

CMSC20DP02

-20V, 16mΩ typ., -20A Dual P-Channel MOSFET

General Description

The CMSC20DP02 uses advanced trench technology to provide excellent RDS(ON). This device is ideal for load switch applications.

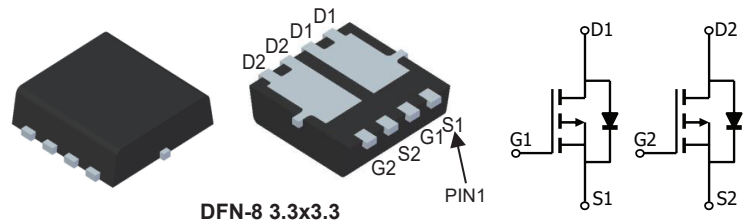
Product Summary

BVDSS	RDS(on) max.	ID
-20V	18mΩ	-20A

Applications

- DC/DC Conversion
- Load Switches

DFN-8 3.3x3.3 Pin Configuration



Features

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

Type	Package	Marking
CMSC20DP02	DFN-8 3.3x3.3	20DP02

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D @T _C =25°C	Continuous Drain Current	-20	A
I _D @T _C =100°C	Continuous Drain Current	-14	A
I _{DM}	Pulsed Drain Current	-60	A
EAS	Single Pulse Avalanche Energy ¹	72	mJ
P _D @T _C =25°C	Total Power Dissipation	20	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	---	50	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	6	°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	$V_{GS}=0V$, $I_D=-250\mu A$	-20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-15A$	---	16	18	mΩ
		$V_{GS}=-2.5V$, $I_D=-10A$	---	21	26	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-0.5	---	-1.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-16V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 12V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-10A$	---	19.8	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	14	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-10V$, $I_D=-20A$ $V_{GS}=-4.5V$	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	4	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$, $V_{GS}=-10V$, $R_G=6\Omega$ $I_D=-20A$, $R_L=15\Omega$	---	15	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	62	---	
T_f	Fall Time		---	46	---	
C_{iss}	Input Capacitance	$V_{DS}=-20V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2000	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-20	A
I_{SM}	Pulsed Source Current		---	---	-60	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-10A$, $T_J=25^{\circ}\text{C}$	---	-0.90	-1.2	V

