CMSA120P06

-60V, 5.5mΩ typ., -100A P-Channel MOSFET

General Description

The CMSA120P06 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a Battery protection or in other Switching application.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-60V	7mΩ	-100A

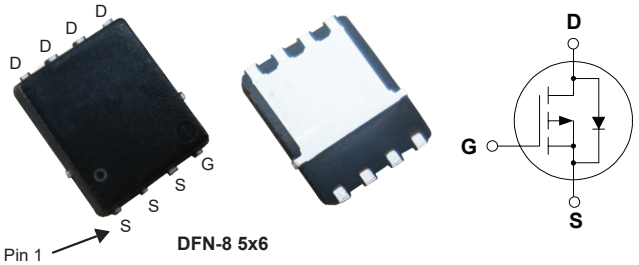
Applications

- Motor
- Load switch

Features

- P-Channel MOSFET
- Low ON-resistance
- 100% avalanche tested
- RoHS Compliant

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA120P06	DFN-8 5x6	CMSA120P06

Absolute Maximum Ratings (T_A=25 ℃ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-100	A
I_D@T_C=100℃	Continuous Drain Current	-65	A
I_{DM}	Pulsed Drain Current	-400	A
EAS	Single Pulse Avalanche Energy[1]	1560	mJ
P_D@T_C=25℃	Total Power Dissipation	160	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient [2]	---	40	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.78	℃/W

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Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250μA	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-28A	---	5.5	7.0	mΩ
		V_{GS}=-4.5V , I_D=-25A	---	6.7	10	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D = -250μA	-1.0	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-60V , V_{GS}=0V	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS} =-5V , I_D=-25A	---	84	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	12	---	Ω
Q_g	Total Gate Charge	V_{DS}=-30V , V_{GS}=-10V , I_D=-110A	---	180	---	nC
Q_{gs}	Gate-Source Charge		---	50	---	
Q_{gd}	Gate-Drain Charge		---	40	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=-30V, V_{GS} =-10V , R_G=2.5Ω I_D=-110A	---	20	---	ns
T_r	Rise Time		---	190	---	
$T_{d(off)}$	Turn-Off Delay Time		---	140	---	
T_f	Fall Time		---	300	---	
C_{iss}	Input Capacitance	V_{DS}=-25V , V_{GS}=0V , f=1MHz	---	12200	---	pF
C_{oss}	Output Capacitance		---	650	---	
C_{rss}	Reverse Transfer Capacitance		---	330	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-100	A
I_{SM}	Pulsed Source Current		---	---	-400	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-25A ,T_J=25℃	---	-0.80	-1.3	V

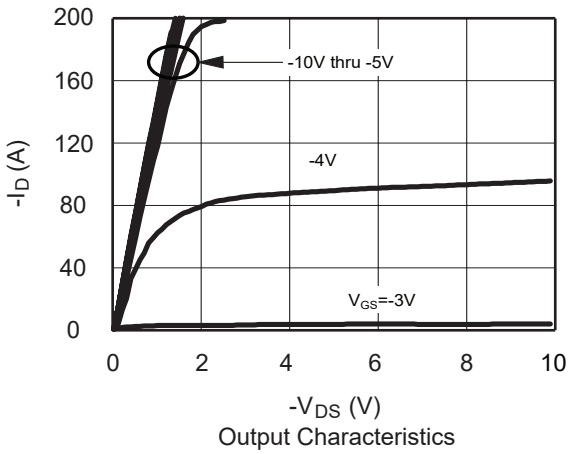
Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=-40V , V_{GS}=-10V , L=0.5mH , I_{AS}=-79A.

