

General Description

The CMSA180P04A is a P-channel Power MOSFET. They use advanced trench technology to provide excellent RDS(ON). The device is therefore suitable in advanced high-efficiency switching applications.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

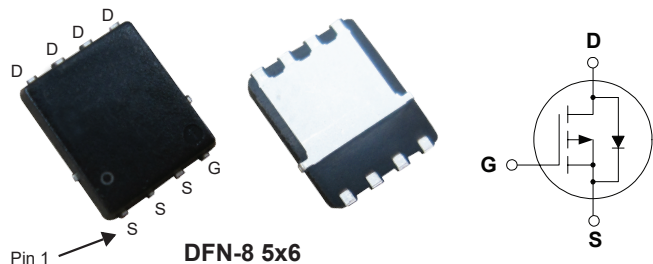
Product Summary

BVDSS	RDS(on) max.	ID
-40V	5.5mΩ	-100A

Applications

- Battery protection
- Load switch

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA180P04A	DFN-8 5x6	CMSA180P04A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-100	A
I _D @T _C =100°C	Continuous Drain Current	-70	A
I _{DM}	Pulsed Drain Current	-400	A
EAS	Single Pulse Avalanche Energy (Note 1)	1152	mJ
P _D @T _C =25°C	Total Power Dissipation	120	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.04	°C/W

Electrical Characteristics($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-20A$	---	4.4	5.5	mΩ
		$V_{GS}=-4.5V$, $I_D=-20A$	---	5.2	6.5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-40V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
		$V_{DS}=-40V$, $V_{GS}=0V$, $T_J=55^{\circ}\text{C}$	---	---	-10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-20A$	---	48	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	9.0	---	Ω
Q_g	Total Gate Charge	$V_{DD}=-32V$, $I_D=-80A$ $V_{GS}=-10V$	---	200	---	nC
Q_{gs}	Gate-Source Charge		---	25	---	
Q_{gd}	Gate-Drain Charge		---	53	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-20V$, $V_{GS}=-10V$, $R_G=0\Omega$ $I_D=-40A$	---	35	---	ns
T_r	Rise Time		---	21	---	
$T_{d(off)}$	Turn-Off Delay Time		---	245	---	
T_f	Fall Time		---	120	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	10500	---	pF
C_{oss}	Output Capacitance		---	730	---	
C_{rss}	Reverse Transfer Capacitance		---	600	---	

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	$V_{GS}=0V$, $I_F=-20A$	---	-0.78	-1.3	V

Notes:

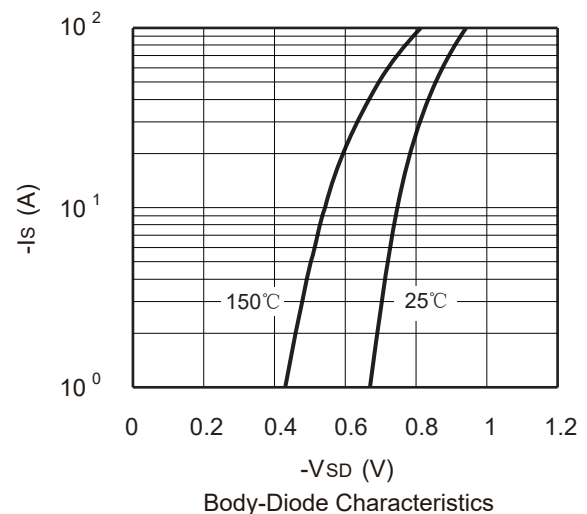
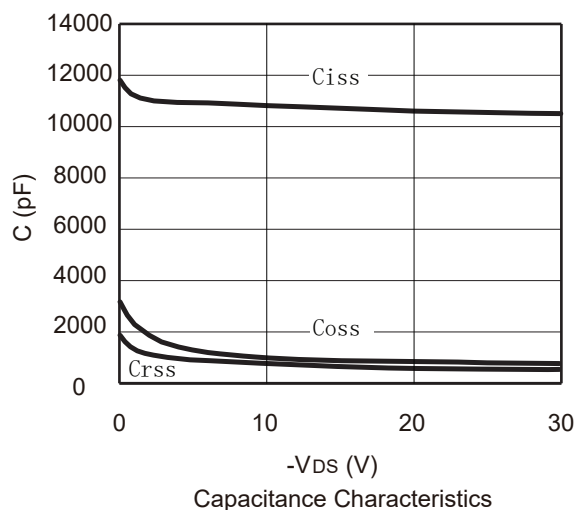
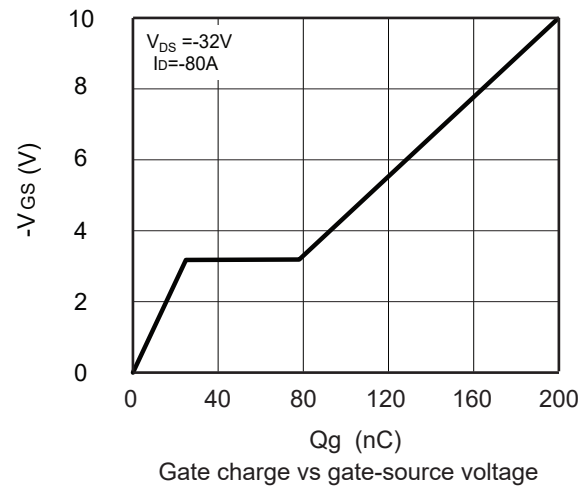
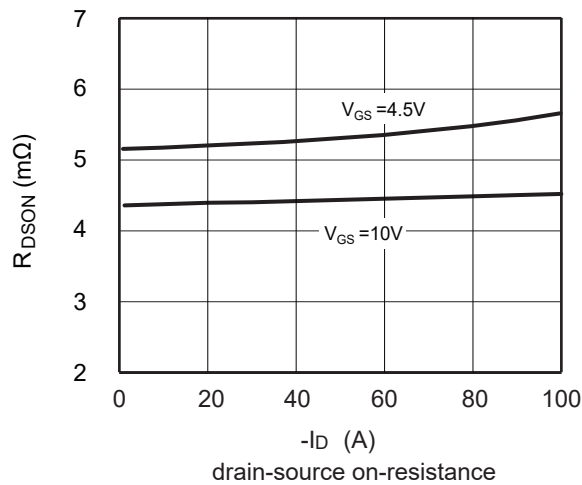
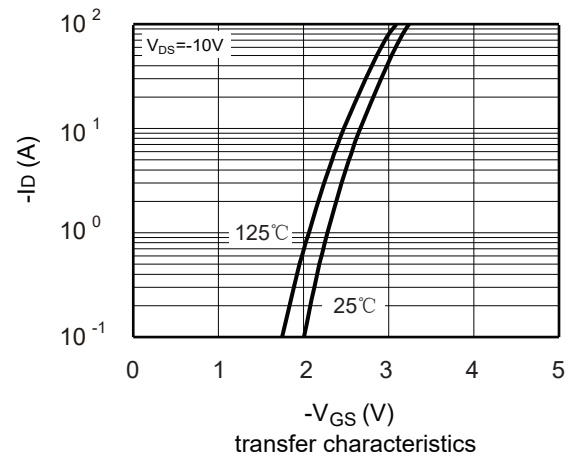
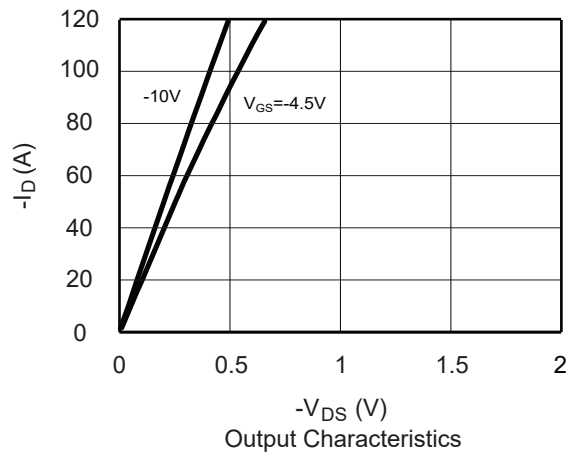
1.The EAS data shows Max. rating .The test condition is $V_{DS}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-48A$.

