

Dual N-Channel Enhancement Mode MOSFET

General Description

The CMSC7216DN 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
- 100% EAS Guaranteed
- Surface Mount Package
- RoHS Compliant

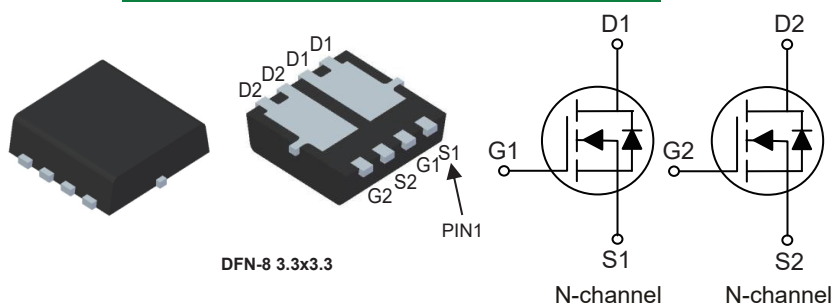
Product Summary

BVDSS	R _{DS(on)} max.	ID
40V	30mΩ	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
CMSC7216DN	DFN-8 3.3x3.3	7216DN

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

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	40	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25 °C	Continuous Drain Current, V _{GS} @ 10V	12	A
I _D @T _C =100 °C	Continuous Drain Current, V _{GS} @ 10V	8.5	A
I _{DM}	Pulsed Drain Current	48	A
EAS	Single Pulse Avalanche Energy ¹	15	mJ
P _D @T _C =25 °C	Total Power Dissipation	21	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(t ≤ 10 s) ^{2,3}	---	50	°C/W
R _{θJC}	Thermal Resistance Junction -Case(Steady-State)	---	6	°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	40	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =5A	---	26	30	mΩ
		V _{GS} =4.5V , I _D =5A	---	34	39	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =40V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =5A	---	7	---	S
Q _g	Total Gate Charge	V _{DS} =20V , V _{GS} =4.5V , I _D =5A	---	6	---	nC
Q _{gs}	Gate-Source Charge		---	2	---	
Q _{gd}	Gate-Drain Charge		---	2	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =20V , V _{GEN} =10V , I _D =5A R _G =1Ω , R _L =4Ω	---	10	---	ns
T _r	Rise Time		---	60	---	
T _{d(off)}	Turn-Off Delay Time		---	20	---	
T _f	Fall Time		---	5	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	550	---	pF
C _{oss}	Output Capacitance		---	35	---	
C _{rss}	Reverse Transfer Capacitance		---	30	---	

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 =6A	---	0.85	1.2	V

Notes

1. The EAS data shows Max. rating .The test condition is V_{DS}=25V , V_{GS}=10V , L=0.3mH , I_{AS} =10A.
2. Surface mounted on 1" x 1" FR4 board.
3. Maximum under steady state conditions is 94 °C/W.

