30V, 17mΩ typ., 6.9A Dual N-Channel MOSFET

General Description

The CMS4812A uses advanced trench technology to provide excellent $R_{DS(ON)}$ and low gate charge. The two MOSFETs make a compact and efficient switch and synchronous rectifier combination for use in buck converters.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
30V	23mΩ	6.9A

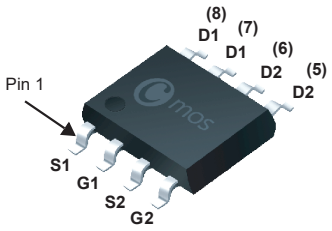
Applications

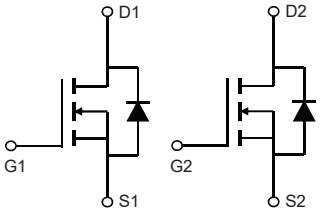
- DC−DC Converters
- Notebook System Power

Features

- Low On-Resistance
- Dual MOSFET in surface mount package
- RoHS Compliant

SOP-8 Pin Configuration





SOP- 8

Type	Package	Marking
CMS4812A	SOP-8	CMS4812A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Continuous Drain Current	6.9	A
I_D@T_A=70℃	Continuous Drain Current	5.8	A
I_{DM}	Pulsed Drain Current	30	A
EAS	Single Pulse Avalanche Energy[1]	45	mJ
P_D@T_A=25℃	Total Power Dissipation	2	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(t ≤ 10s)	---	62.5	℃/W
$R_{\theta JL}$	Thermal Resistance Junction-Lead(Steady-State)	---	40	℃/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=250uA	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=6.9A	---	17	23	mΩ
		V_{GS}=4.5V , I_D=6A	---	33	42	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	---	3.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS} =0V	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=5V , I_D=3A	---	10	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.0	---	Ω
Q_g	Total Gate Charge	I_D=6.9A V_{DS}=15V V_{GS}=10V	---	13	---	nC
Q_{gs}	Gate-Source Charge		---	1.8	---	
Q_{gd}	Gate-Drain Charge		---	3.2	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =15V V_{GS} =10V R_{GEN} = 3Ω R_L = 2.2Ω	---	6	---	ns
T_r	Rise Time		---	4.8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	28	---	
T_f	Fall Time		---	7	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	550	---	pF
C_{oss}	Output Capacitance		---	60	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

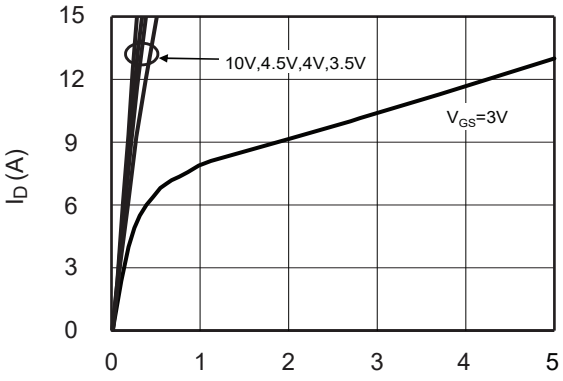
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	6.9	A
I_{SM}	Pulsed Source Current		---	---	30	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=6A , T_J=25℃	---	0.87	1.2	V

Note :

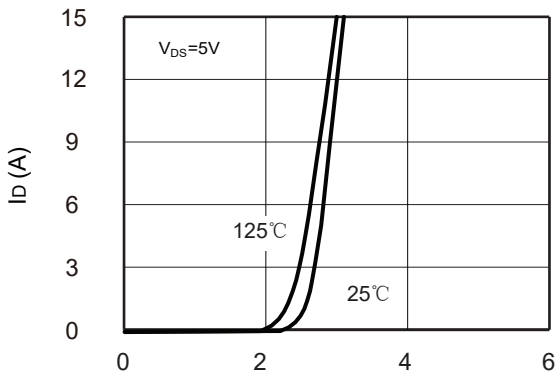
1.The EAS data shows Max. rating . The test condition is V_{DD}=20V , V_{GS}=10V , L=1mH , I_{AS}=9.5A.

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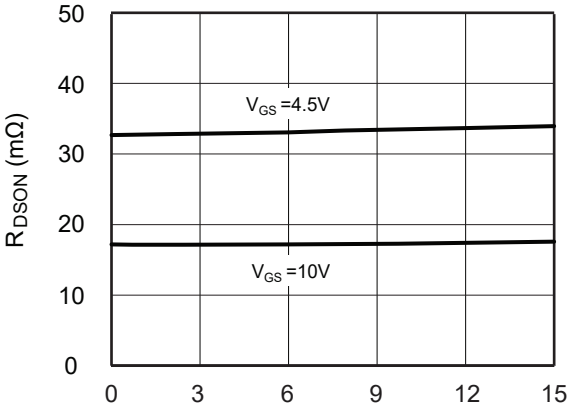
Typical Characteristics



