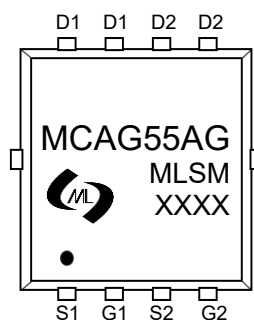


Features

- Low $R_{DS(on)}$ & FOM
- Extremely low switching loss
- Split gate trench MOSFET technology
- Fast switching and soft recovery

Application

- Consumer electronic power supply
- Motor control
- Synchronous-rectification
- Isolated DC/DC convertor

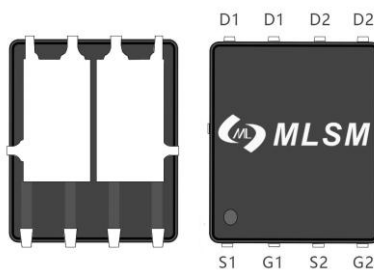


Marking and pin assignment

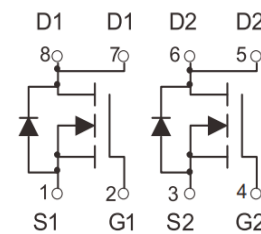
MCAG55AG: Device code
XXXX : Code

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
60V	11m Ω @10V	55A
	16m Ω @4.5V	



PDFN5X6-8L view



Schematic diagram



Pb-Free



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		60	V
V _{GS}	Gate-Source Voltage		±20	V
T _J , T _{STG}	Operating Junction and Storage Temperature Range		-55 to 175	°C
E _{AS}	Single pulse avalanche energy ^(Note1)		56	mJ
I _S	Diode Continuous Forward Current	Tc=25°C	55	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^\circ\text{C}$	160	A
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	55	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	40	W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient		62.5	°C/W

Ordering Information (Example)

