

Features

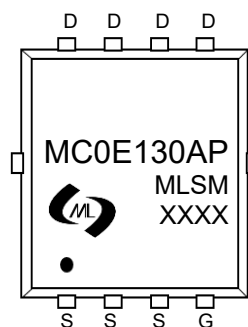
- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity

Product Summary

V_{DS}	$R_{DS(on)}$ TYP	I_D
-40V	3.2mΩ@-10V	-130A
	4.5mΩ@-4.5V	

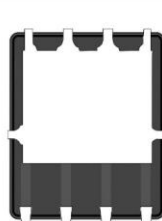
Application

- Power management
- Portable equipment

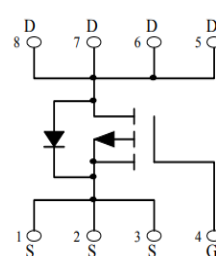


Marking and pin assignment

MC0E130AP: Device code
XXXX : Code



PDFN5X6-8L



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		-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	-130	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$	-500	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$	-130	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	75	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		45	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC0E130AP	PDFN5X6-8L	MC0E130AP	5,000	10,000	70,000	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	-1.0	--	-2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-20A	--	3.2	4.5	mΩ
		V _{GS} =-4.5V, I _D =-10A	--	4.5	6.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-20V, V _{GS} =0V, f=1MHz	--	7290	--	pF
C _{OSS}	Output Capacitance		--	790	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	720	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-20V, I _D =-10A, V _{GS} =-20V	--	250	--	nC
Q _{gs}	Gate Source Charge		--	25	--	nC
Q _{gd}	Gate Drain Charge		--	50	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-20V, I _D =-20A, V _{GS} =-10V, R _G =3Ω	--	42	--	nS
t _r	Turn-on Rise Time		--	45	--	nS
t _{d(off)}	Turn-Off Delay Time		--	480	--	nS
t _f	Turn-Off Fall Time		--	250	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-15A	--	--	-1.2	V

