

P-Channel Enhancement Mode MOSFET

General Description

The CMSC5006 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

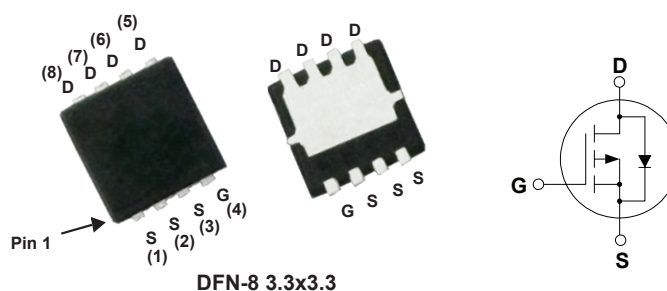
Product Summary

BVDSS	RDSON	ID
-60V	73mΩ	-15A

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
CMSC5006	DFN-8 3.3*3.3	CMSC5006

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

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	-15	A
I _{DM}	Pulsed Drain Current	-30	A
EAS	Single Pulse Avalanche Energy ¹	56	mJ
P _D @T _C =25°C	Total Power Dissipation	30	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	---	25	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}$, $I_D=-250\mu\text{A}$	-60	---	---	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=-10\text{V}$, $I_D=-6\text{A}$	---	---	73	$\text{m}\Omega$
		$V_{GS}=-4.5\text{V}$, $I_D=-4\text{A}$	---	---	85	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu\text{A}$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-60\text{V}$, $V_{GS}=0\text{V}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20\text{V}$, $V_{DS}=0\text{V}$	---	---	± 100	nA
R_g	Gate Resistance	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	23	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-48\text{V}$, $I_D=-3\text{A}$ $V_{GS}=-4.5\text{V}$	---	13	---	nC
Q_{gs}	Gate-Source Charge		---	3	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-15\text{V}$, $V_{GEN}=-10\text{V}$, $I_D=-1\text{A}$ $R_G=3.3\Omega$	---	10	---	ns
T_r	Rise Time		---	21	---	
$T_{d(off)}$	Turn-Off Delay Time		---	47	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	$V_{DS}=-15\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	1600	---	pF
C_{oss}	Output Capacitance		---	76	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0\text{V}$, $I_{SD}=-5\text{A}$	---	---	-1.2	V

Notes:

1. The test condition is $V_{DS}=-20\text{V}$, $V_{GS}=-10\text{V}$, $L=0.5\text{mH}$, $I_D=15\text{A}$.

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.