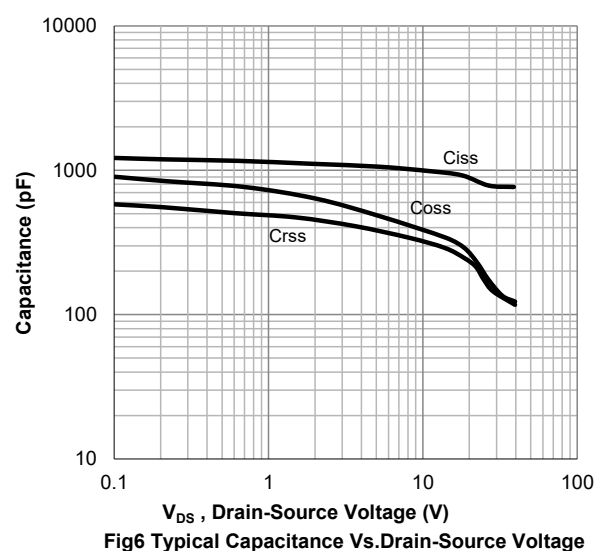
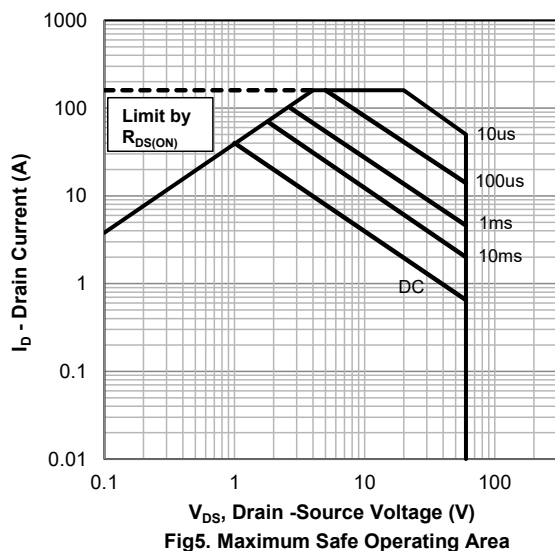
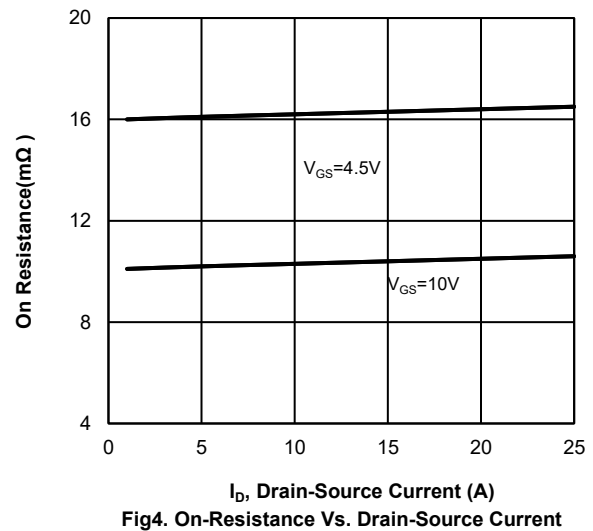
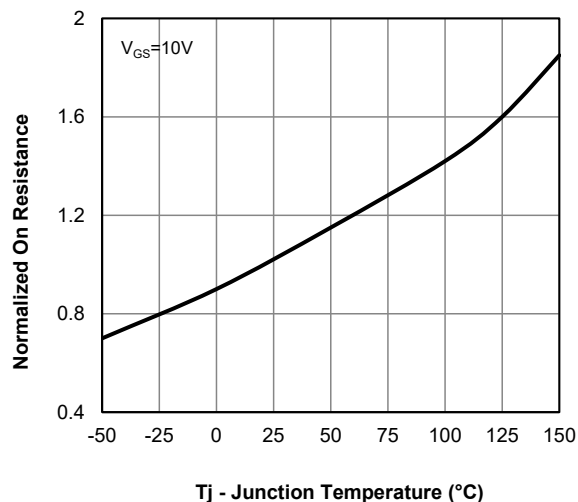
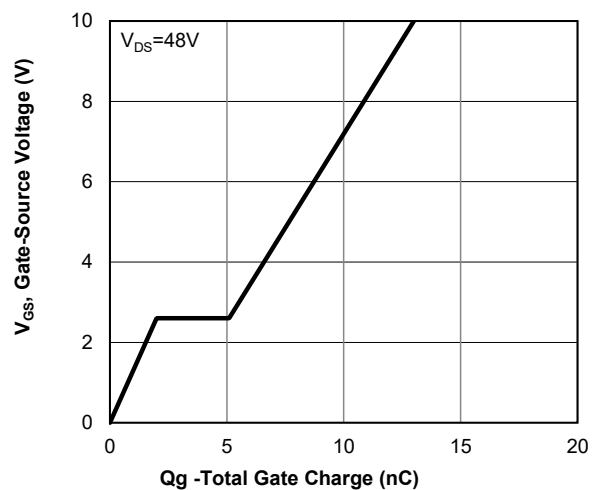
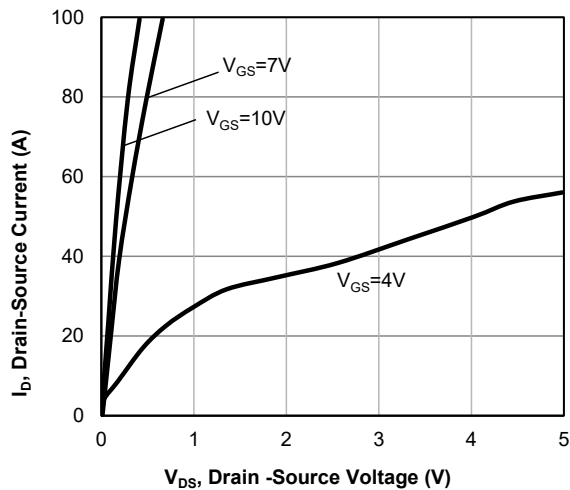
Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
MCAG55AG	PDFN5X6-8L	MCAG55AG	5,000	10,000	70,000	13"reel

