

Features

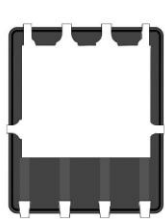
- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Excellent stability and uniformity

Product Summary

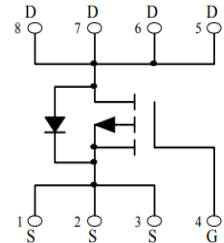
V_{DS}	$R_{DS(ON)}$ TYP	I_D
-100V	18mΩ@-10V	-70A

Application

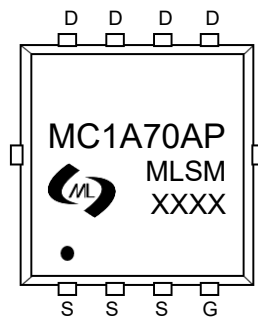
- Power management
- Portable equipment



PDFN5X6-8L view



Schematic diagram



Marking and pin assignment

MC1A70AP: 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	-100	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	$T_c=25^{\circ}C$ -70	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^{\circ}C$ -230	A
I_D	Continuous Drain Current	$T_c=25^{\circ}C$ -70	A
P_D	Maximum Power Dissipation	$T_c=25^{\circ}C$ 78	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient	83.3	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC1A70AP	PDFN5X6-8L	MC1A70AP	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	-100	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =-100V, 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	--	18	22	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz	--	3220	--	pF
C _{OSS}	Output Capacitance		--	1480	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	100	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =-50V, I _D =-10A, V _{GS} =-10V	--	50	--	nC
Q _{gs}	Gate Source Charge		--	13.5	--	nC
Q _{gd}	Gate Drain Charge		--	13	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DS} =-50V, I _D =-10A, V _{GS} =-10V, R _G =3Ω	--	15	--	nS
t _r	Turn-on Rise Time		--	40	--	nS
t _{d(off)}	Turn-Off Delay Time		--	45	--	nS
t _f	Turn-Off Fall Time		--	43	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25°C, I _s =-20A	--	-0.8	-1.2	V