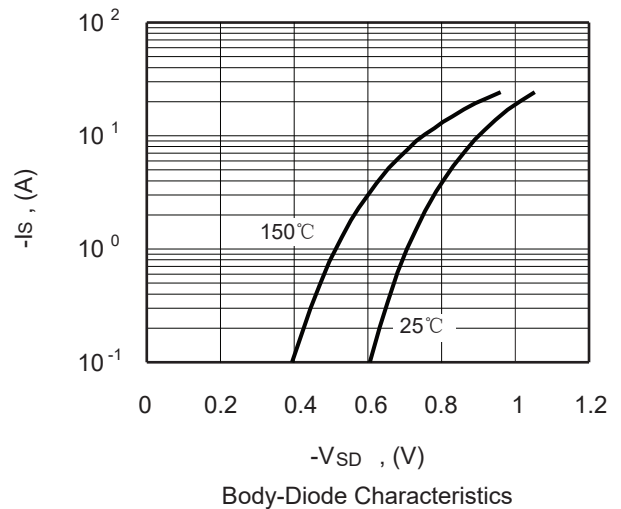
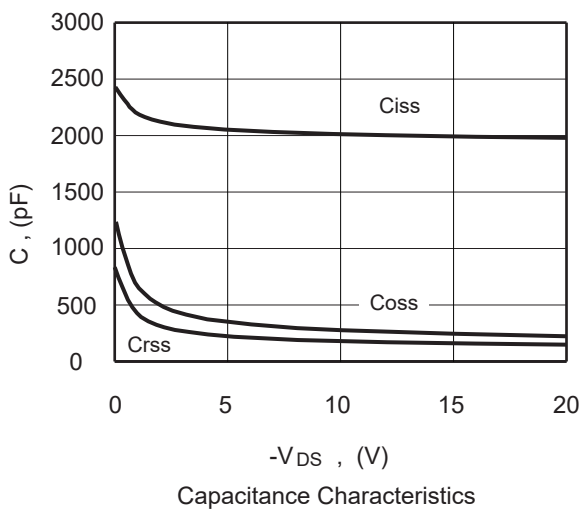
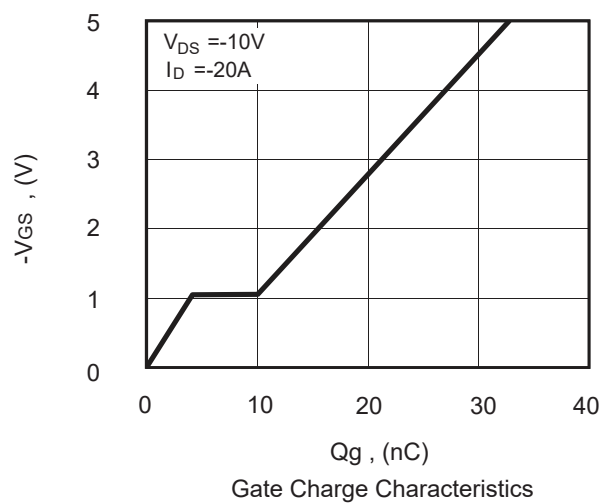
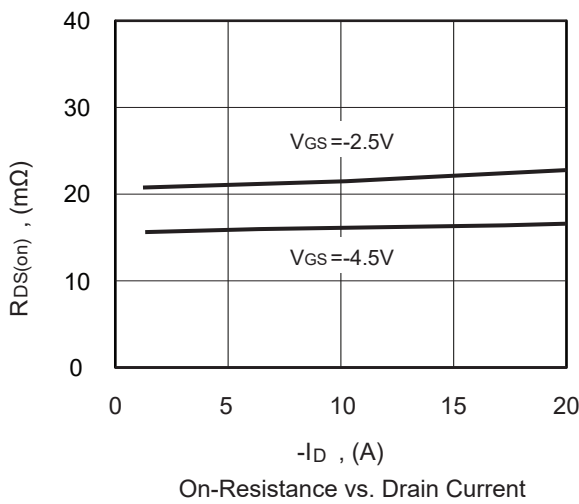
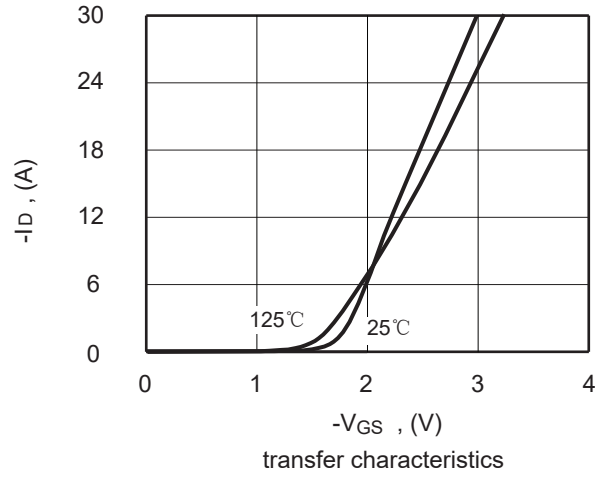
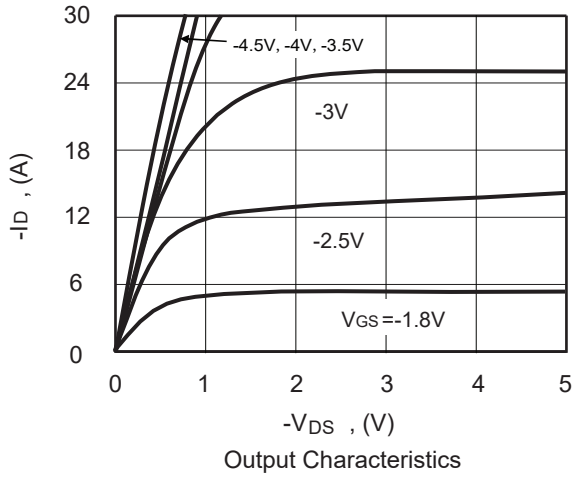
Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=-20V$, $V_{GS}=-10V$, $L=0.5\text{mH}$, $I_{AS}=-17A$.