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	VGS=0V, ID=250μA	60	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	--	--	1.0	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=250μA	1.0	1.7	2.5	V
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=20A	--	11	16	mΩ
		VGS=4.5V, ID=10A	--	16	20	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
CISS	Input Capacitance	VDS=30V, VGS=0V, f=1MHz	--	821.6	--	pF
COSS	Output Capacitance		--	151.2	--	pF
CRSS	Reverse Transfer Capacitance		--	139.4	--	pF
Switching Characteristics						
Qg	Total Gate Charge	VDS=48V, ID=10A, VGS=10V	--	12.9	--	nC
Qgs	Gate Source Charge		--	2.01	--	nC
Qgd	Gate Drain Charge		--	3.1	--	nC
td(on)	Turn-on Delay Time	VDS=30V, ID=20A, VGS=10V, RG=3.5Ω	--	2.5	--	nS
tr	Turn-on Rise Time		--	0.9	--	nS
td(off)	Turn-Off Delay Time		--	3.5	--	nS
tf	Turn-Off Fall Time		--	2	--	nS
Source- Drain Diode Characteristics						
VSD	Forward on voltage	TJ=25°C, IS=40A	--	--	1.2	V

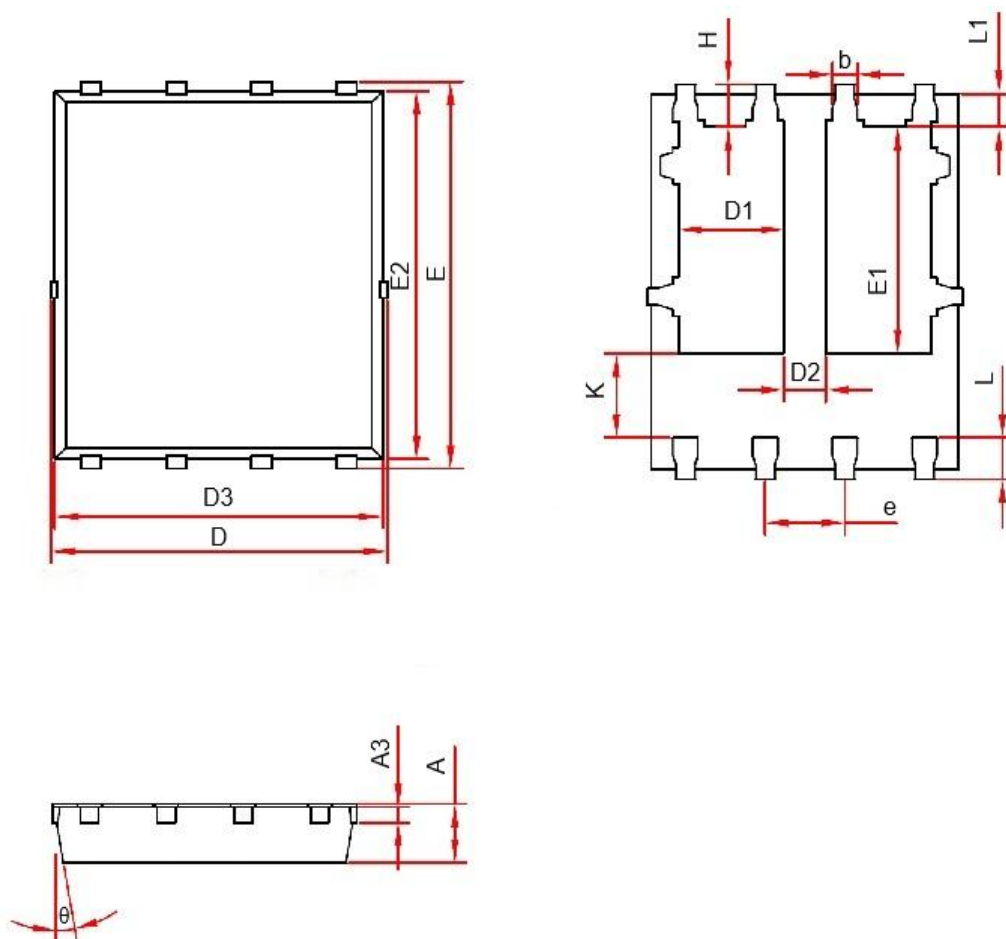
Note:

1、L=0.5mH, V_{DS}=48V, V_{GS}=10V, Starting T_J=25°C

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	1.470	1.870	0.058	0.074
D2	0.470	0.870	0.019	0.034
E1	3.510	3.610	0.139	0.143
D3	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°