

General Description

The CMSC7404D uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is well suited for use in compact DC/DC converter applications.

Features

- ESD protected
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	± 12	V
$I_D @ T_C = 25^\circ C$	Continuous Drain Current	40	A
$I_D @ T_C = 100^\circ C$	Continuous Drain Current	32	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy ¹	50	mJ
$P_D @ T_C = 25^\circ C$	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	75	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	3.1	$^\circ C/W$

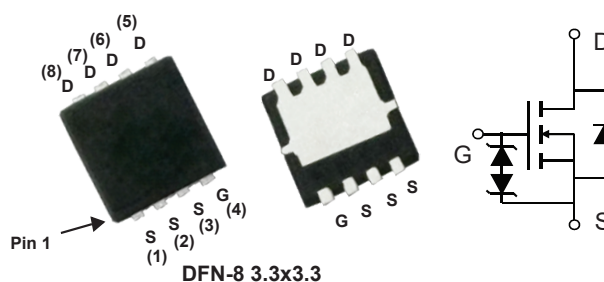
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
20V	6.5mΩ	40A

Applications

- Synchronous Rectification
- Synchronous Buck

DFN-8 3.3x3.3 Pin Configuration



Type	Package	Marking
CMSC7404D	DFN-8 3.3*3.3	7404D

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} =4.5V , I _D =20A	---	5.6	6.5	mΩ
		V _{GS} =2.5V , I _D =20A	---	8	9	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D = 250μA	0.5	---	1.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =16V , V _{GS} =0V	---	---	1	μA
		V _{DS} =16V , V _{GS} =0V , T _J =55°C	---	---	5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±12V	---	---	±10	uA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =20A	---	30	---	S
Q _g	Total Gate Charge	V _{DS} =16V , I _D = 11A V _{GS} =10V	---	25.3	---	nC
Q _{gs}	Gate-Source Charge		---	3	---	
Q _{gd}	Gate-Drain Charge		---	7	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =16V , V _{GS} =4.5V , I _{DS} =5.5A R _{GEN} =6Ω	---	31	---	ns
T _r	Rise Time		---	87	---	
T _{d(off)}	Turn-Off Delay Time		---	70	---	
T _f	Fall Time		---	37	---	
C _{iss}	Input Capacitance	V _{DS} = 10V , V _{GS} =0V , f=1MHz	---	1100	---	pF
C _{oss}	Output Capacitance		---	250	---	
C _{rss}	Reverse Transfer Capacitance		---	220	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Diode continuous forward current	V _G =V _D =0V , Force Current	---	---	40	A
I _{S,pulse}	Diode pulse current		---	---	120	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =20A , T _J =25°C	---	0.85	1.2	V

Note :