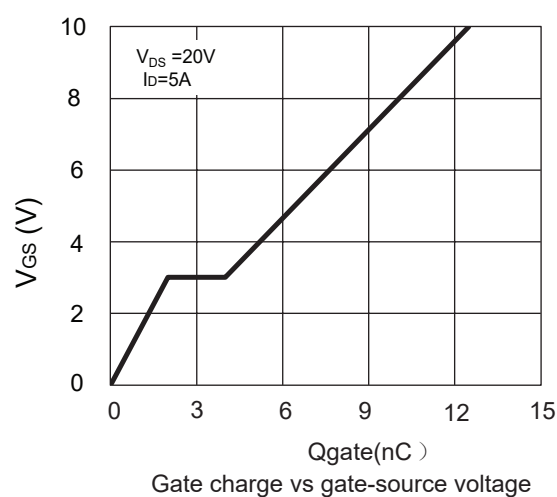
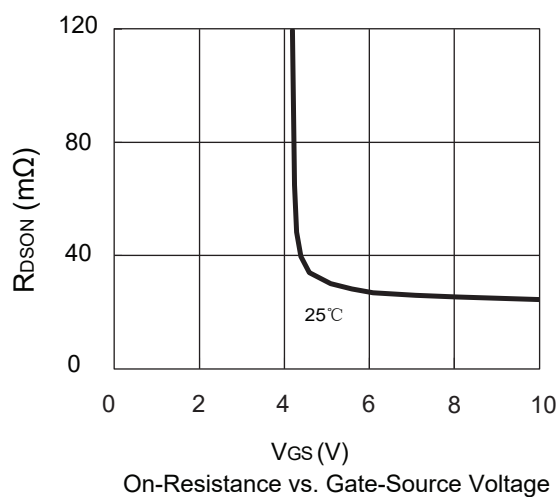
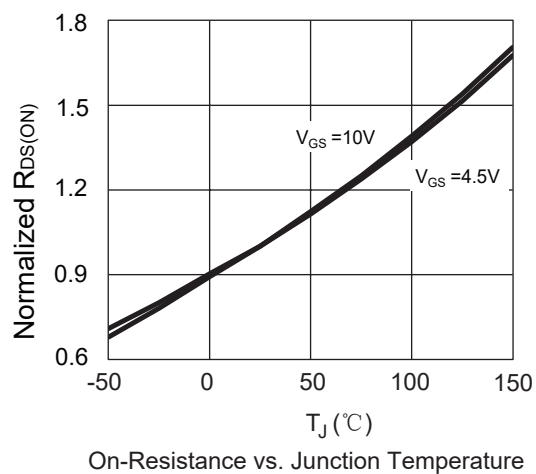
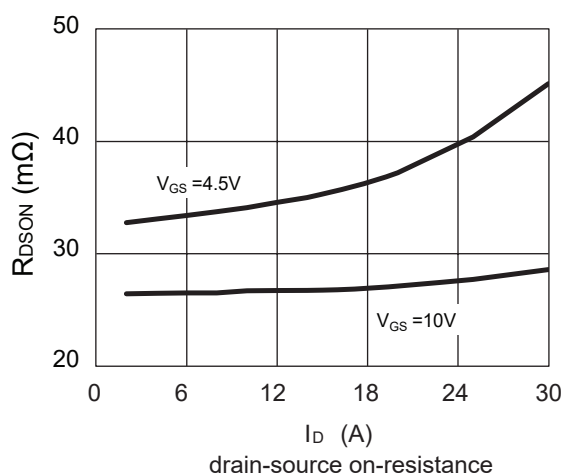
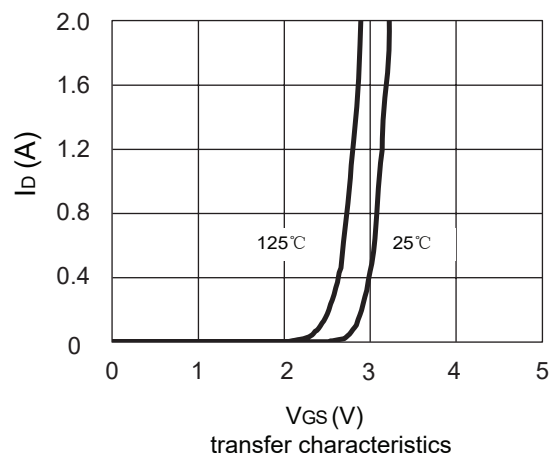
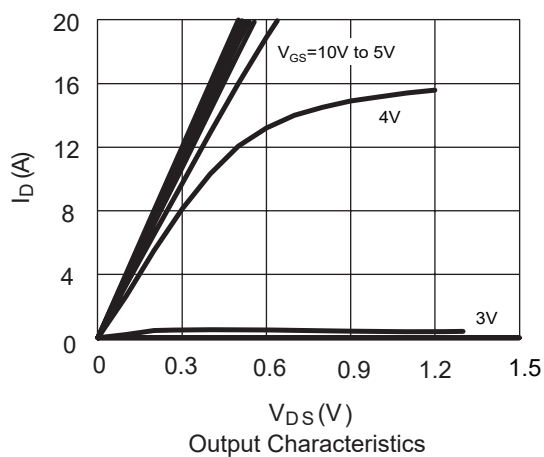
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

