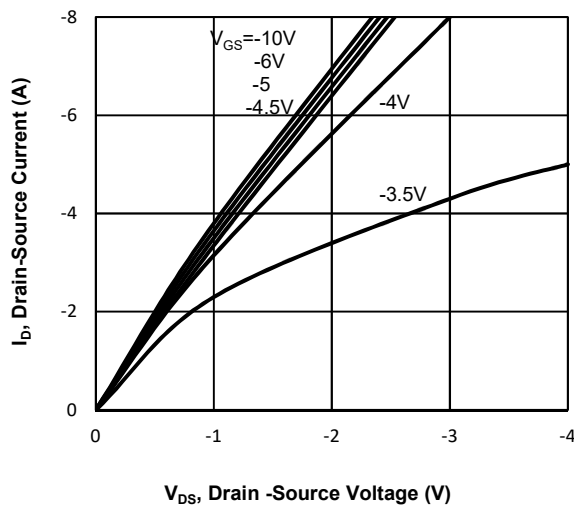
Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC1F12AP	PDFN5X6-8L	MC1F12AP	5,000	10,000	70,000	13"reel

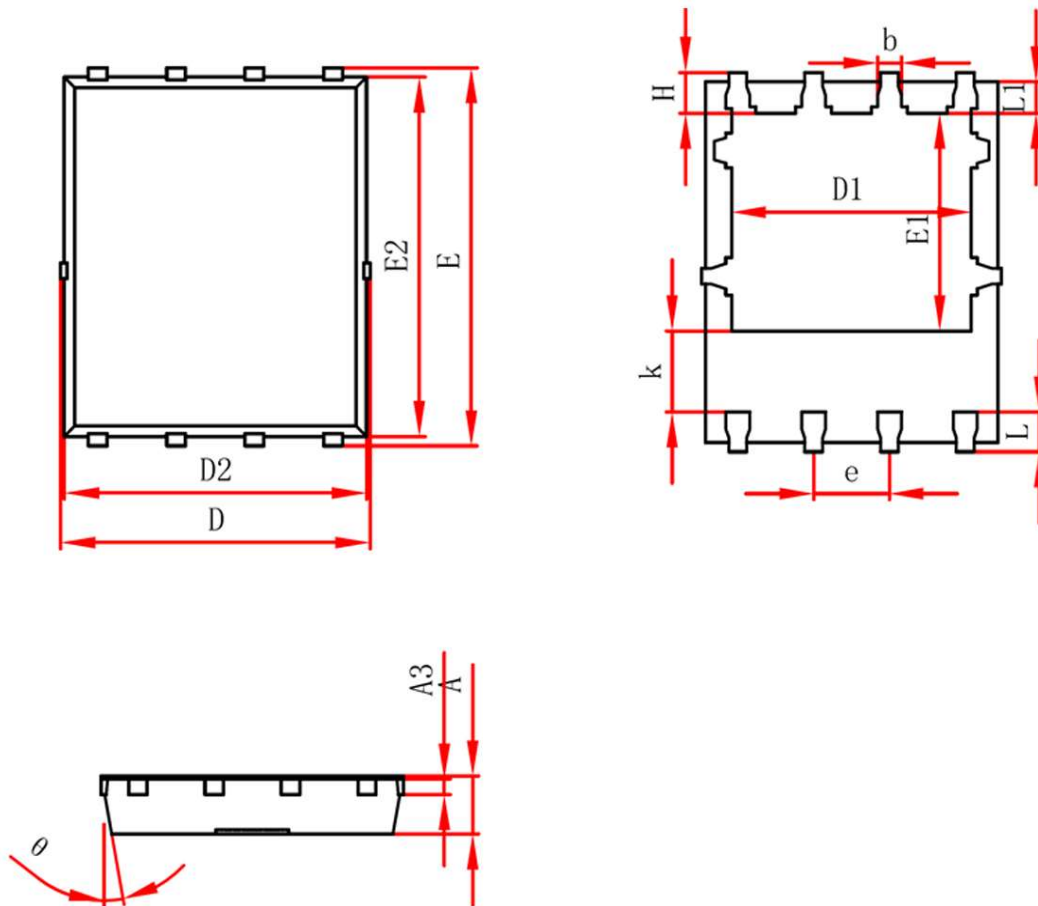
Electrical Characteristics (T_J=25°C unless otherwise noted)

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	-150	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-150V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-2.0	--	-4.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-12A	--	265	345	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=-50V, VGS=0V, f=1MHz	--	953	--	pF
COSS	Output Capacitance		--	39	--	pF
CRSS	Reverse Transfer Capacitance		--	24	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=-75V, ID=-10A, VGS=-10V	--	11	--	nC
Qgs	Gate Source Charge		--	3.2	--	nC
Qgd	Gate Drain Charge		--	1.9	--	nC
td(on)	Turn-on Delay Time	VDS=-75V, ID=-10A, VGS=-10V, RG=6Ω	--	9.7	--	nS
tr	Turn-on Rise Time		--	2.5	--	nS
td(off)	Turn-Off Delay Time		--	17	--	nS
tf	Turn-Off Fall Time		--	5.7	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=-10A	--	--	-1.2	V

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°