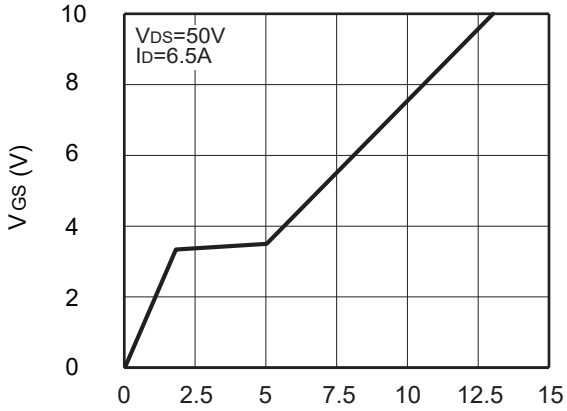
Output Characteristics



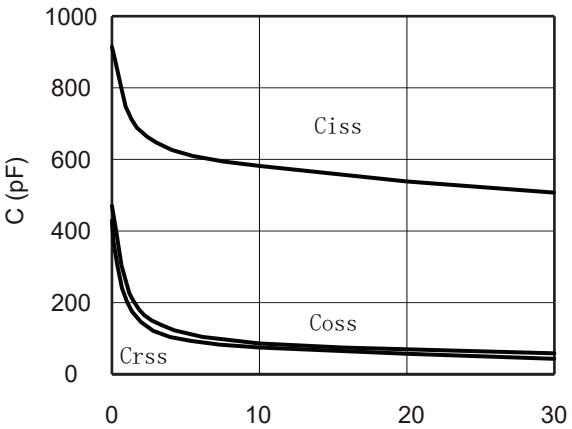
transfer characteristics



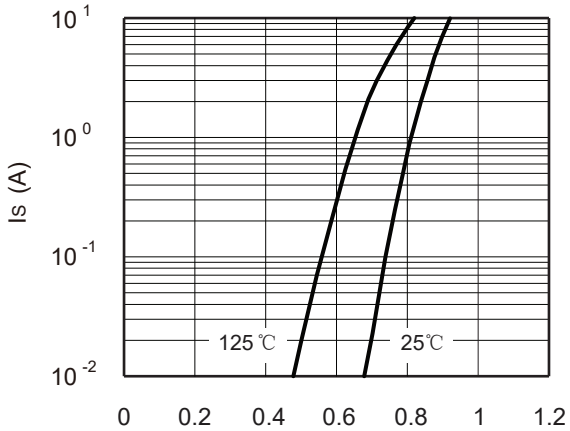
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



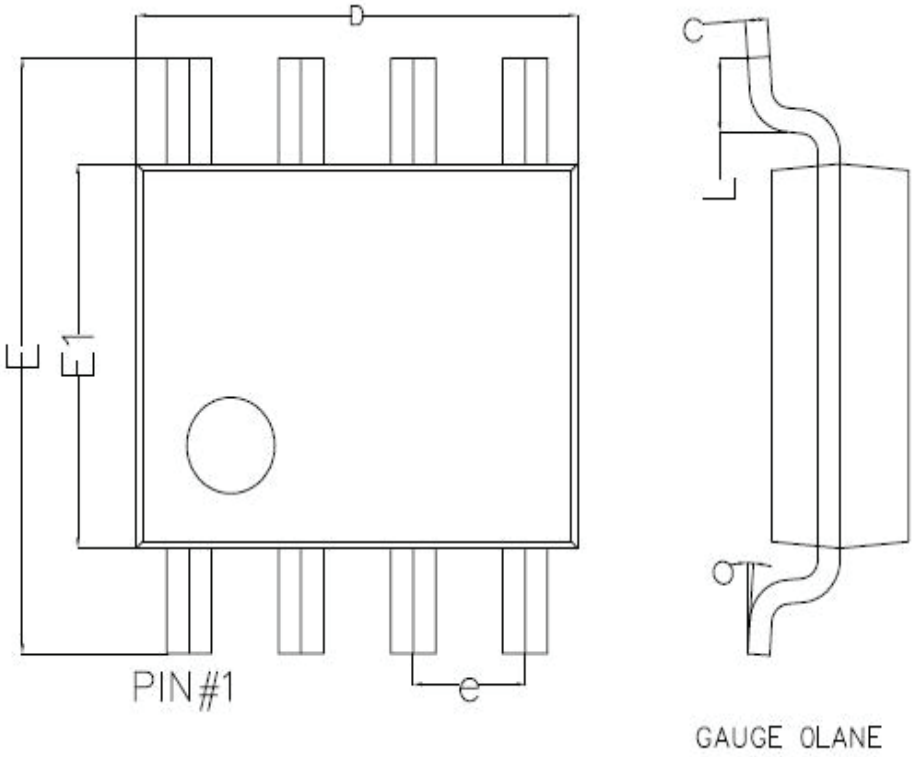
Capacitance Characteristics

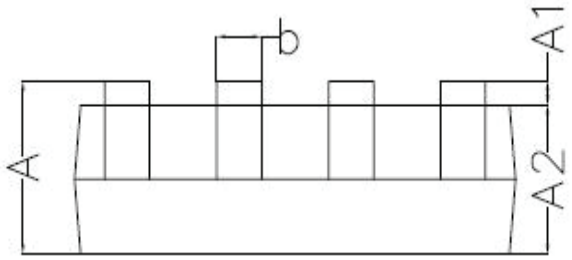


Body-Diode Characteristics

Package Dimension

SOP-8 Unit :mm





Symbol	Dim in mm		
	Min	Nor	Max
A	1.35	1.55	1.75
A1	0.02	0.065	0.10
A2	1.35	1.45	1.55
b	0.33	0.42	0.51
c	0.17	0.21	0.25
D	4.80	4.90	5.00
e	1.270(BSC)		
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
L	0.4	0.835	1.27
θ	0°	4°	8°