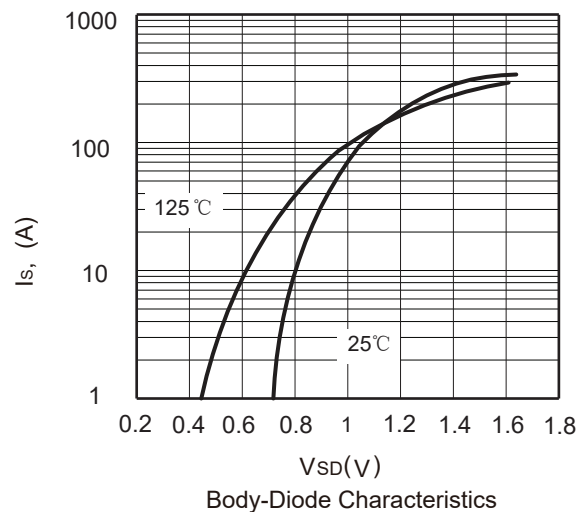
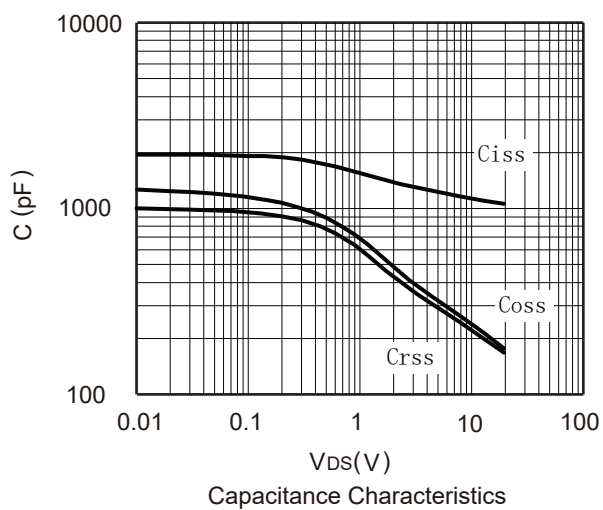
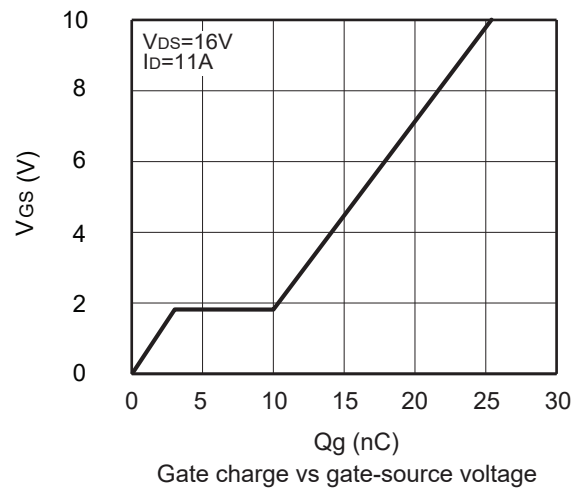
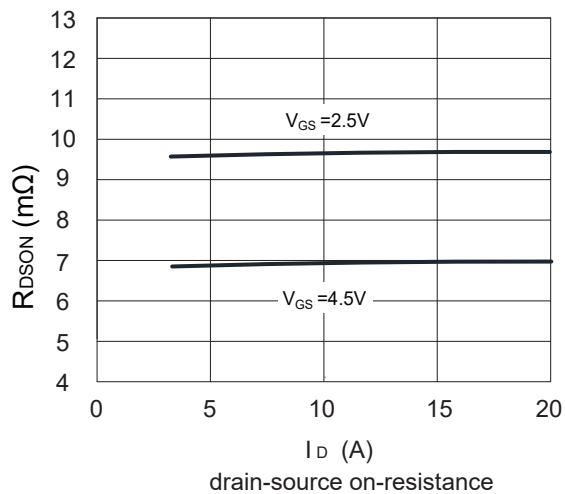
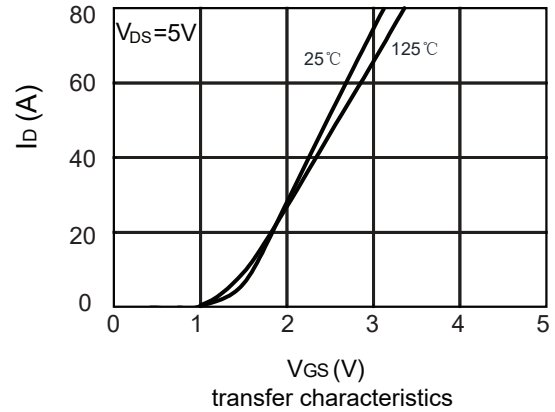
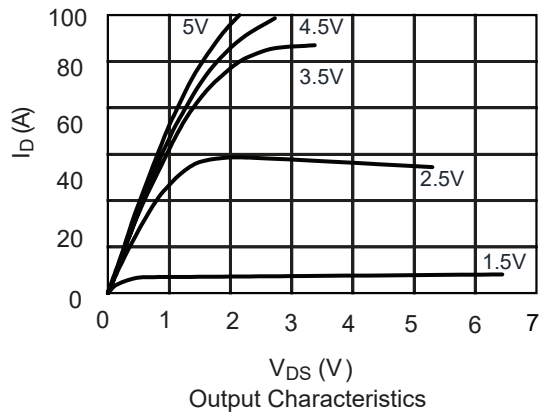
1.EAS condition:T_J=25°C,V_{DD}=15V,V_{GS}=10V,I_D=10A,L=1mH.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

