

General Description

The CMSC80P02B combines advanced trench MOSFET technology with a low resistance package to provide extremely low RDS(ON). This device is ideal for load switch and battery protection applications.

Features

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

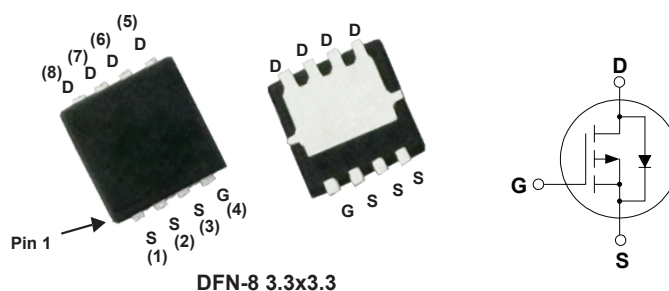
Product Summary

BVDSS	RDSON	ID
-20V	7mΩ	-80A

Applications

- High side in DC - DC Buck Converters
- Notebook battery power management
- Load switch in Notebook

DFN-8 3.3x3.3 Pin Configuration



Type	Package	Marking
CMSC80P02B	DFN-8 3.3*3.3	80P02B

Absolute Maximum Ratings (TA=25 °C Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D	Continuous Drain Current	-80	A
I _{DM}	Pulsed Drain Current	-240	A
EAS	Single Pulse Avalanche Energy ¹	196	mJ
P _D @T _C =25°C	Total Power Dissipation	65	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-to-Ambient	---	52	°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	$V_{GS}=-4.5V$, $I_D=-20A$	---	6.1	7	m Ω
		$V_{GS}=-2.5V$, $I_D=-20A$	---	7.8	9	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-0.4	---	-1.5	V
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-20A$	---	50	---	S
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
Q_g	Total Gate Charge	$V_{DS}=-10V$, $I_D=-10A$ $V_{GS}=-4.5V$	---	54	---	nC
Q_{gs}	Gate-Source Charge		---	11	---	
Q_{gd}	Gate-Drain Charge		---	14	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$, $V_{GS}=-4.5V$ $I_D=-10A$, $R_G=6\Omega$	---	15	---	ns
T_r	Rise Time		---	75	---	
$T_{d(off)}$	Turn-Off Delay Time		---	192	---	
T_f	Fall Time		---	185	---	
C_{iss}	Input Capacitance	$V_{DS}=-10V$, $V_{GS}=0V$, $f=1MHz$	---	3500	---	pF
C_{oss}	Output Capacitance		---	650	---	
C_{rss}	Reverse Transfer Capacitance		---	500	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_{SD}=-20A$	---	---	-1.2	V

Notes:

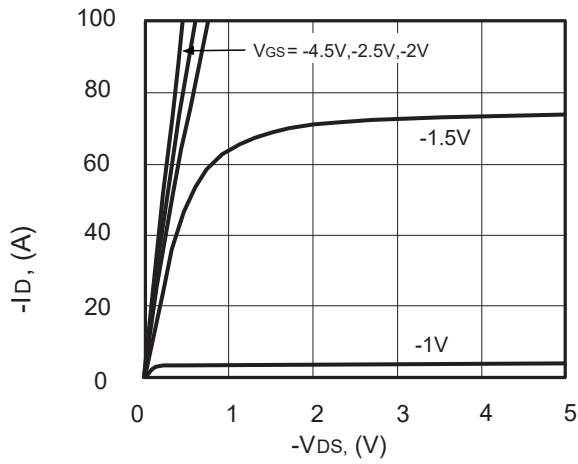
1.The EAS data shows Max. rating .The test condition is $V_{DS}=-20V$, $V_{GS}=-10V$, $L=0.5mH$, $I_{AS}=-28A$.

