

CMS20P09

-90V, 140mΩ typ., -5A P-Channel MOSFET

General Description

The CMS20P09 uses advanced trench technology to provide excellent $R_{DS(ON)}$. It can be used in a wide variety of applications.

Features

- P-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

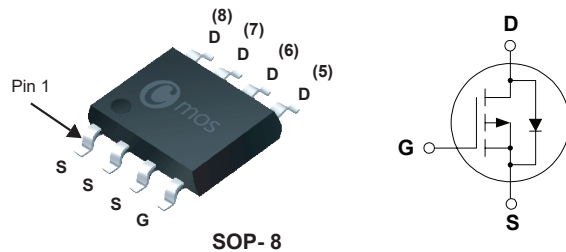
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-90V	210mΩ	-5A

Applications

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

SOP-8 Pin Configuration



Type	Package	Marking
CMS20P09	SOP- 8	CMS20P09

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-90	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current	-5	A
$I_D@T_A=100^\circ\text{C}$	Continuous Drain Current	-3.5	A
I_{DM}	Pulsed Drain Current	-20	A
EAS	Single Pulse Avalanche Energy ¹	242	mJ
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	3	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient(PCB Mount)	---	41	°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	$V_{GS}=0V$, $I_D=-250\mu A$	-90	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-10A$	---	140	210	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-90V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	18	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	14	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-80V$, $I_D=-15A$ $V_{GS}=-10V$	---	70	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-50V$, $R_G=4.7\Omega$ $I_D=-10A$, $V_{GS}=-10V$	---	30	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	290	---	
T_f	Fall Time		---	41	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	6600	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	90	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-5	A
I_{SM}	Pulsed Source Current		---	---	-20	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-10A$	---	-0.83	-1.2	V

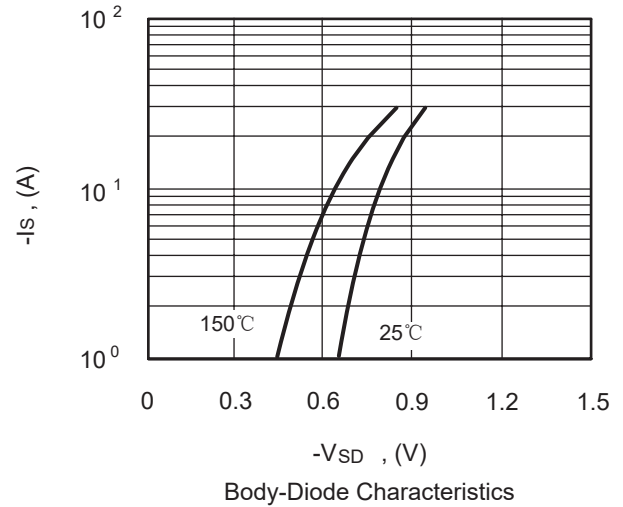
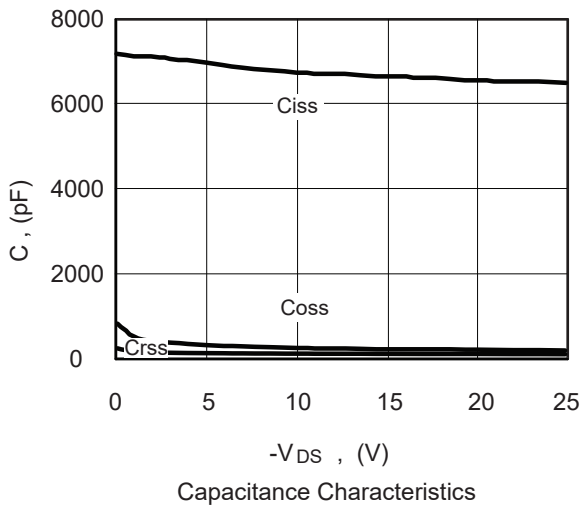
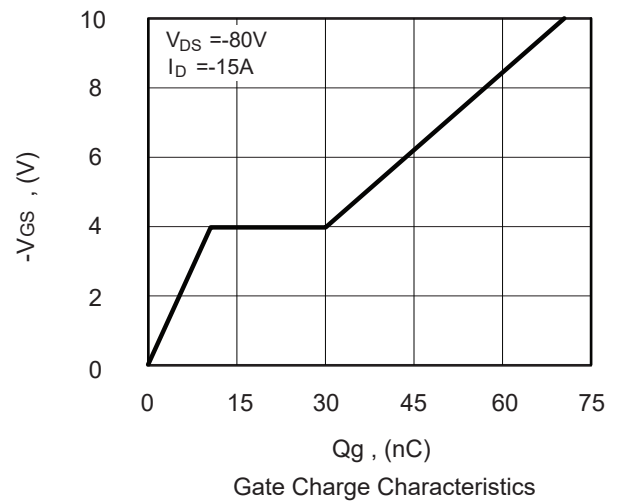
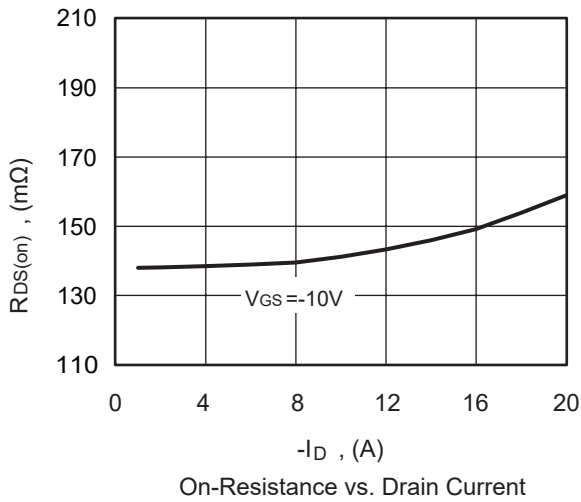
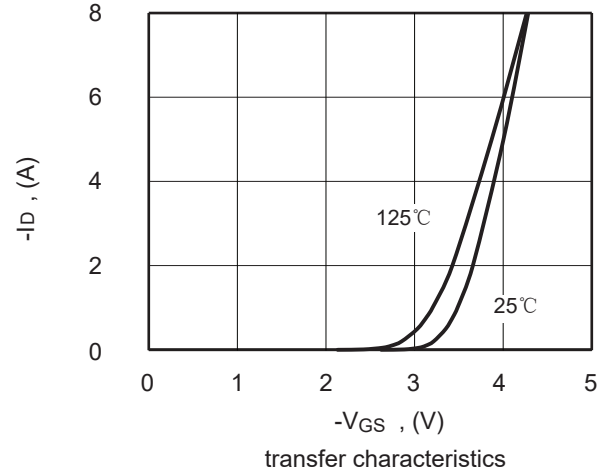
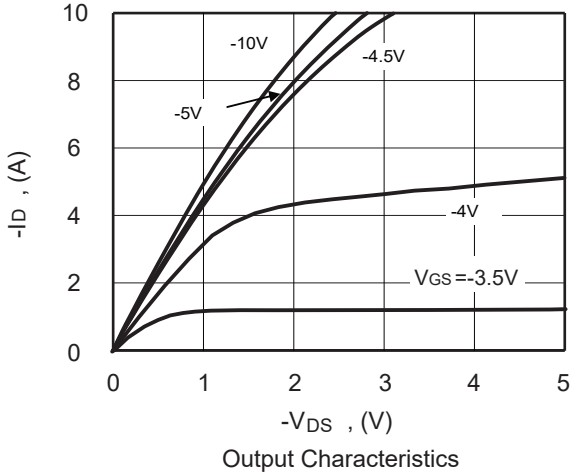
Note :