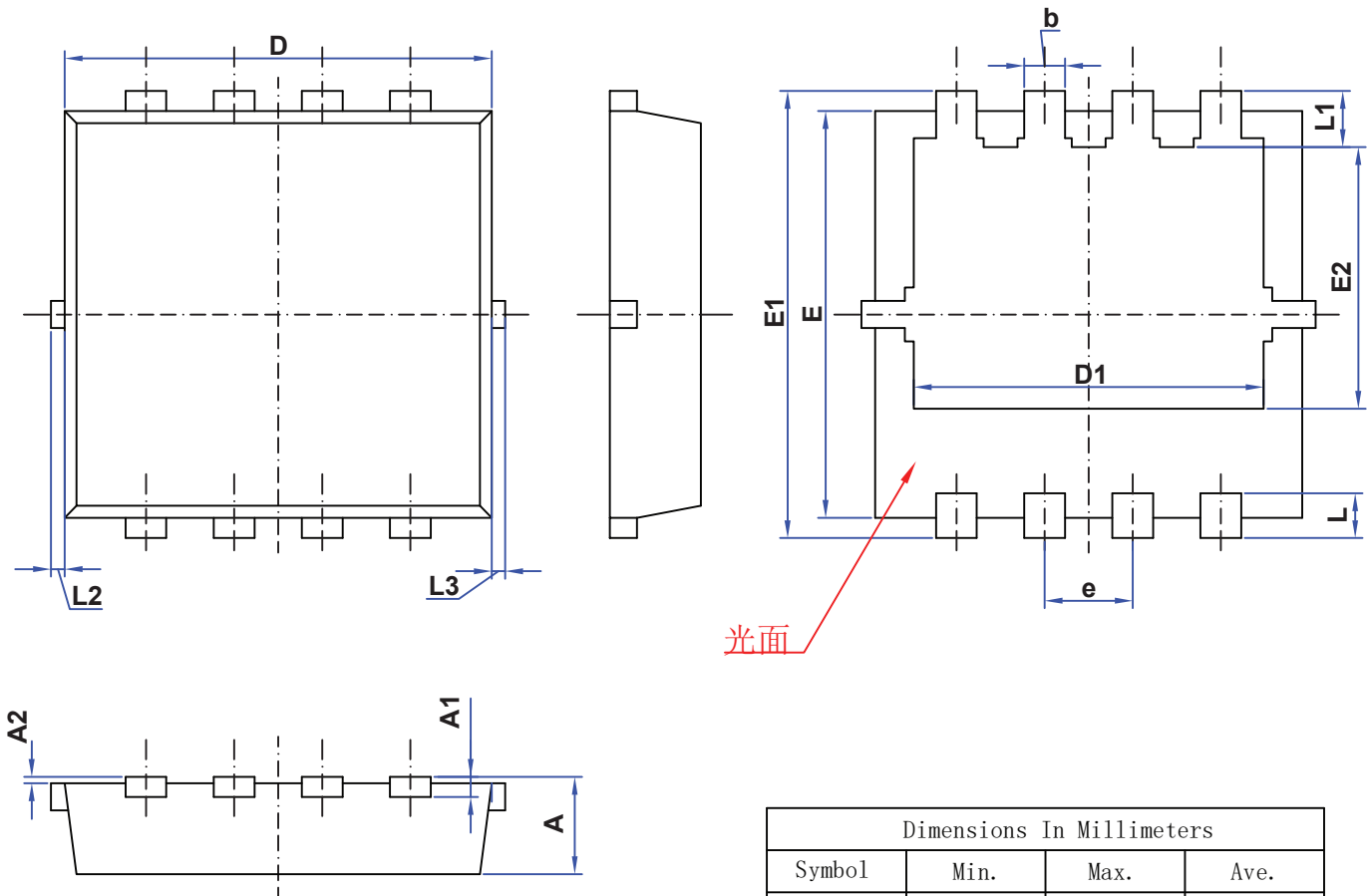
Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

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
A1	0.100	0.200	0.150
A2	—	0.050	—
D	3.000	3.200	3.100
D1	2.350	2.550	2.450
E	3.000	3.200	3.100
E1	3.200	3.600	3.400
E2	1.635	1.835	1.735
b	0.200	0.400	0.300
e	0.550	0.750	0.650
L	0.250	0.650	0.450
L1	0.345	0.745	0.545
L2	0~0.100		
L3	0~0.100		