

200V, 60mΩ typ., 25A N-Channel MOSFET

General Description

The CMSA5020 uses advanced technology to provide excellent RDS (ON) . This device is suitable to be used as the low side FET in SMPS, load switching and general purpose.

Features

- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

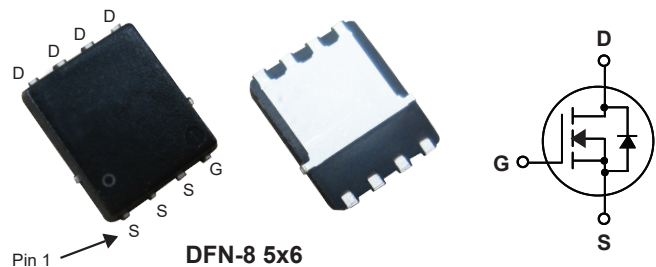
Product Summary

BVDSS	R _{DS(on)} max.	ID
200V	65mΩ	25A

Applications

- Load Switch
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems.

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA5020	DFN-8 5x6	CMSA5020

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	200	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	25	A
I _{DM}	Pulsed Drain Current	75	A
EAS	Single Pulse Avalanche Energy ¹	680	mJ
P _D @T _C =25°C	Total Power Dissipation	90	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}	Junction-to-Ambient (t ≤ 10S)	---	23	°C/W
R _{θJC}	Junction-to-Case (Steady State)	---	1.38	°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	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	60	65	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	19	---	S
R_g	Gate Resistance	$V_{DS}=10V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=100V$, $I_D=5.9A$ $V_{GS}=6V$	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$, $R_G=1\Omega$, $R_L=20.8\Omega$ $I_D=4.8A$, $V_{GEN}=10V$	---	15	---	ns
T_r	Rise Time		---	11	---	
$T_{d(off)}$	Turn-Off Delay Time		---	26	---	
T_f	Fall Time		---	9	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2800	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	105	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	25	A
I_{SM}	Pulsed Source Current		---	---	75	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=28A$	---	---	1.2	V

Note :

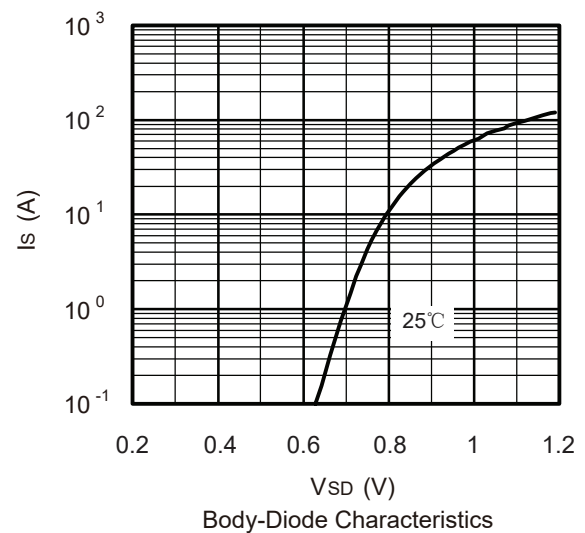
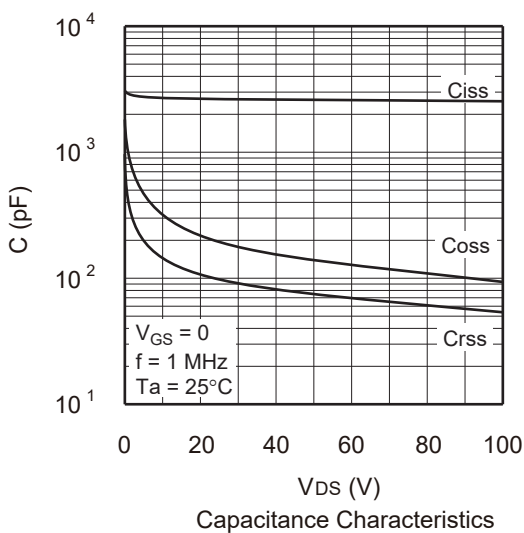
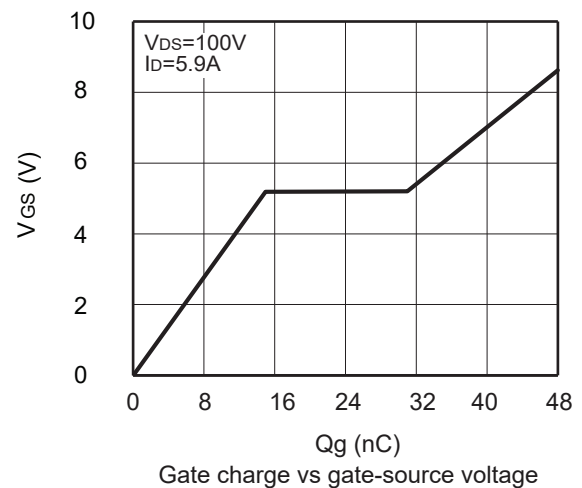
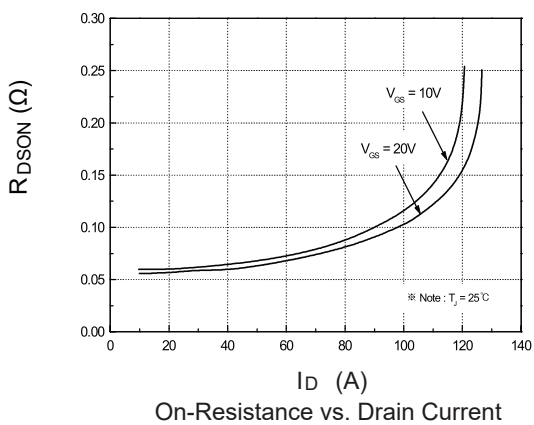
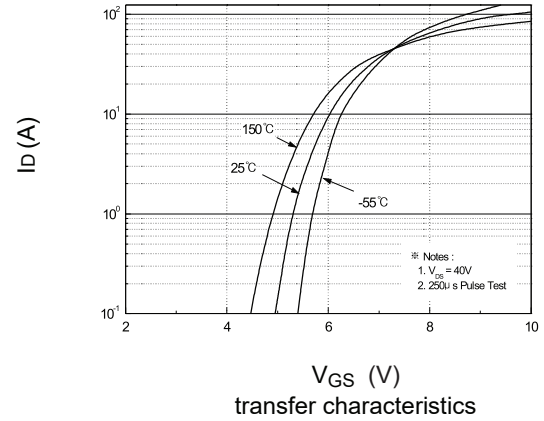
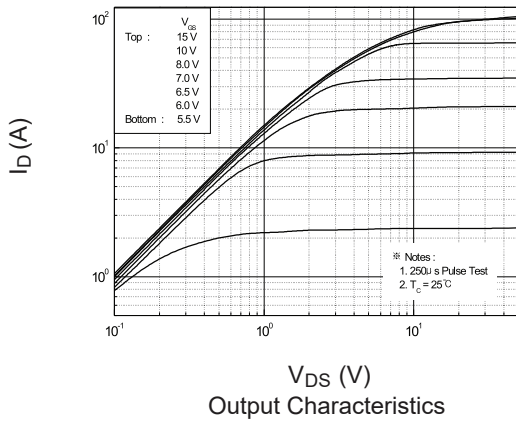
1.The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5\text{mH}$, $I_{AS}=16.5A$

