

Features

- Advance high cell density Trench technology
- High density cell design for ultra low $R_{DS(ON)}$
- Fully characterized avalanche voltage and current

Product Summary

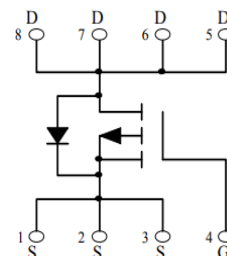
V_{DS}	$R_{DS(ON)}$ TYP	I_D
-20V	2.0m Ω @-4.5V	-100A
	2.8m Ω @-2.5V	

Application

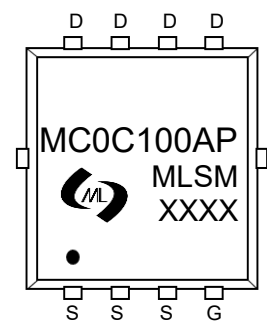
- Battery and loading switching
- Excellent package for good heat dissipation



PDFN5X6-8L view



Schematic diagram



Marking and pin assignment

MC0C100AP: Device code
XXXX: Code



Halogen-Free

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

Symbol	Parameter	Rating	Unit
Common Ratings (TC=25°C Unless Otherwise Noted)			
V_{DS}	Drain-Source Breakdown Voltage	-20	V
V_{GS}	Gate-Source Voltage	± 10	V
T_J, T_{STG}	Storage Temperature Range	-55 to 175	°C
I_S	Diode Continuous Forward Current	$T_C=25^\circ\text{C}$ -100	A
Mounted on Large Heat Sink			
I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$ -360	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$ -100	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$ 160	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	25	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC0C100AP	PDFN5X6-8L	MC0C100AP	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	-20	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-20V, V _{GS} =0V	--	--	-1.0	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±10V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =-250μA	-0.4	-0.7	-1.0	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =-4.5V, I _D =-30A	--	2.0	3.0	mΩ
		V _{GS} =-2.5V, I _D =-10A	--	2.8	4.5	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-10V, V _{GS} =0V, f=1MHz	--	6500	--	pF
C _{OSS}	Output Capacitance		--	780	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	490	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DD} =-10V, I _D =-20A, V _{GS} =-4.5V	--	111	--	nC
Q _{gs}	Gate Source Charge		--	22	--	nC
Q _{gd}	Gate Drain Charge		--	23	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =-10V, I _D =-20A, V _{GS} =-10V, R _G =3Ω	--	15	--	nS
t _r	Turn-on Rise Time		--	75	--	nS
t _{d(off)}	Turn-Off Delay Time		--	130	--	nS
t _f	Turn-Off Fall Time		--	80	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, Is=-20A	--	--	-1.2	V

