

General Description

The CMS4013A uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a load switch or in PWM applications.

Features

- $R_{DS(ON)}=16m\Omega$ @ $V_{GS}=-10V$
- $R_{DS(ON)}=22m\Omega$ @ $V_{GS}=-4.5V$
- Advanced trench process technology
- RoHS Compliant

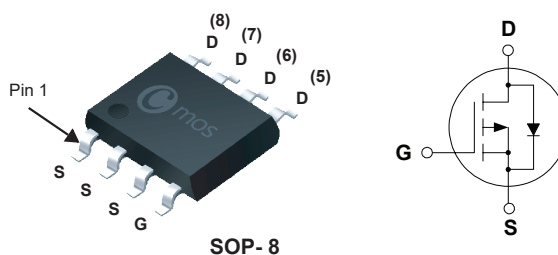
Product Summary

BVDSS	$R_{DS(ON)}$	ID
-40V	16m Ω	-10A

Applications

- Inverter Switch
- Synchronous Rectifier
- Load Switch
- DC/DC Converter

SOP-8 Pin Configuration



Type	Package	Marking
CMS4013A	SOP- 8	CMS4013A

Absolute Maximum Ratings ($T_A=25^{\circ}C$ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Continuous Drain Current	-10	A
I_{DM}	Pulsed Drain Current	-30	A
EAS	Single Pulse Avalanche Energy	180	mJ
$P_D@T_A=25^{\circ}C$	Total Power Dissipation	1.7	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-to-Ambient (PCB Mount)	---	75	$^{\circ}C/W$

Electrical Characteristics ($T_A = 25^\circ\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-8A$	---	---	16	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-6A$	---	---	22	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D = -250\mu A$	-1	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-40V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-5A$	---	21	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	8	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-20V$, $V_{GS}=-10V$, $I_D=-10A$	---	43	---	nC
Q_{gs}	Gate-Source Charge		---	8	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-20V$, $V_{GS}=-10V$ $R_{GEN}=3\Omega$, $R_L=2\Omega$	---	10	---	ns
T_r	Rise Time		---	21	---	
$T_{d(off)}$	Turn-Off Delay Time		---	56	---	
T_f	Fall Time		---	31	---	
C_{iss}	Input Capacitance	$V_{DS}=-20V$, $V_{GS}=0V$, $f=1MHz$	---	1300	---	pF
C_{oss}	Output Capacitance		---	260	---	
C_{rss}	Reverse Transfer Capacitance		---	180	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_{SD}=-8A$	---	---	-1.2	V

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