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

Cmos assumes no liability for customers' product design or applications.

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

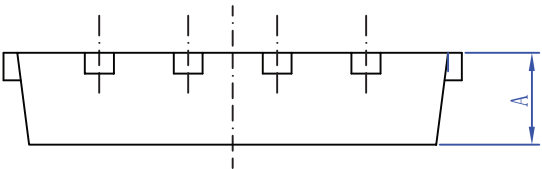
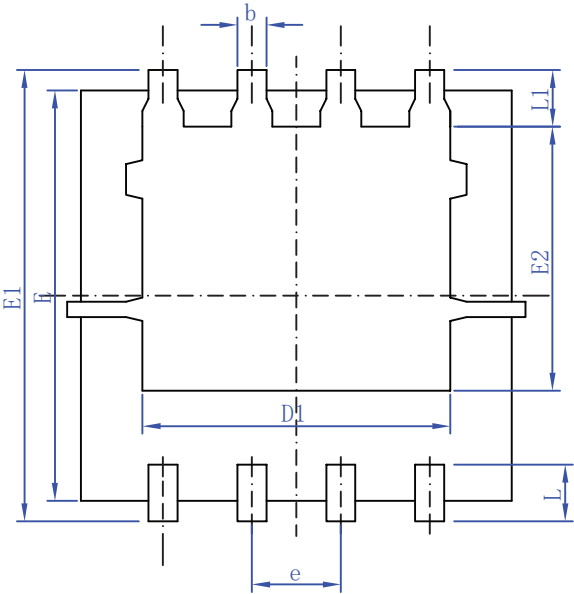
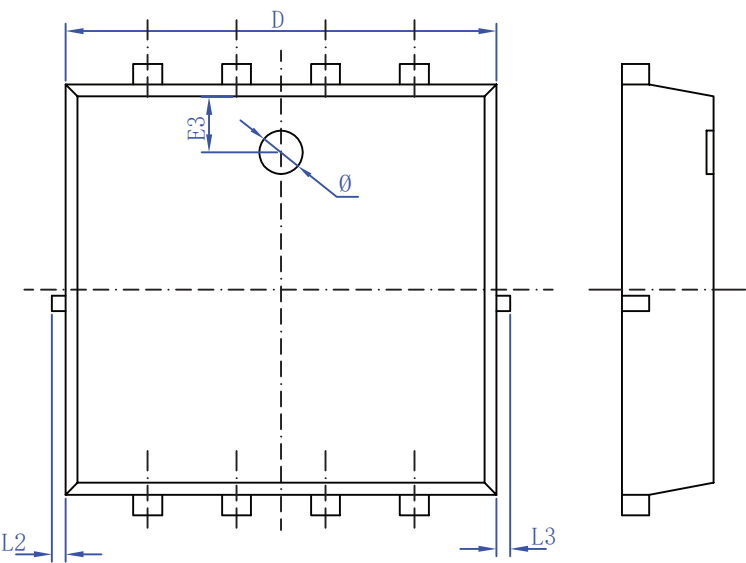
Typical Characteristics



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		