Typical Operating Characteristics

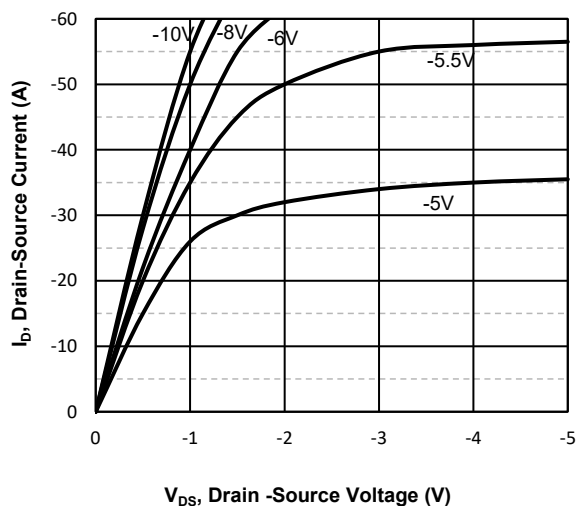


Fig1. Typical Output Characteristics

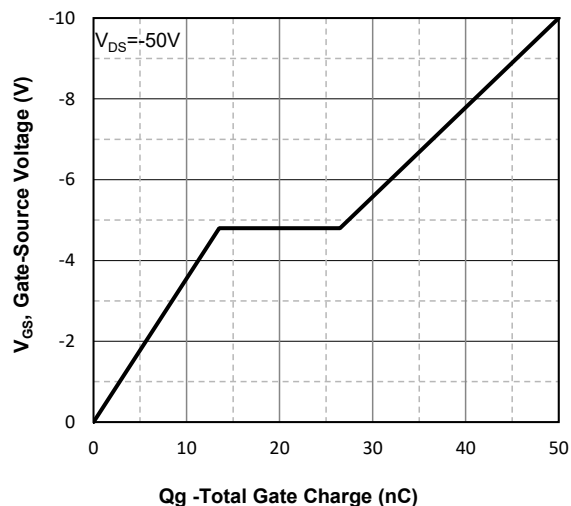


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

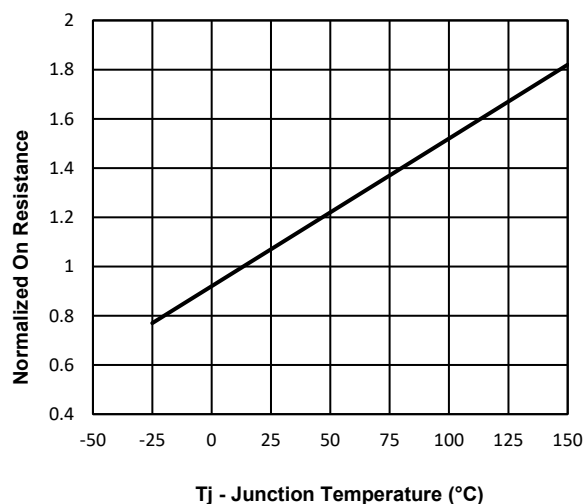


Fig3. Normalized On-Resistance Vs. Temperature

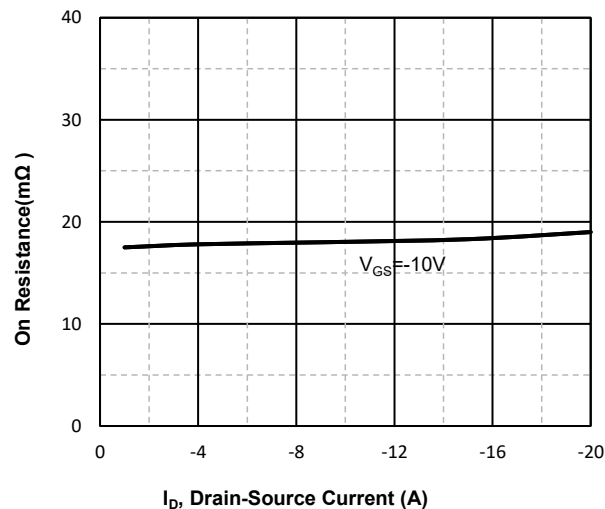


Fig4. On-Resistance Vs. Drain-Source Current

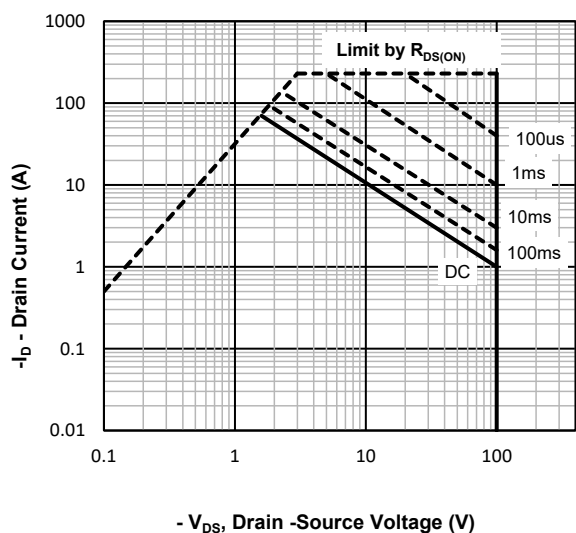


Fig5. Maximum Safe Operating Area

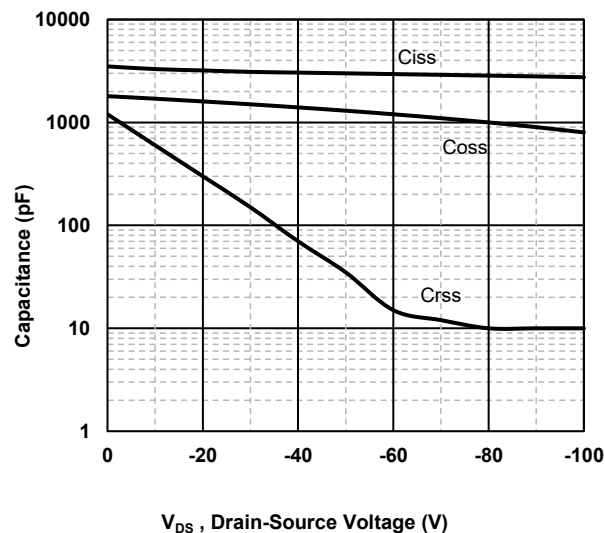


Fig6 Typical Capacitance Vs. Drain-Source Voltage