Typical Operating Characteristics

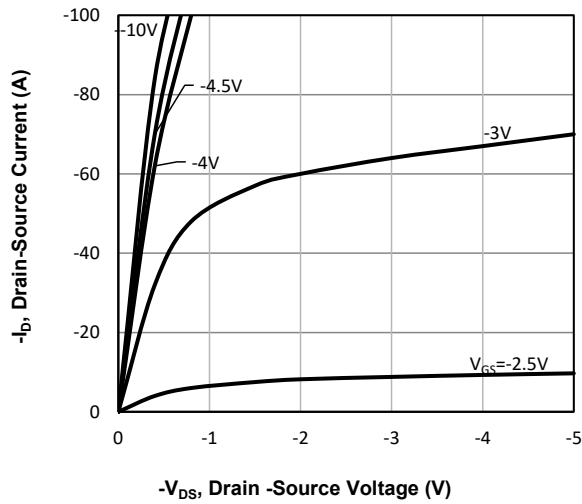


Fig1. Typical Output Characteristics

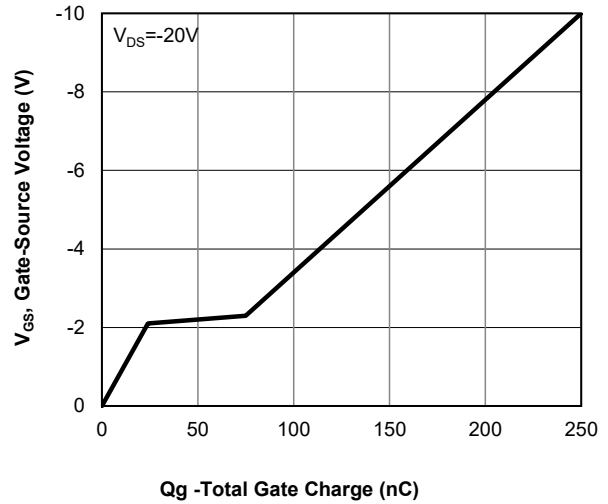


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

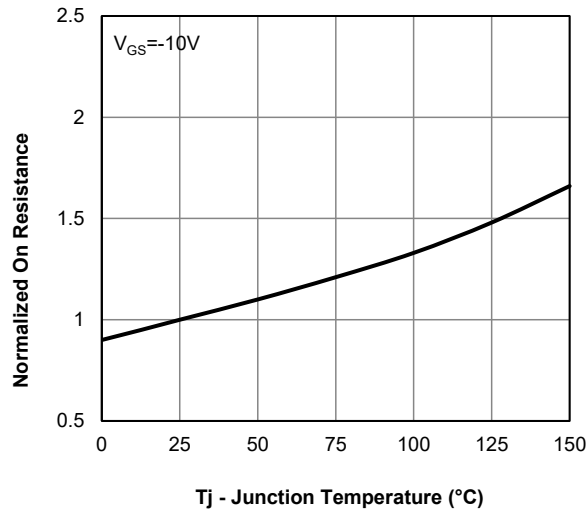


Fig3. Normalized On-Resistance Vs. Temperature

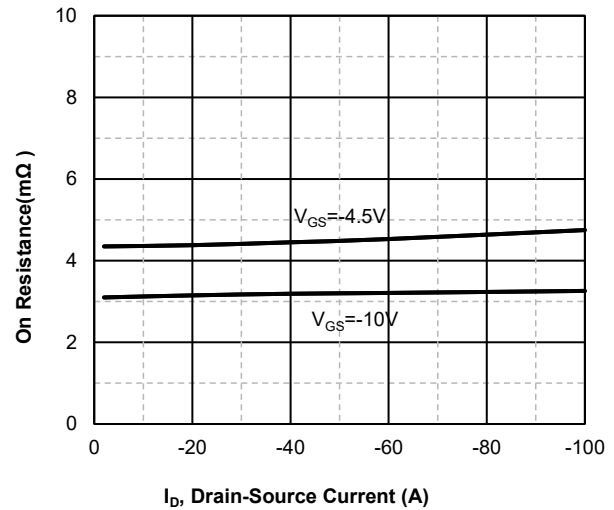


Fig4. On-Resistance Vs. Drain-Source Current

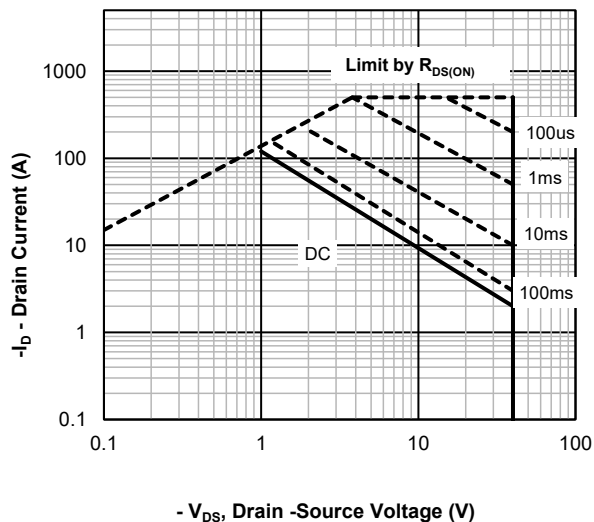


Fig5. Maximum Safe Operating Area

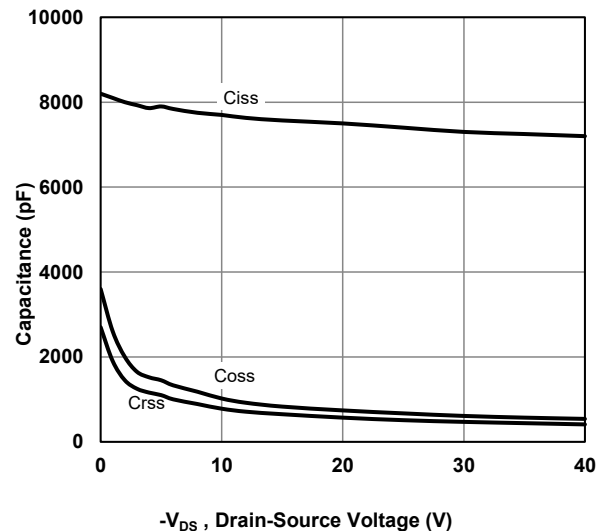


Fig6 Typical Capacitance Vs. Drain-Source Voltage