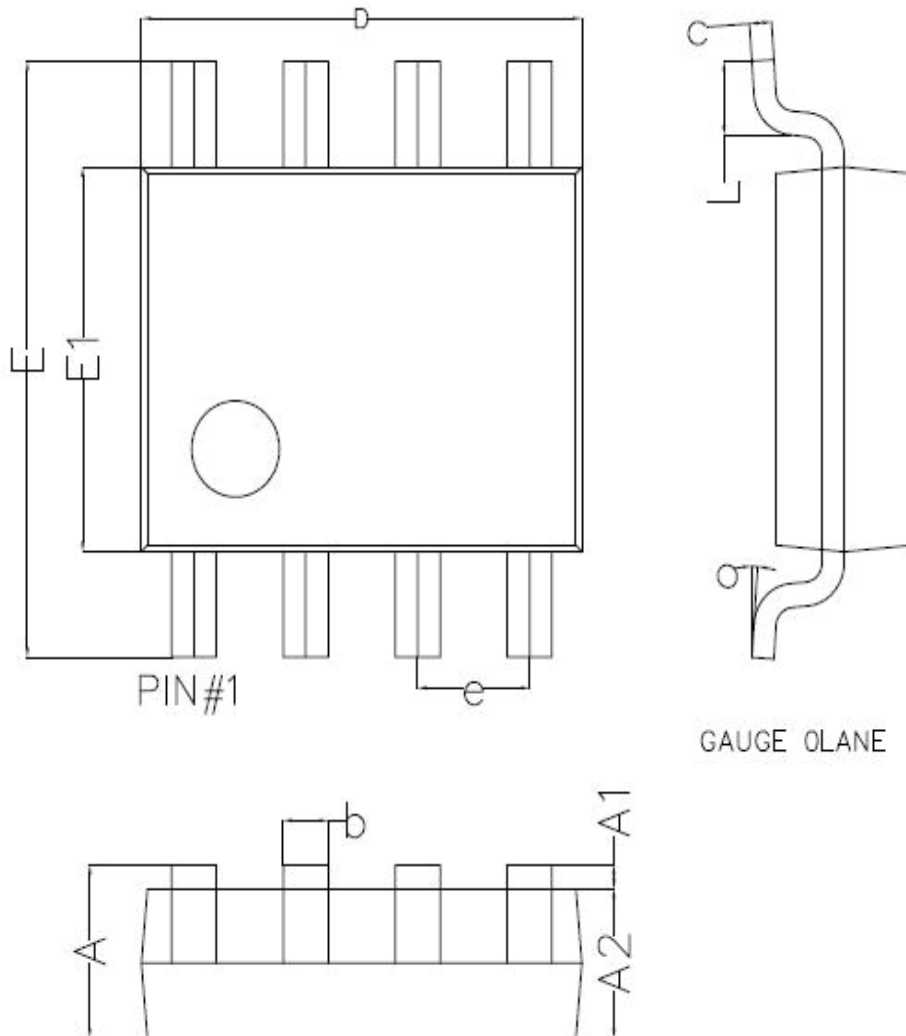
1.The EAS data shows Max. rating . The test condition is $V_{DD}=-50V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-22A$.

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
SOP-8
Unit :mm


Symbol	Dim in mm		
	Min	Nor	Max
A	1.35	1.55	1.75
A1	0.02	0.065	0.10
A2	1.35	1.45	1.55
b	0.33	0.42	0.51
c	0.17	0.21	0.25
D	4.80	4.90	5.00
e	1.270 (BSC)		
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
L	0.4	0.835	1.27
θ	0°	4°	8°