

CMS4415

-30V, 27mΩ typ., -9A P-Channel MOSFET

General Description

The CMS4415 uses advanced trench technology to provide excellent RDS(ON). This device is suitable for use as a load switch or in PWM applications.

Features

- P-Channel MOSFET
- Low ON-resistance
- Surface Mount Package
- RoHS Compliant

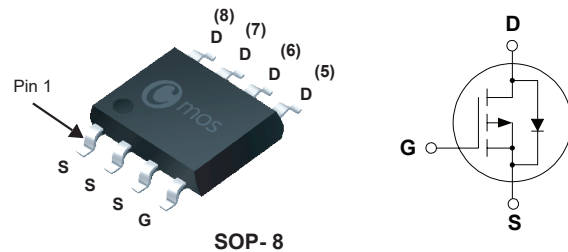
Product Summary

BVDSS	R _{DS(on)} max.	ID
-30V	35mΩ	-9A

Applications

- DC/DC Converter
- notebook computer power management

SOP-8 Pin Configuration



Type	Package	Marking
CMS4415	SOP- 8	CMS4415

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°C	Continuous Drain Current ¹	-9	A
I _D @T _A =100°C	Continuous Drain Current ²	-6.3	A
I _{DM}	Pulsed Drain Current	-36	A
EAS	Single Pulse Avalanche Energy ³	115	mJ
P _D @T _A =25°C	Total Power Dissipation	2.5	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 ¹	---	50	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-10A$	---	27	35	mΩ
		$V_{GS}=-4.5V$, $I_D=-10A$	---	30	40	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-30V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-5V$, $I_D=-10A$	---	18	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	70	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-15V$, $I_D=-7A$ $V_{GS}=-10V$	---	47	---	nC
Q_{gs}	Gate-Source Charge		---	5.5	---	
Q_{gd}	Gate-Drain Charge		---	14	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-10V$ $I_D=-4A$, $V_{GS}=-4V$	---	60	---	ns
T_r	Rise Time		---	330	---	
$T_{d(off)}$	Turn-Off Delay Time		---	80	---	
T_f	Fall Time		---	120	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1850	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	90	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-9	A
I_{SM}	Pulsed Source Current		---	---	-36	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-10A$	---	-0.86	-1.2	V

