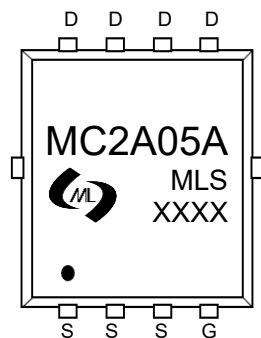


Features

- Integrate fast recovery diode
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

Application

- Switch Mode Power Supply (SMPS)
- Motor Controls
- Power Factor Correction (PFC)

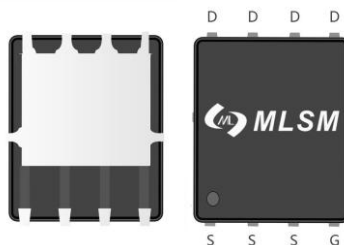


Marking and pin assignment

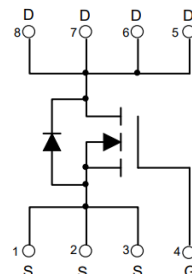
MC2A05A: Device code
 XXXX : Code

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
200V	480mΩ@10V	5A



PDFN5X6-8L view



Schematic diagram



Pb-Free



RoHS



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	200	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	$T_c=25^\circ\text{C}$ 5	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_c=25^\circ\text{C}$ 22	A
I_D	Continuous Drain Current	$T_c=25^\circ\text{C}$ 5	A
P_D	Maximum Power Dissipation	$T_c=25^\circ\text{C}$ 43	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	53	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MC2A05A	PDFN5X6-8L	MC2A05A	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	200	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=200V, VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.8	3.0	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=2.5A	--	480	580	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=25V, VGS=0V, f=1MHz	--	740	--	pF
COSS	Output Capacitance		--	15	--	pF
CRSS	Reverse Transfer Capacitance		--	5	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=160V, ID=5A, VGS=10V	--	17	--	nC
Qgs	Gate Source Charge		--	2.5	--	nC
Qgd	Gate Drain Charge		--	7	--	nC
td(on)	Turn-on Delay Time	VDD=100V, ID=5A, RG=25Ω	--	10	--	nS
tr	Turn-on Rise Time		--	13	--	nS
td(off)	Turn-Off Delay Time		--	16	--	nS
tf	Turn-Off Fall Time		--	15	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=2.5A,	--	--	1.4	V