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

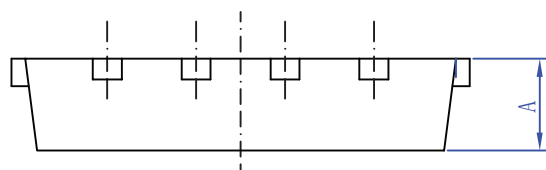
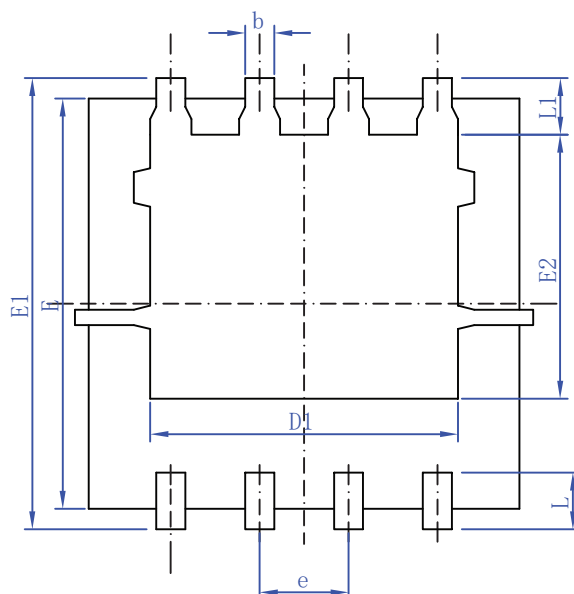
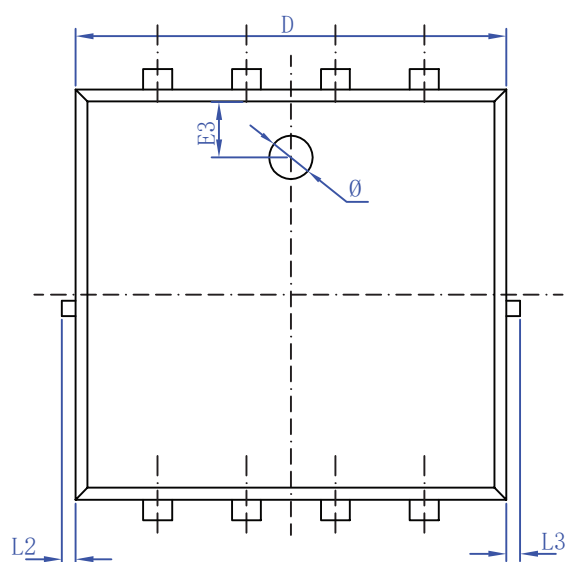
Typical Characteristics



Package Dimension

DFN-8 5x6

Unit :mm



注:

1. 未注公差 ± 0.05 未标注圆角 $R_{\max} = 0.25$

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		