CMSC3006

N-Channel Enhancement Mode MOSET

General Description

Advanced Power MOSFETs from Cmos provide the designer with the best combination of fast switching and low on-resistance.This device is well suited for Power Management and load switching applications common in Notebook Computers and Portable Battery Packs.

Features

- N-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant
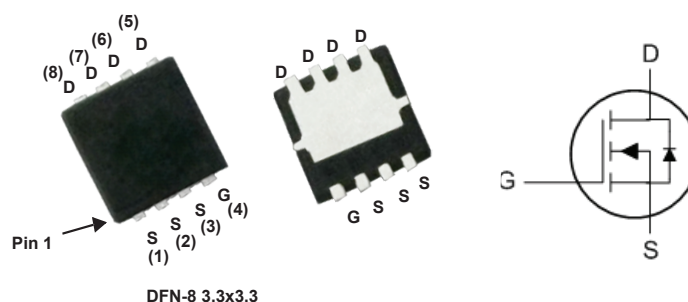
Product Summary

BVDSS	RDSON	ID
30V	5mΩ	90A

Applications

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

DFN-8 3.3x3.3 Pin Configuration

DFN-8 3.3x3.3

Type	Package	Marking
CMSC3006	DFN-8 3.3*3.3	3006

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	90	A
I_D@T_C=100℃	Continuous Drain Current	58	A
I_{DM}	Pulsed Drain Current	360	A
EAS	Single Pulse Avalanche Energy [1]	196	mJ
P_D@T_C=25℃	Total Power Dissipation	45	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	---	75	℃/W

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Electrical Characteristics (T$_J$=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV$_{DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V , I$_D$=250uA	30	---	---	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance	V$_{GS}$=10V , I$_D$=28A	---	4.5	5	mΩ
		V$_{GS}$=4.5V , I$_D$=20A	---	6	7.5	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ = 250µA	1	---	2.5	V
I$_{DSS}$	Drain-Source Leakage Current	V$_{DS}$=30V , V$_{GS}$=0V	---	---	1	uA
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$ = ±20V	---	---	±100	nA
gfs	Forward Transconductance	V$_{DS}$=5V , I$_D$=20A	---	29	---	S
Q$_g$	Total Gate Charge	V$_{DS}$=15V , I$_D$= 15A V$_{GS}$=4.5 V	---	20	---	nC
Q$_{gs}$	Gate-Source Charge		---	7.5	---	
Q$_{gd}$	Gate-Drain Charge		---	7	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=15V , V$_{GS}$=10V , R$_G$=3.3Ω I$_D$ =15A	---	10	---	ns
T$_r$	Rise Time		---	15	---	
T$_{d(off)}$	Turn-Off Delay Time		---	40	---	
T$_f$	Fall Time		---	12	---	
C$_{iss}$	Input Capacitance	V$_{DS}$= 25V , V$_{GS}$=0V , f=1MHz	---	2400	---	pF
C$_{oss}$	Output Capacitance		---	250	---	
C$_{rss}$	Reverse Transfer Capacitance		---	230	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Diode continuous forward current	V$_G$=V$_D$=0V , Force Current	---	---	90	A
I$_{S,pulse}$	Diode pulse current		---	---	360	A
V$_{SD}$	Diode Forward Voltage	V$_{GS}$=0V , I$_F$=25A , Tj=25℃	---	---	1.2	V

Notes:

1.The EAS data shows Max. rating . The test condition is VDD=-20V,VGS=-10V,L=0.5mH,IAS=-28A

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