Typical Operating Characteristics

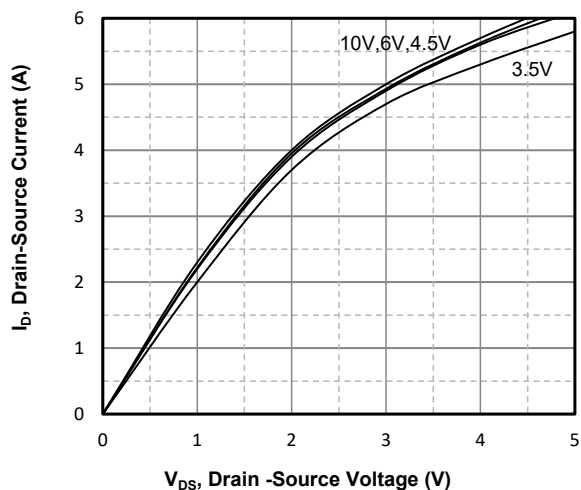


Fig1. Typical Output Characteristics

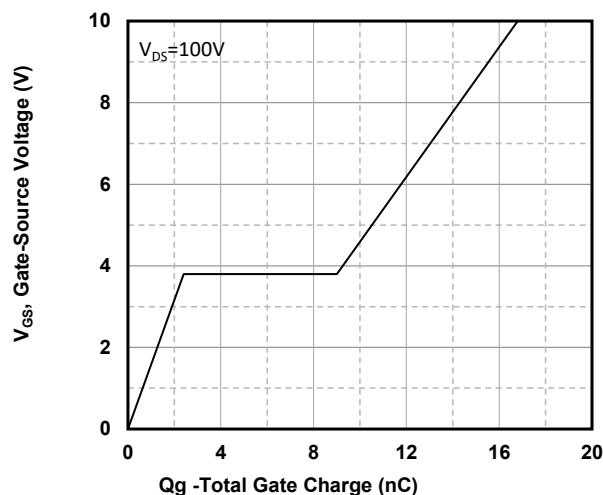


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

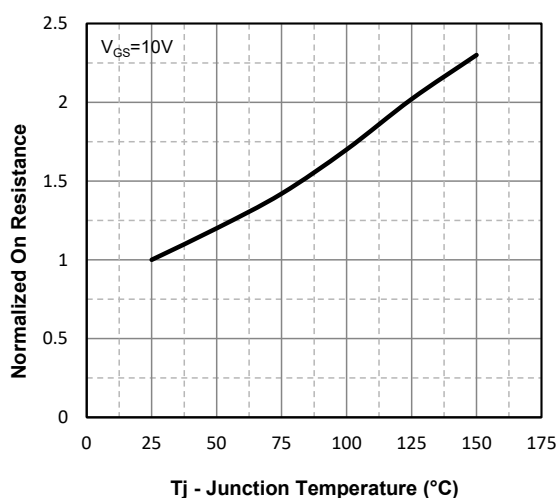


Fig3. Normalized On-Resistance Vs. Temperature

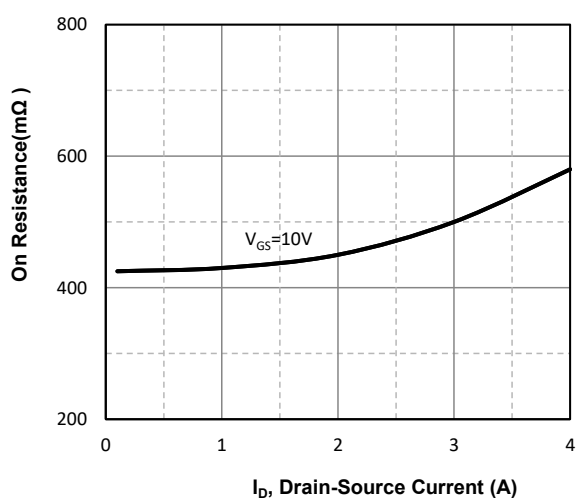


Fig4. On-Resistance Vs. Drain-Source Current

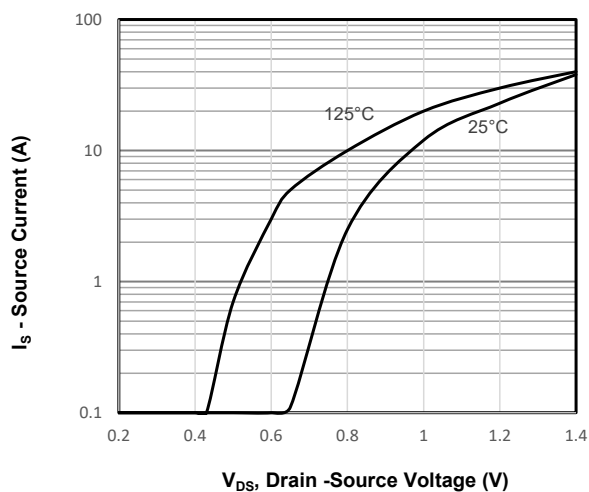


Fig5. Body Diode Forward Voltage

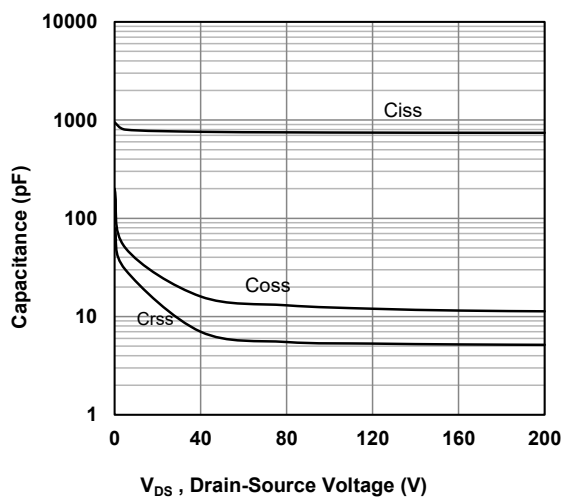
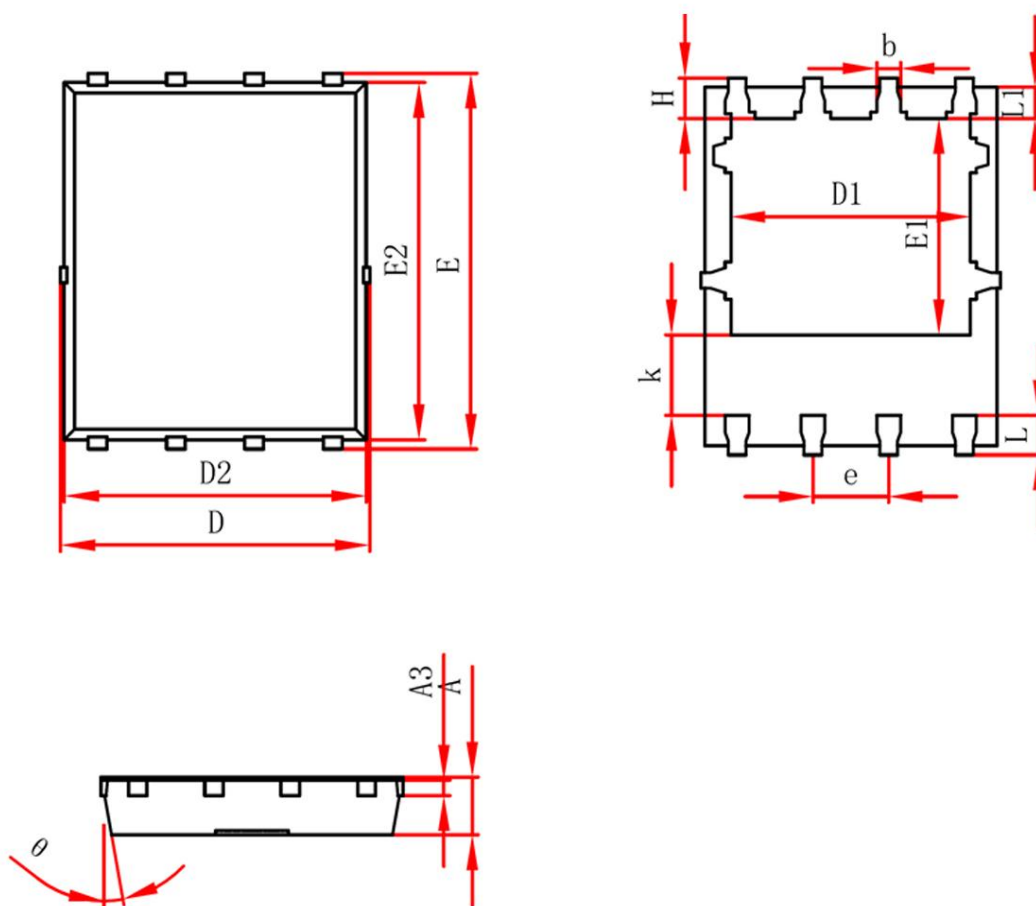


Fig6 Typical Capacitance Vs. Drain-Source Voltage

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°