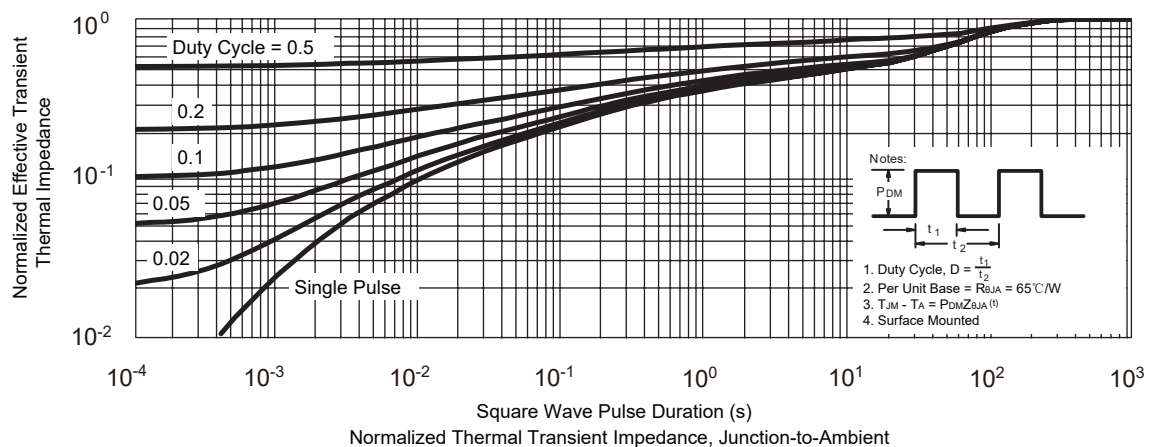
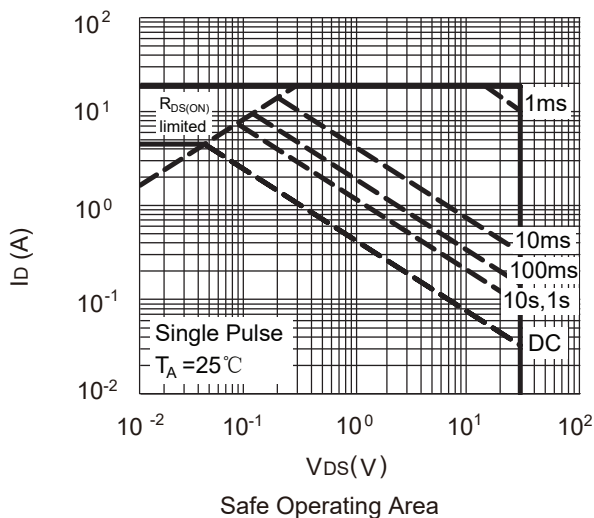
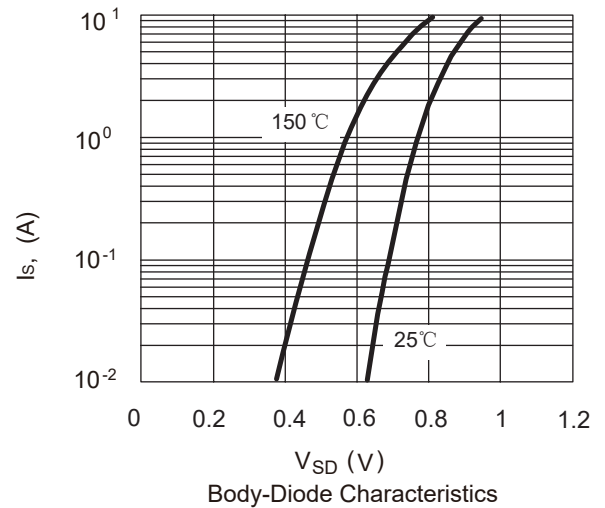
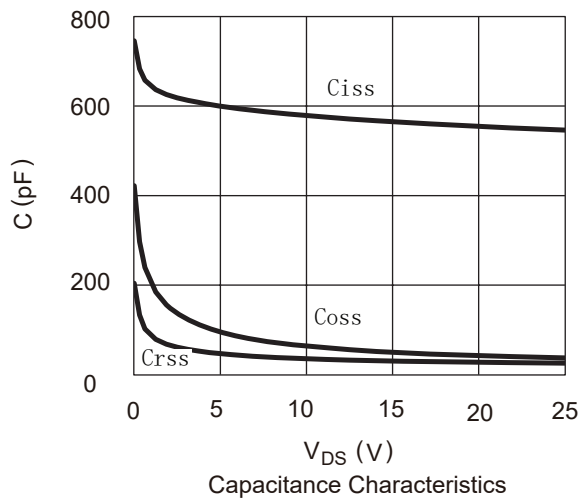
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Typical Characteristics



