CMS4443

-40V, 40mΩ typ., -6A P-Channel MOSFET

General Description

The CMS4443 uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a load switch or in PWM applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-40V	45mΩ	-6A

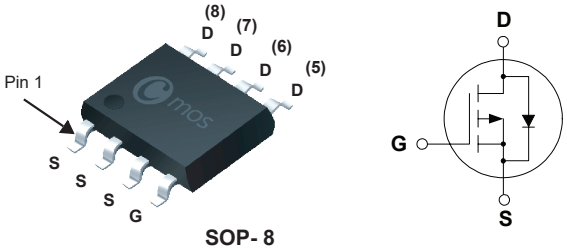
Applications

- DC/DC Converter
- notebook computer power management

Features

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

SOP-8 Pin Configuration



Type	Package	Marking
CMS4443	SOP- 8	CMS4443

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_A=25℃	Continuous Drain Current	-6	A
I_D@T_A=70℃	Continuous Drain Current	-4.5	A
I_{DM}	Pulsed Drain Current	-24	A
EAS	Single Pulse Avalanche Energy[1]	64	mJ
P_D@T_A=25℃	Total Power Dissipation	3.0	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	---	42	℃/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	-40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-6A	---	40	45	mΩ
		V_{GS}=-4.5V , I_D=-4A	---	50	57	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-40V , V_{GS}=0V , T_J=25℃	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-5A	---	11	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	75	---	Ω
Q_g	Total Gate Charge	V_{DS}=-28V , I_D=-6A V_{GS}=-10V	---	20	---	nC
Q_{gs}	Gate-Source Charge		---	3.1	---	
Q_{gd}	Gate-Drain Charge		---	4.4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-20V , R_{GEN}=3.3Ω I_D=-1A , V_{GS} =-10V	---	11	---	ns
T_r	Rise Time		---	21.5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	32.5	---	
T_f	Fall Time		---	15	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	1050	---	pF
C_{oss}	Output Capacitance		---	90	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

Diode Characteristics

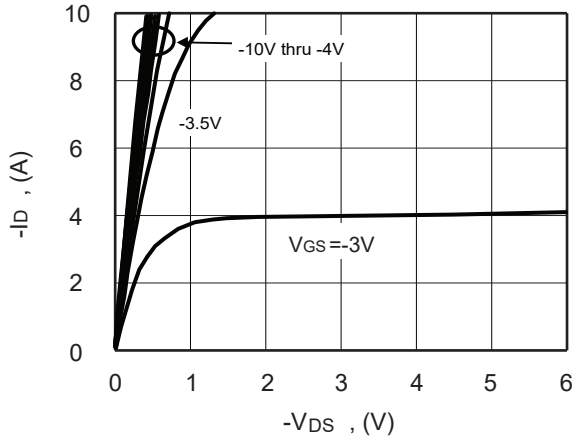
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-6	A
I_{SM}	Pulsed Source Current		---	---	-24	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=-6A	---	-0.85	-1.2	V

Note :

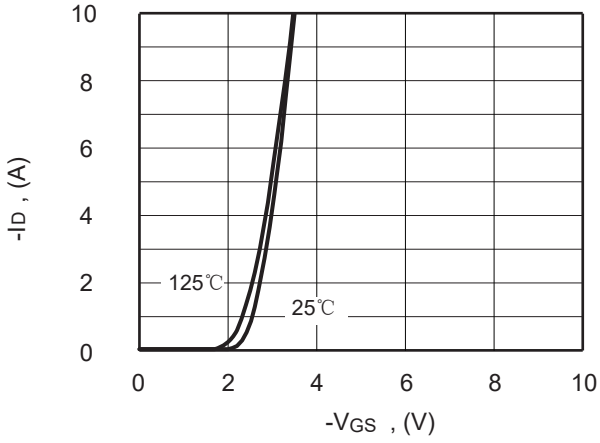
1.The EAS data shows Max. rating . The test condition is V_{DD}=-30V , V_{GS}=-10V , L=0.5mH , I_{AS}=-16A.

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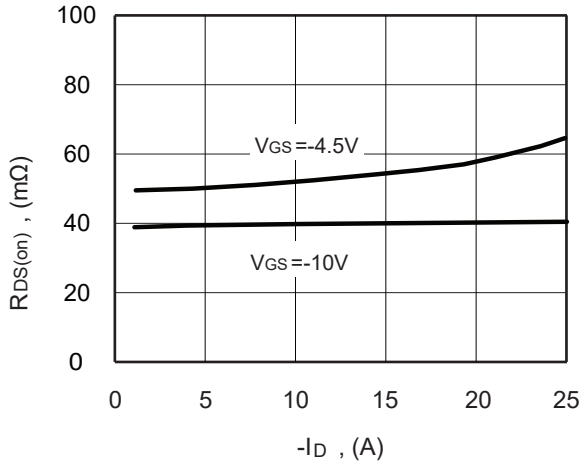
Typical Characteristics



