

Dual N-Channel Enhancement Mode MOSFET

General Description

The CMS4946 uses advanced Technology, which provides low on-state resistance, high switching performance and excellent reliability.

Features

- RDS(ON)<45mΩ @ VGS=10V
- RDS(ON)<56mΩ @ VGS=4.5V
- Dual MOSFET in surface mount package.
- Super high density cell design for extremely low RDS(ON).

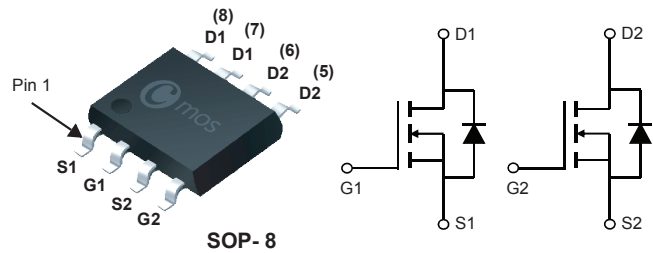
Product Summary

BVDSS	RDSON	ID
60V	45mΩ	5A

Applications

- Inverters
- Power Management
- DC/DC Converter
- LCD TV & Monitor Display inverter

SOP-8 Pin Configuration



Type	Package	Marking
CMS4946	SOP- 8	CMS4946

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _A =25°C	Continuous Drain Current ¹	5	A
I _{DM}	Pulsed Drain Current ²	15	A
P _D @T _A =25°C	Total Power Dissipation ³	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-to-Ambient (Steady-State) ⁴	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction -Case	---	34	°C/W

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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	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =5A	---	---	45	mΩ
		V _{GS} =4.5V, I _D =3.0A	---	---	56	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V, 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} =10V, I _D =3.3A	---	11	---	S
Q _g	Total Gate Charge	V _{DS} =30V, V _{GS} =10V, I _D =5A	---	13	---	nC
Q _{gs}	Gate-Source Charge		---	2.2	---	
Q _{gd}	Gate-Drain Charge		---	3.9	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =30V, V _{GS} =10V, R _L =6.7Ω R _{GEN} =5Ω	---	6	---	ns
T _r	Rise Time		---	18	---	
T _{d(off)}	Turn-Off Delay Time		---	20	---	
T _f	Fall Time		---	8	---	
C _{iss}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	---	450	---	pF
C _{oss}	Output Capacitance		---	65	---	
C _{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t _{rr}	Body Diode Reverse Recovery Time	I _F = 5A, V _{GS} =0V, di/dt=100A/μs	---	29	---	ns
Q _{rr}	Body Diode Reverse Recovery Charge		---	48	---	nC
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =1A	---	---	1.1	V

Note :

1. Static characteristics are obtained using <300 μs pulses, duty cycle 0.5% max.
2. Pulse test: pulse width≤300us, duty cycle≤2%, pulse width limited by junction temperature T_J(MAX) =150°C.
3. PD is based on T_J(MAX) =150°C, using RθJA,
4. Surface mounted RF4 board with 2oz. Copper. PDSM is based on RθJA and the maximum allowed junction temperature of 150°C.

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