CMSC8693D

Dual N-Channel Enhancement Mode MOSFET

General Description

The CMSC8693D is designed to provide a high efficiency synchronous buck power stage with optimal layout and board space utilization. This device is well suited for use in compact DC/DC converter applications.

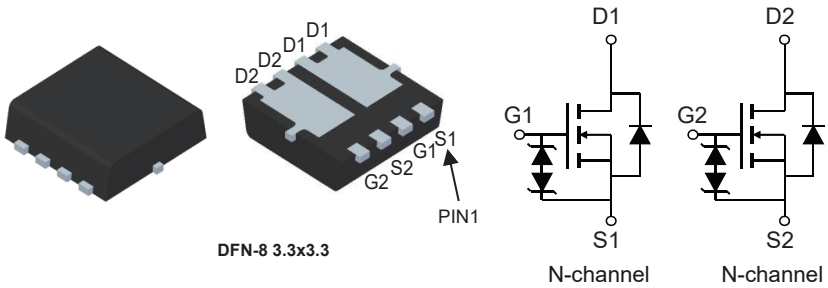
Product Summary

BVDSS	RDSON	ID
20V	11mΩ	12A

Applications

- DC/DC Converters in Computing, Servers, and POL
- Isolated DC/DC Converters in Telecom and Industrial

DFN-8 3.3x3.3_Dual Pin Configuration



Features

- 20V,12A, RDS(ON) =11mΩ @VGS = 4.5V
- Low Gate Charge
- High Current Capability
- RoHS Compliant

Type	Package	Marking
CMSC8693D	DFN-8 3.3*3.3	8693D

Maximum Ratings and Thermal Characteristics (T_A = 25℃ unless otherwise noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_C=25℃	Continuous Drain Current	12	A
I_D@T_C=100℃		10	A
I_{DM}	Pulsed Drain Current	36	A
EAS	Single Pulse Avalanche Energy	35	mJ
P_D@T_C=25℃	Total Power Dissipation	2.5	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(Steady-State)	---	52	℃/W

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=250μA	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V , I_D=10A	---	---	11	mΩ
		V_{GS}=2.5V , I_D=10A	---	---	14	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	0.4	---	1.2	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=16V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±12V , V_{DS}=0V	---	---	±15	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=10A	---	16	---	S
Q_g	Total Gate Charge	V_{DS}=10V , V_{GS}=4.5V , I_D=6A	---	10	---	nC
Q_{gs}	Gate-Source Charge		---	1	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	I_{DS}=1A , V_{GEN}=4.5V, R_L =10Ω R_G =6Ω ,V_{DD}=10V	---	10	---	ns
T_r	Rise Time		---	14	---	
$T_{d(off)}$	Turn-Off Delay Time		---	56	---	
T_f	Fall Time		---	37	---	
C_{iss}	Input Capacitance	V_{DS}=10V , V_{GS}=0V , f=1MHz	---	1000	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	12	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=10A	---	---	1	V

Notes:

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability without notice.