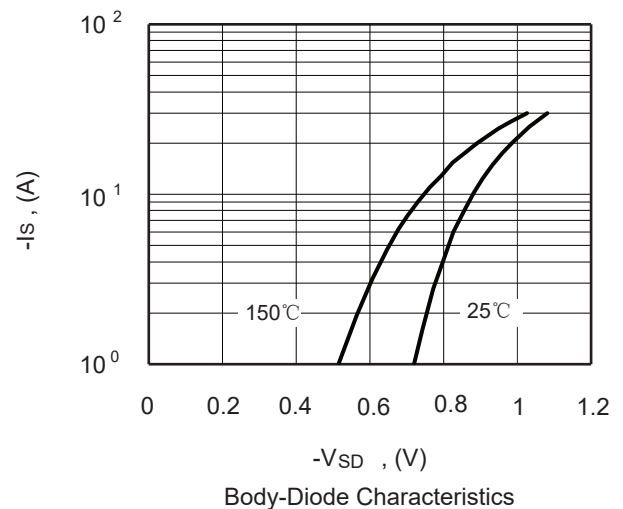
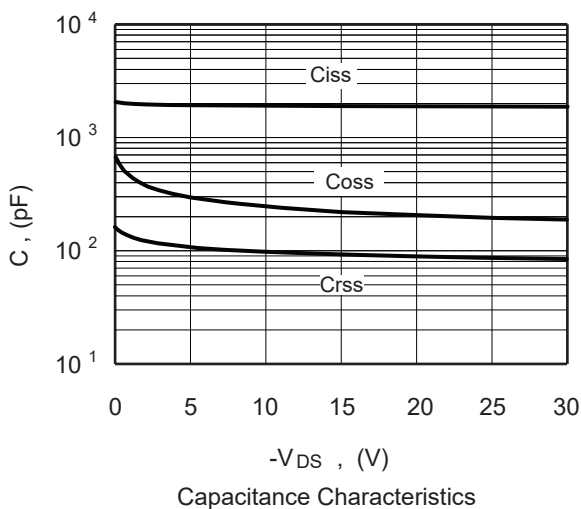
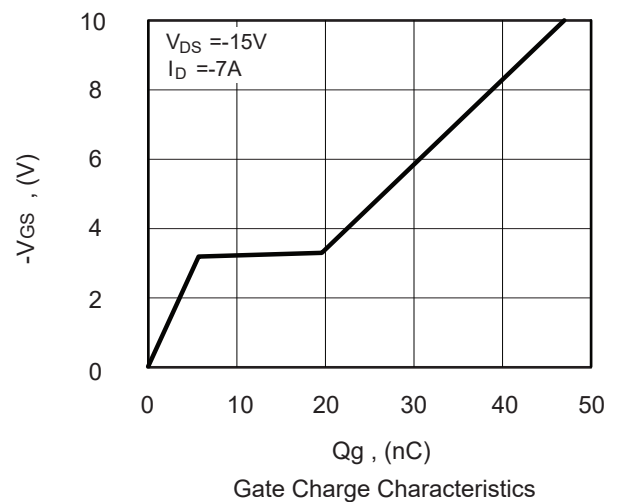
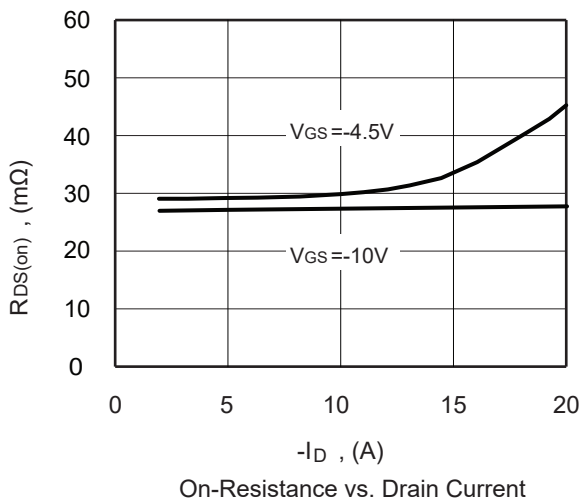
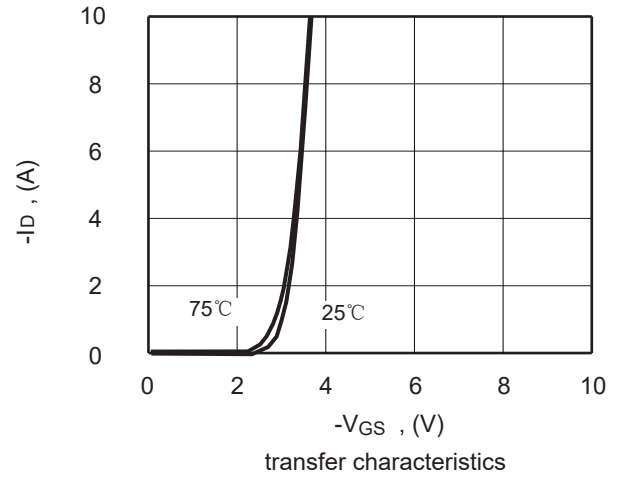
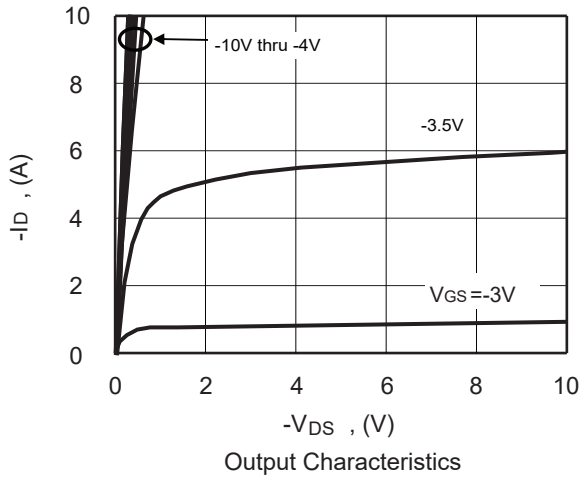
Note :