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

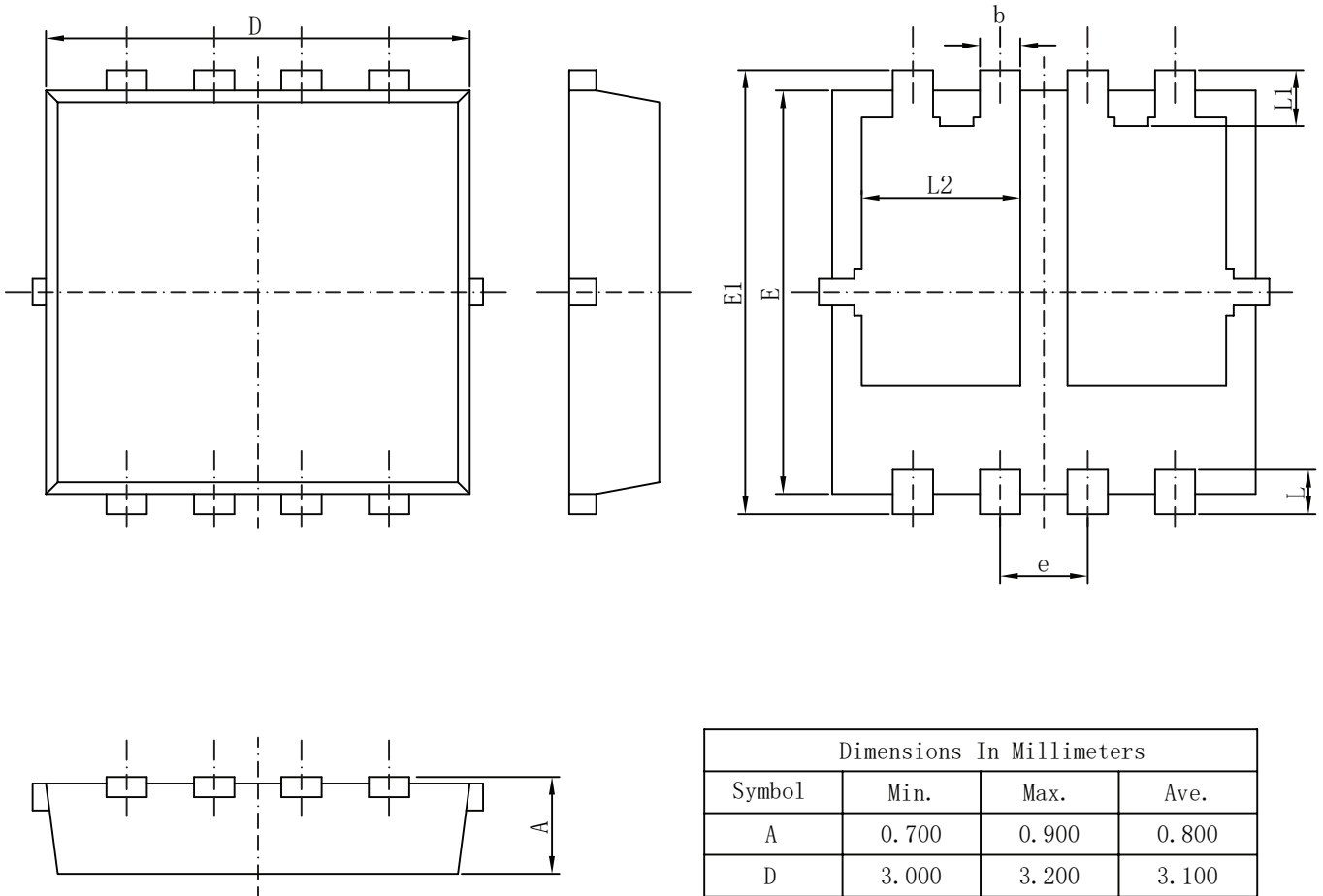
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Cmos reserves the right to improve product design , functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics


Package Dimension

DFN-8 3.3x3.3 Unit :mm



Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.700	0.900	0.800
D	3.000	3.200	3.100
E	3.000	3.200	3.100
E1	3.200	3.600	3.400
b	0.200	0.400	0.300
e	0.550	0.750	0.650
L	0.300	0.600	0.450
L1	0.395	0.695	0.545
L2	0.885	1.185	1.035

注:

1. 未注公差 ± 0.10
2. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
3. 标注单位mm