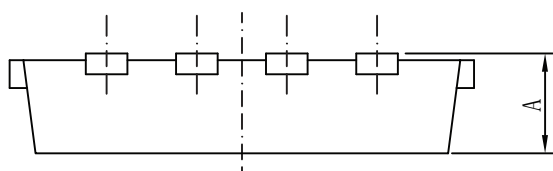
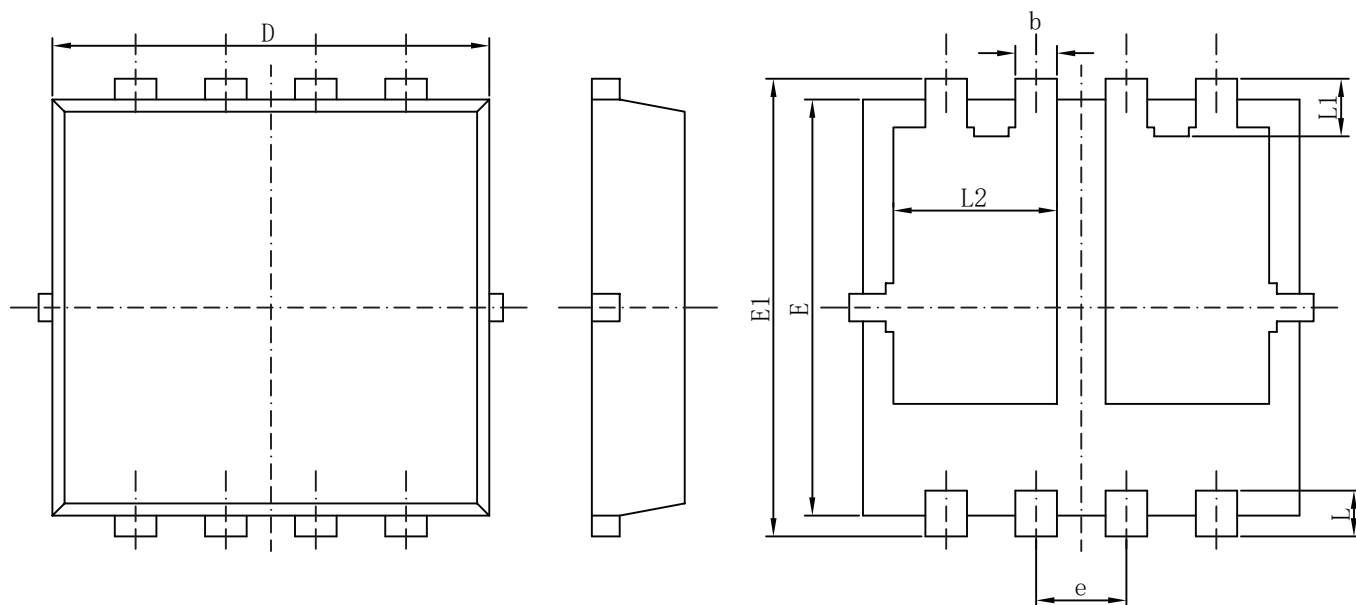
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Typical Characteristics



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