

General Description

The CMSK1402D 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

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

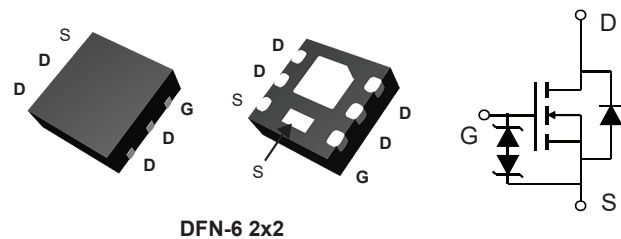
Product Summary

BVDSS	R _{DS(on)} max.	ID
20V	8mΩ	15A

Applications

- Synchronous Rectification
- Synchronous Buck

DFN-6 2x2 Pin Configuration



DFN-6 2x2

Type	Package	Marking
CMSK1402D	DFN-6 2x2	1402

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±12	V
I _D @T _A =25°C	Continuous Drain Current	15	A
I _D @T _A =100°C	Continuous Drain Current	10.5	A
I _{DM}	Pulsed Drain Current	60	A
P _D @T _A =25°C	Total Power Dissipation	2	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62.5	°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 =5A	---	6.8	8	mΩ
		V _{GS} =2.5V , I _D =5A	---	9.5	12	
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} =10V , I _D =5A	---	25	---	S
Q _g	Total Gate Charge	V _{DS} =16V , I _D = 11A V _{GS} =4.5V	---	15	---	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	---	1300	---	pF
C _{oss}	Output Capacitance		---	260	---	
C _{rss}	Reverse Transfer Capacitance		---	240	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Diode continuous forward current	V _G =V _b =0V , Force Current	---	---	15	A
I _{S,pulse}	Diode pulse current		---	---	60	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =15A , T _J =25°C	---	0.79	1.2	V

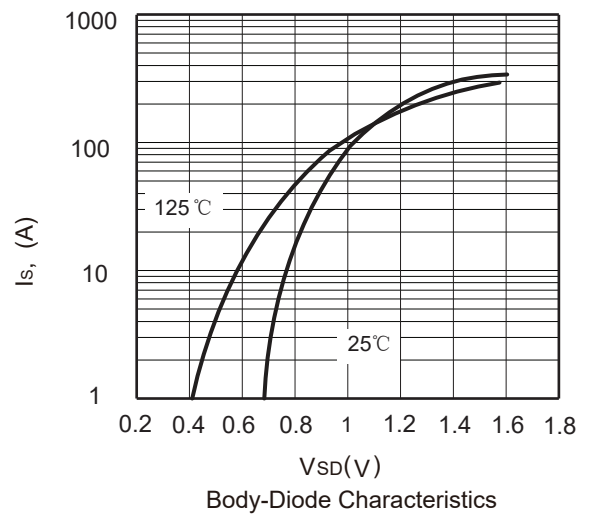
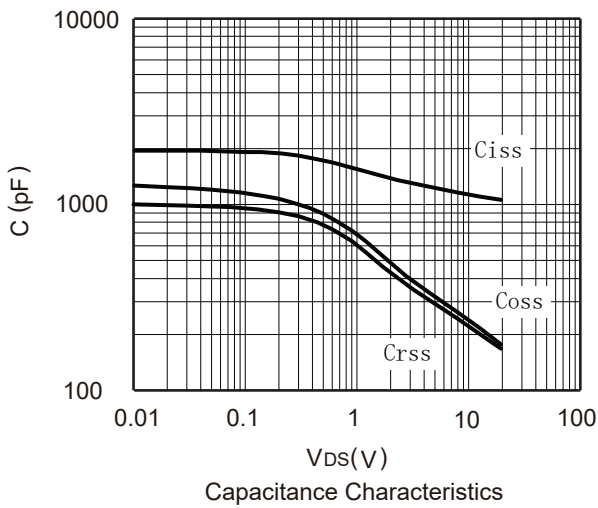
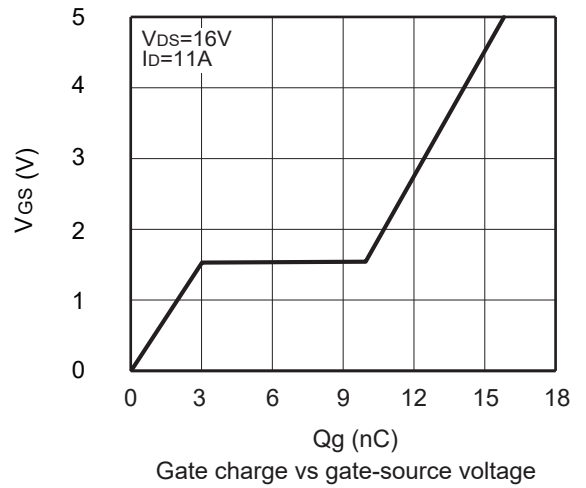
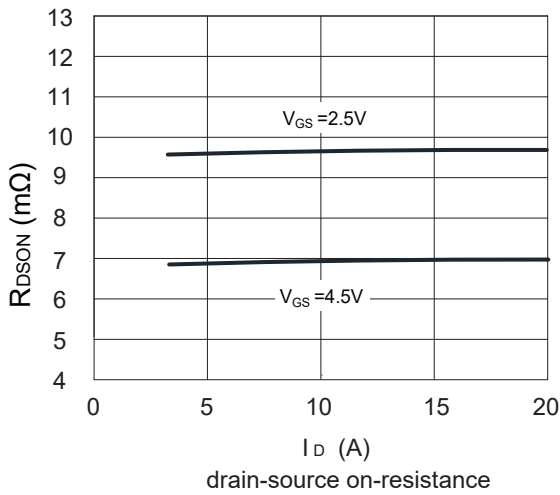
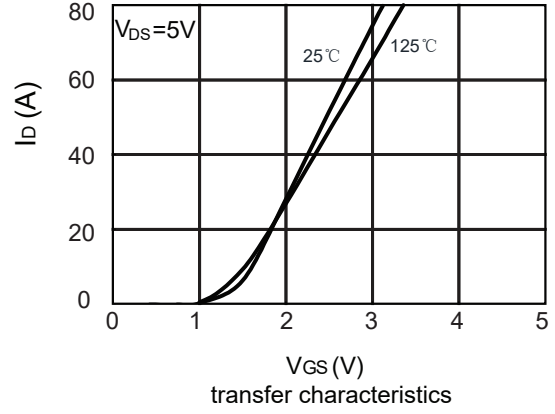
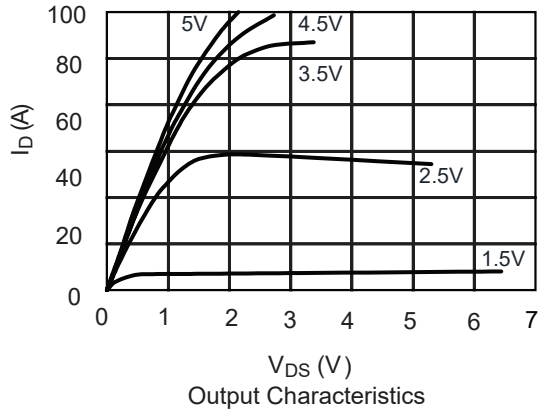
Note :