Typical Operating Characteristics

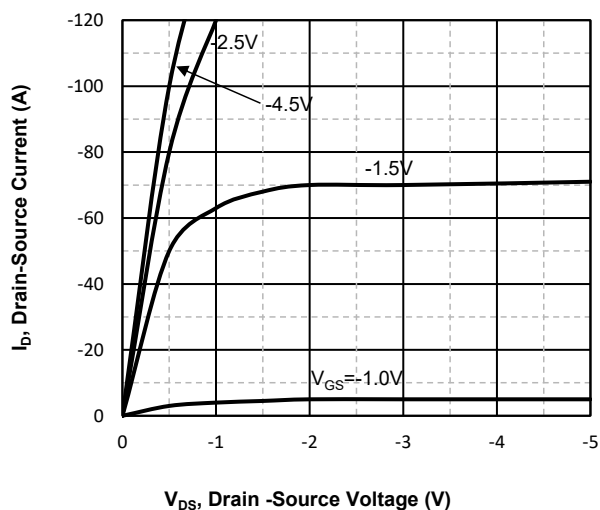


Fig1. Typical Output Characteristics

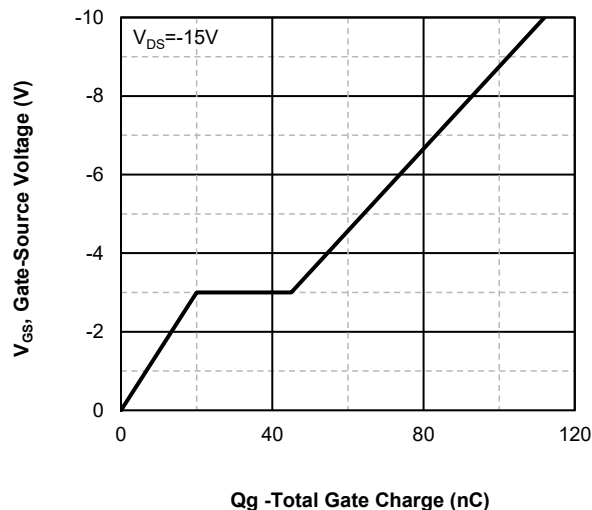


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

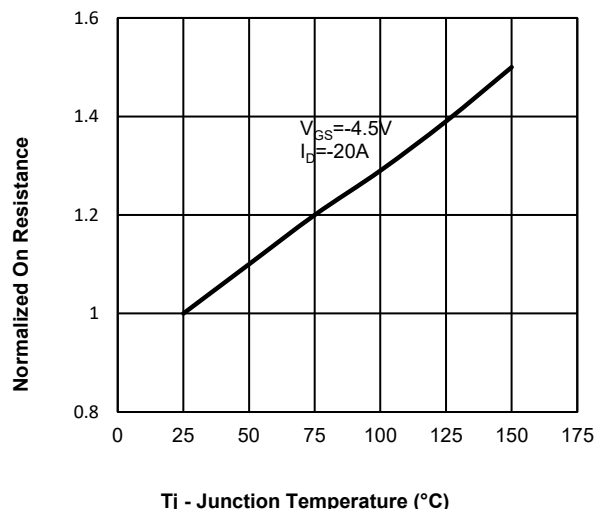


Fig3. Normalized On-Resistance Vs. Temperature

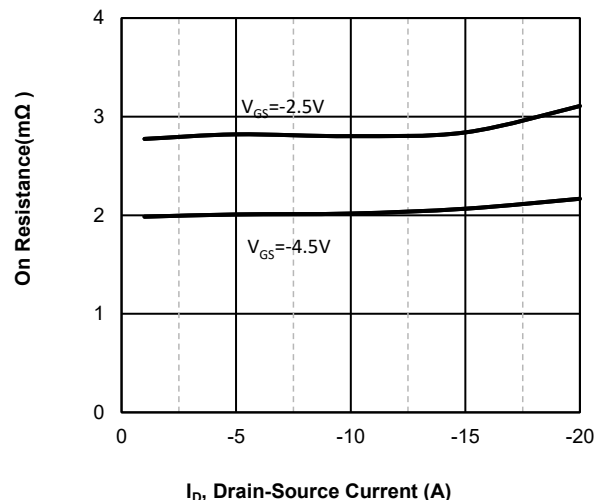


Fig4. On-Resistance Vs. Drain-Source Current

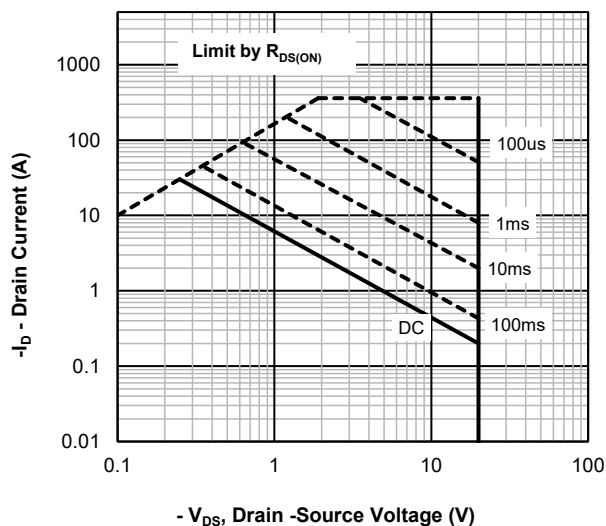


Fig5. Maximum Safe Operating Area

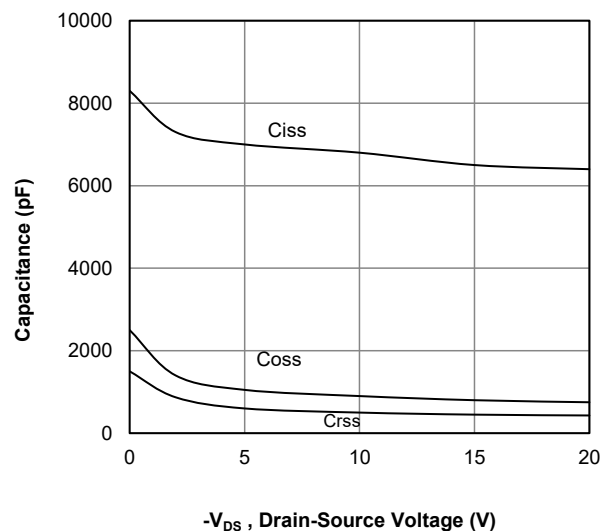


Fig6 Typical Capacitance Vs. Drain-Source Voltage