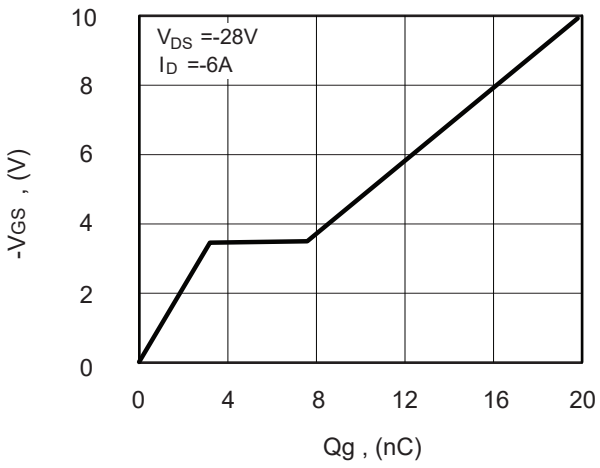
Output Characteristics



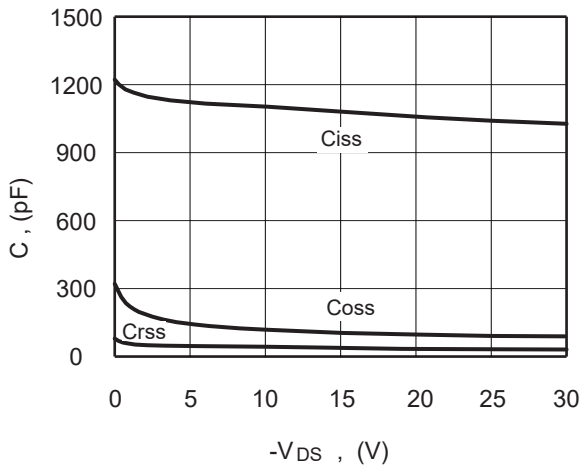
transfer characteristics



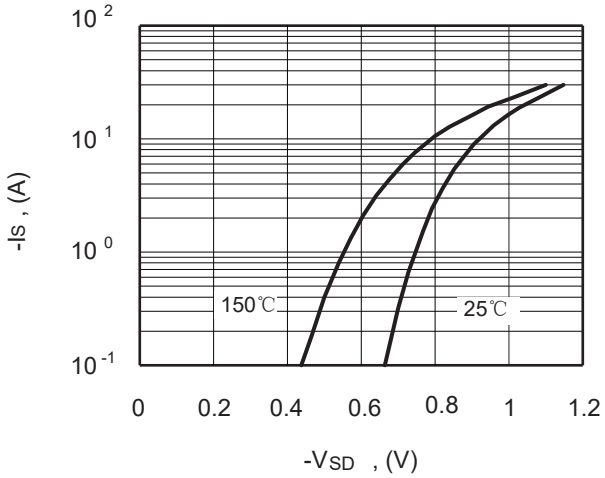
On-Resistance vs. Drain Current



Gate Charge Characteristics



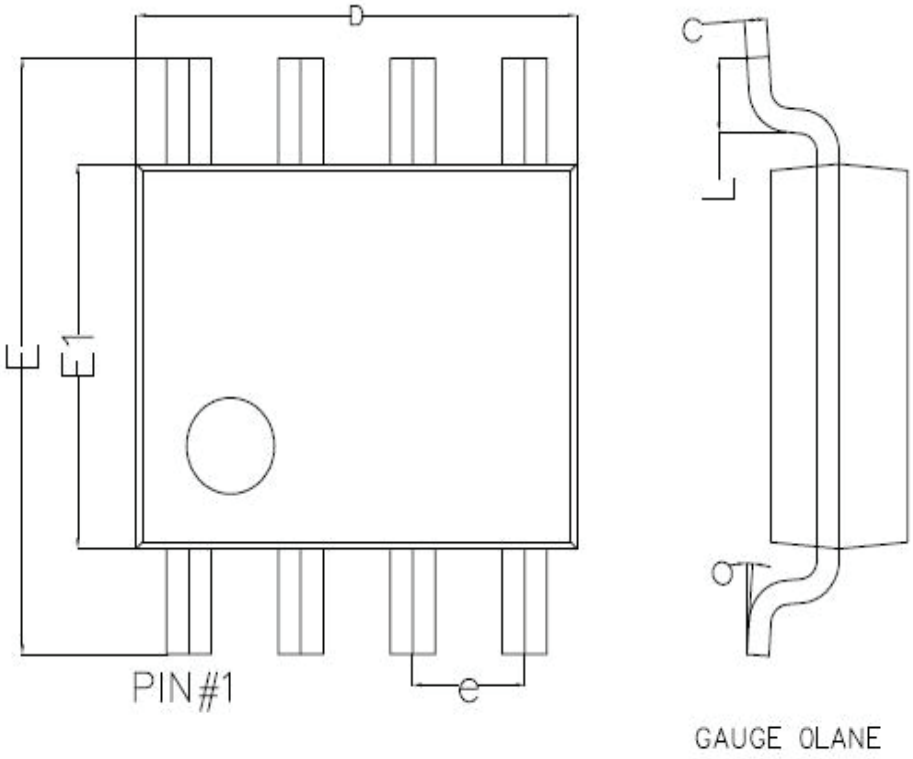
Capacitance Characteristics

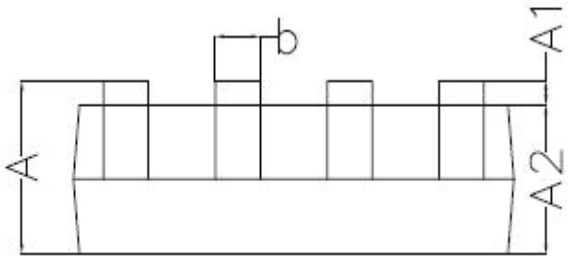


Body-Diode Characteristics

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°