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

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Cmos reserver the right to improve product design ,functions and reliability wihout notice.Please refer to the latest version of specification.

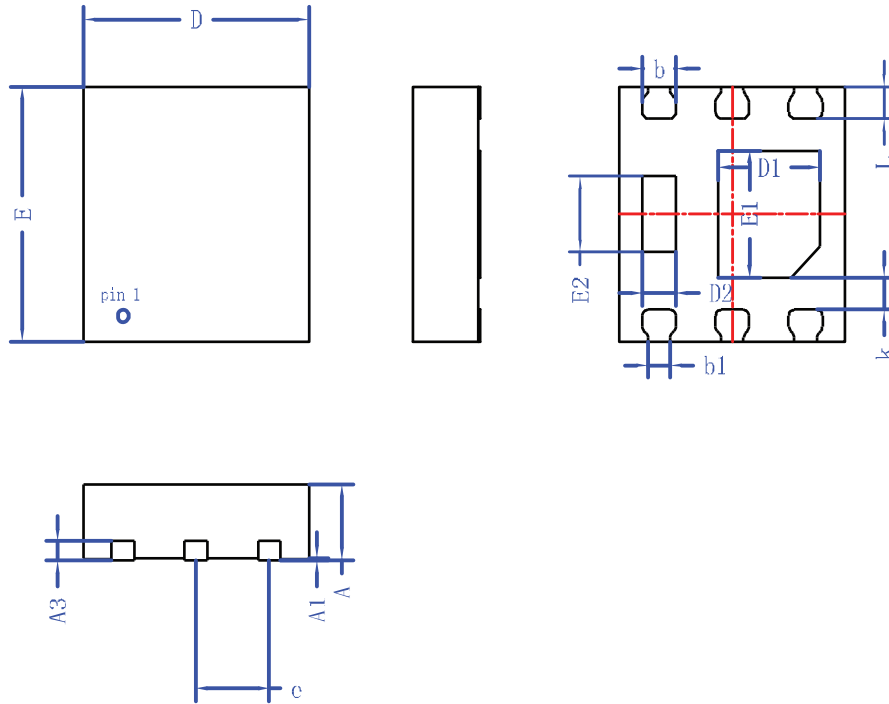
Typical Characteristics



Package Dimension

DFN-6 2x2

Unit :mm



Symbol	Dimensions In Millimeters			Dimensions In Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	0.55	0.60	0.65	0.022	0.024	0.026
A1	0.00	0.02	0.05	0.000	0.001	0.002
A3	0.152 REF.			0.006REF.		
D	1.90	2.00	2.10	0.075	0.079	0.083
D1	0.80	0.90	1.00	0.031	0.035	0.039
D2	0.20	0.30	0.40	0.008	0.012	0.016
E	1.90	2.00	2.10	0.075	0.079	0.083
E1	0.90	1.00	1.10	0.035	0.039	0.043
E2	0.50	0.60	0.70	0.020	0.024	0.028
b	0.25	0.30	0.35	0.010	0.012	0.014
b1	0.15	0.20	0.25	0.006	0.008	0.010
e	0.65TYP.			0.026TYP.		
k	0.20MIN.			0.006MIN.		
L	0.20	0.25	0.30	0.008	0.010	0.012