

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.

Features

- Low On-Resistance
- Low Gate Charge
- High Current Capability
- RoHS Compliant

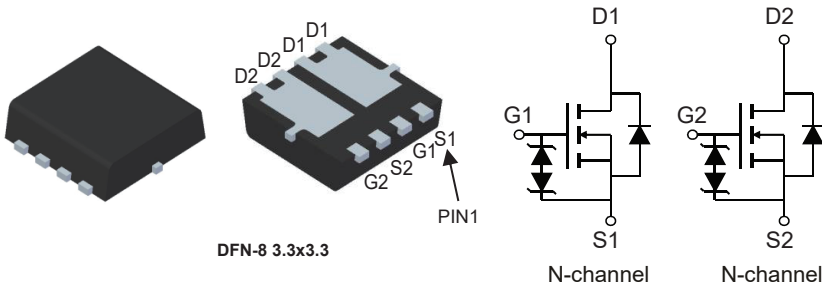
Product Summary

BVDSS	R _{DS(on)} max.	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



Type	Package	Marking
CMSC8693D	DFN-8 3.3x3.3	8693D

Maximum Ratings and Thermal Characteristics (T_A = 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 @T _C =25 °C	Continuous Drain Current	12	A
I _D @T _C =100 °C		10	A
I _{DM}	Pulsed Drain Current	36	A
EAS	Single Pulse Avalanche Energy	35	mJ
P _D @T _C =25 °C	Total Power Dissipation	2.5	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient(Steady-State)	---	52	°C/W

Electrical Characteristics (T_J=25 °C 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	uA
g _{fs}	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

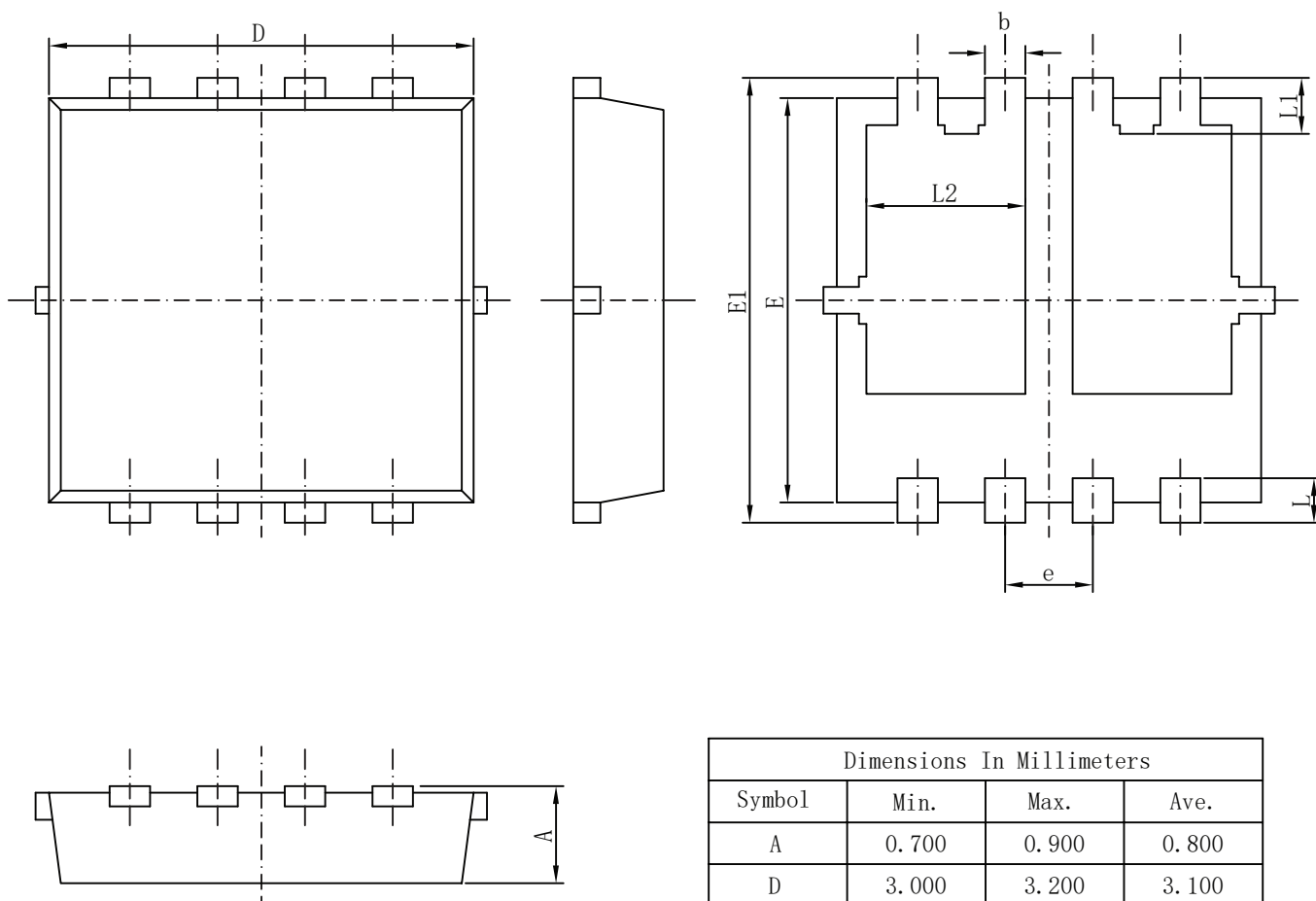
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	12	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =10A	---	---	1	V

Notes:

This product has been designed and qualified for the 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.Please refer to the latest version of specification.

Package Dimension

DFN-8 3.3x3.3 Unit :mm



注:

1. 未注公差 ± 0.10
2. 塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
3. 标注单位mm

Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.700	0.900	0.800
D	3.000	3.200	3.100
E	3.000	3.200	3.100
E1	3.200	3.600	3.400
b	0.200	0.400	0.300
e	0.550	0.750	0.650
L	0.300	0.600	0.450
L1	0.395	0.695	0.545
L2	0.885	1.185	1.035