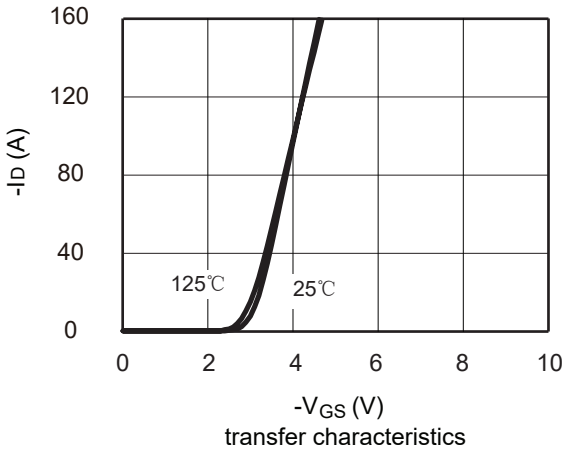
2. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

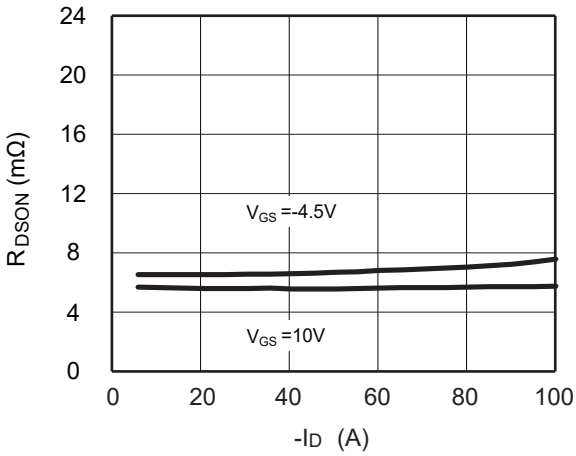
Typical Characteristics



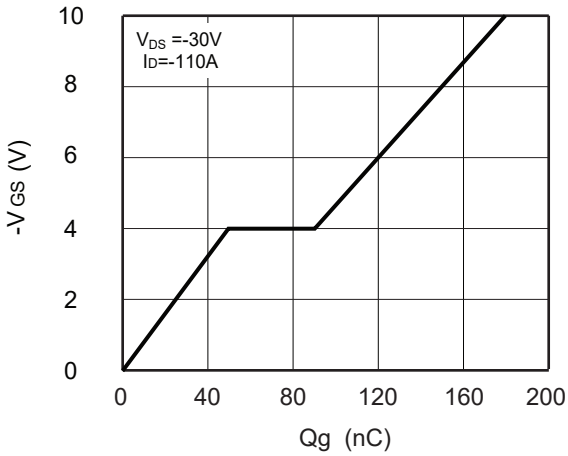
Output Characteristics



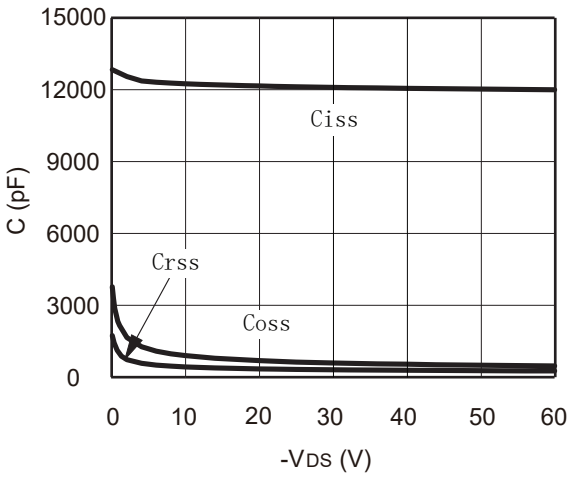
transfer characteristics



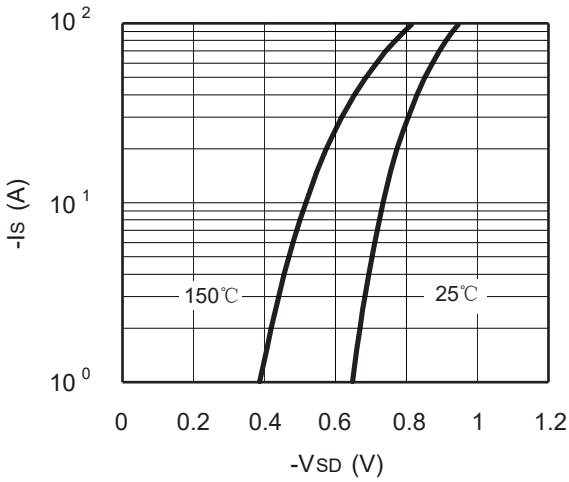
drain-source on-resistance



Gate charge vs gate-source voltage



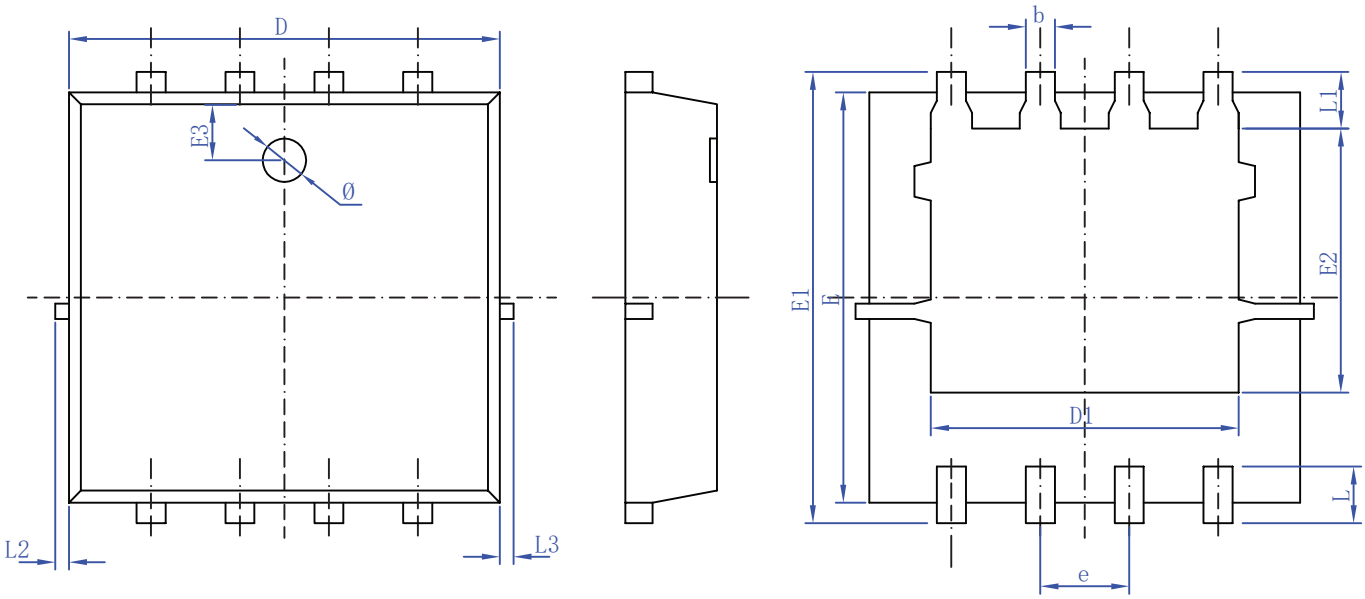
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

DFN-8 5x6 Unit :mm



Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.900	1.100	1.000
D	4.950	5.150	5.050
D1	3.850	4.250	4.050
E	5.750	5.950	5.850
E1	5.950	6.350	6.150
E2	3.300	3.700	3.500
E3	0.900	1.300	1.100
b	0.250	0.350	0.300
e	1.220	1.320	1.270
L	0.585	0.785	0.685
L1	0.525	0.725	0.625
Ø	1.000	1.400	1.200
L2	0~0.100		
L3	0~0.100		

注：
1.未注公差±0.05未标注圆角R max=0.25