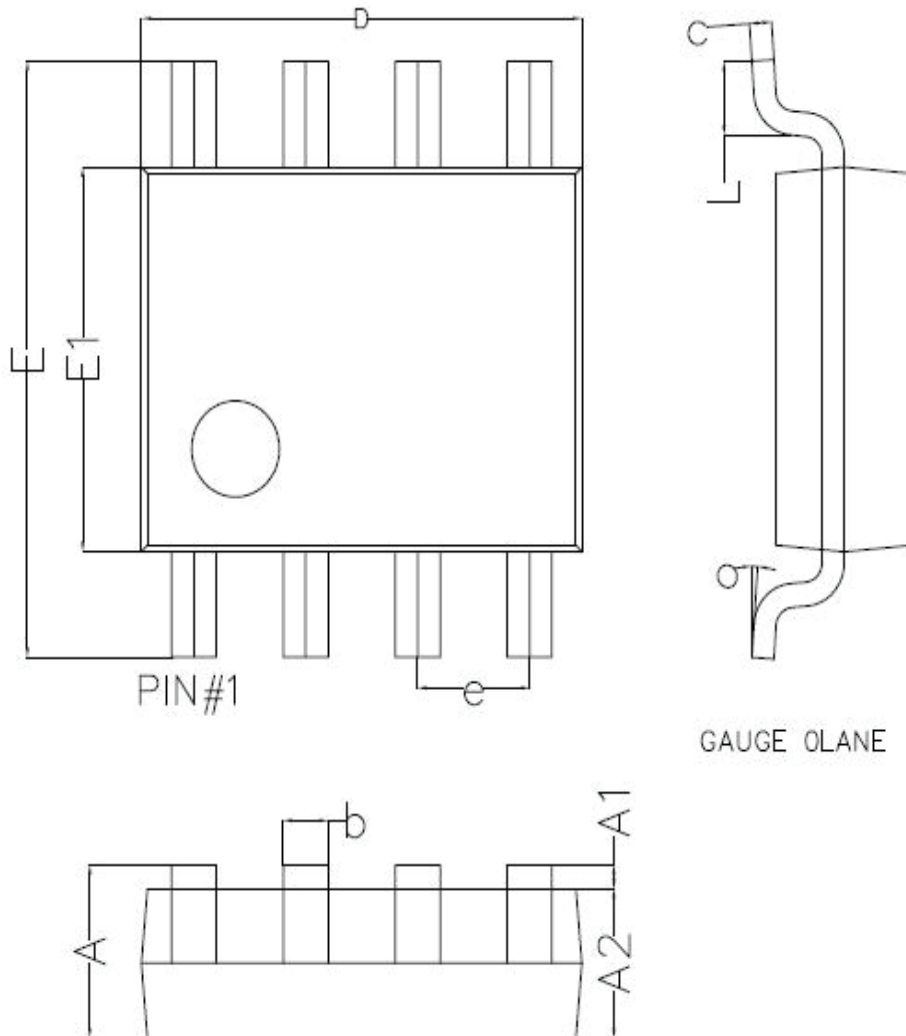
- 1.Surface mounted on 1 in² copper pad of FR4 board, $t < 10\text{sec}$; 125 °C/W when mounted on Min. copper pad.
- 2.Pulse width limited by Max. junction temperature.
- 3.The EAS data shows Max. rating . The test condition is $V_{DD}=-20V$, $V_{GS}=-10V$, $L=0.5\text{mH}$, $I_{AS}=-21.5A$.

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

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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
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°