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

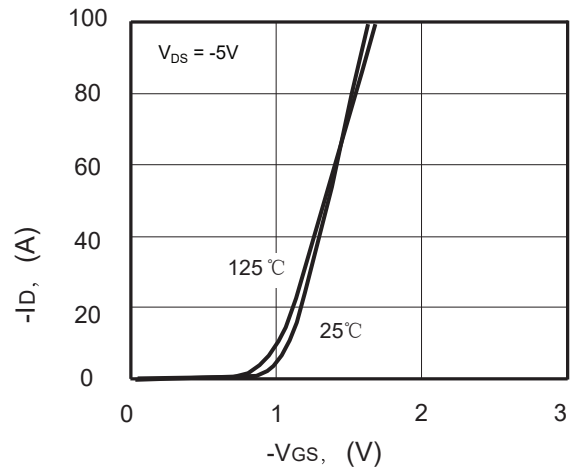
Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

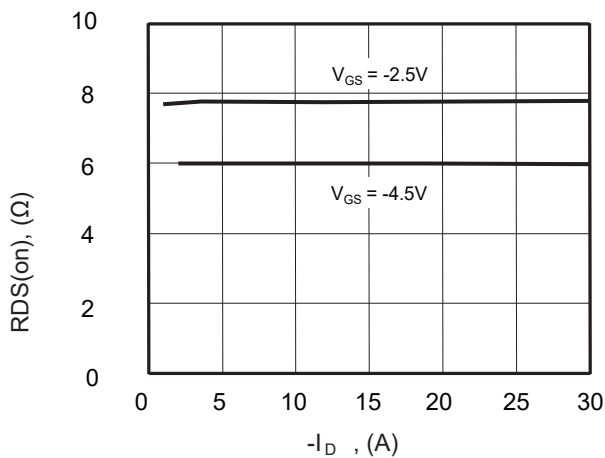
Typical Characteristics



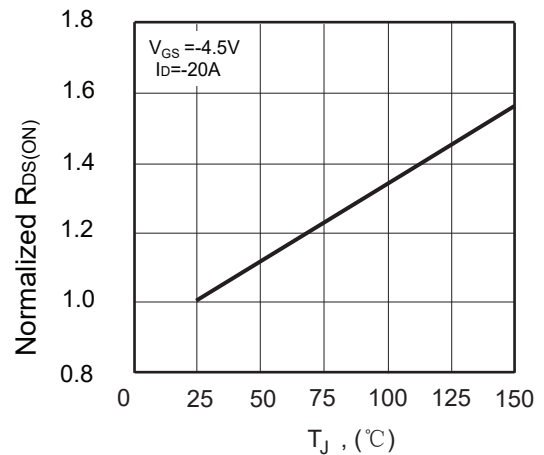
Typical Output Characteristics



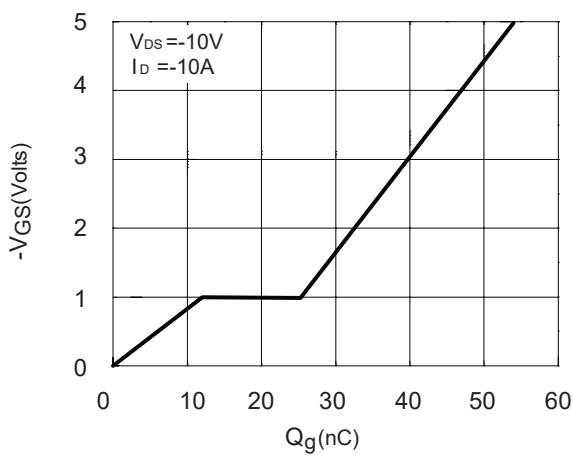
Transfer characteristics



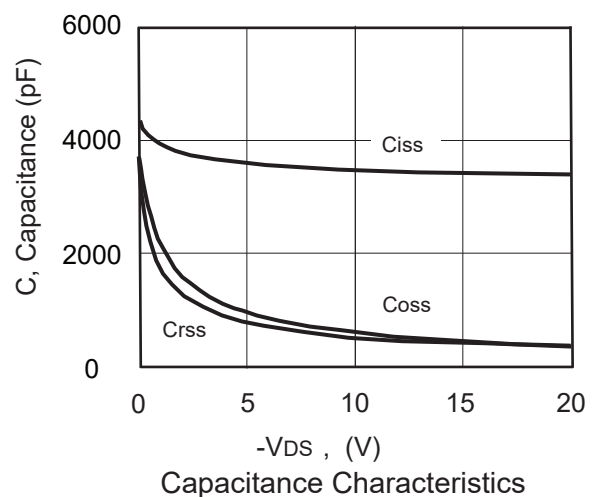
On-Resistance vs. Drain Current



On-Resistance vs. Junction Temperature



Gate Charge Characteristics



Capacitance Characteristics