

General Description

The CMSC3007 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

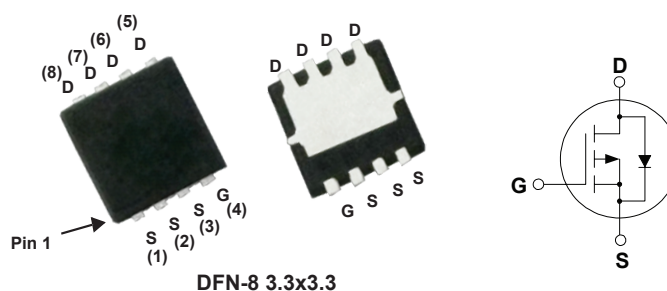
Product Summary

BVDSS	RDSON	ID
-30V	11mΩ	-40A

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
CMSC3007	DFN-8 3.3*3.3	3007

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

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-30	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-40	A
I _D @T _C =100°C	Continuous Drain Current	-25	A
I _{DM}	Pulsed Drain Current	-120	A
EAS	Single Pulse Avalanche Energy ¹	132	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(Steady-State)	---	55	°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	$V_{GS}=0\text{V}$, $I_D=-250\mu\text{A}$	-30	---	---	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=-10\text{V}$, $I_D=-15\text{A}$	---	9.7	11	$\text{m}\Omega$
		$V_{GS}=-4.5\text{V}$, $I_D=-12\text{A}$	---	13.5	17	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu\text{A}$	-1	-1.5	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-30\text{V}$, $V_{GS}=0\text{V}$	---	---	-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	$V_{DS}=0\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	5	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-15\text{V}$, $I_D=-12\text{A}$ $V_{GS}=-4.5\text{V}$	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-15\text{V}$, $V_{GEN}=-10\text{V}$, $I_D=-12\text{A}$ $R_G=6\Omega$	---	21	---	ns
T_r	Rise Time		---	25	---	
$T_{d(off)}$	Turn-Off Delay Time		---	100	---	
T_f	Fall Time		---	75	---	
C_{iss}	Input Capacitance	$V_{DS}=-15\text{V}$, $V_{GS}=0\text{V}$, $f=1\text{MHz}$	---	1800	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{rss}	Reverse Transfer Capacitance		---	220	---	

Diode Characteristics

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

Notes:

1. The test condition is $V_{DS}=-25\text{V}$, $V_{GS}=-10\text{V}$, $L=0.5\text{mH}$, $I_D=-23\text{A}$.

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