CMN12P04M

P-Channel Enhancement Mode Field Effect Transistor

General Description

The CMN12P04M uses advanced trench technology to provide excellent RDS(ON) and low gate charge. This device is suitable for use as a load switch or in PWM applications.

Features

- RDS(ON)<49mΩ @ VGS=-10V
- RDS(ON)<65mΩ @ VGS=-4.5V
- Simple drive requirement
- Surface mount package

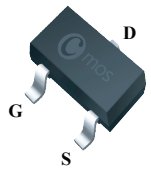
Product Summary

BVDSS	RDSON	ID
-40V	49mΩ	-8A

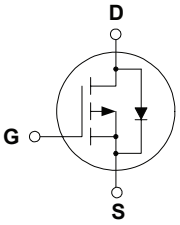
Applications

- PWM applications
- Load switch
- Power management
- PA Switch

SOT-23 Pin Configuration



SOT-23



Type	Package	Marking
CMN12P04M	SOT-23	12P04

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	-8	A
I_D@T_A=100℃	Continuous Drain Current	-5.6	A
I_{DM}	Pulsed Drain Current	-32	A
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 (Steady State)	---	62.5	℃/W

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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	49	mΩ
		V_{GS}=-4.5V , I_D=-4A	---	52	65	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.0	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-40V , V_{GS}=0V	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V, V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-5V , I_D=-6A	---	10	---	S
Q_g	Total Gate Charge(-4.5V)	I_D=-4A V_{DS}=-18V V_{GS}=-10V	---	10	---	nC
Q_{gs}	Gate-Source Charge		---	1.7	---	
Q_{gd}	Gate-Drain Charge		---	2	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=-15V R_G=6Ω , R_L=15Ω V_{GS}=-10V I_D=-1A	---	8	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	18	---	
T_f	Fall Time		---	8	---	
C_{iss}	Input Capacitance	V_{DS}=-25V , V_{GS}=0V , f=1MHz	---	1050	---	pF
C_{oss}	Output Capacitance		---	100	---	
C_{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-1A	---	-0.75	-1	V

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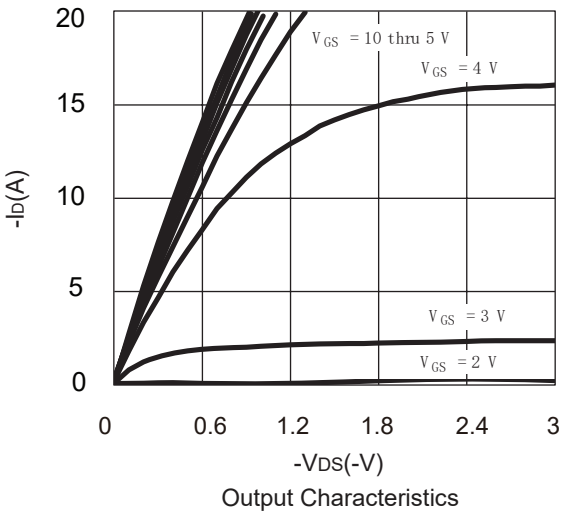
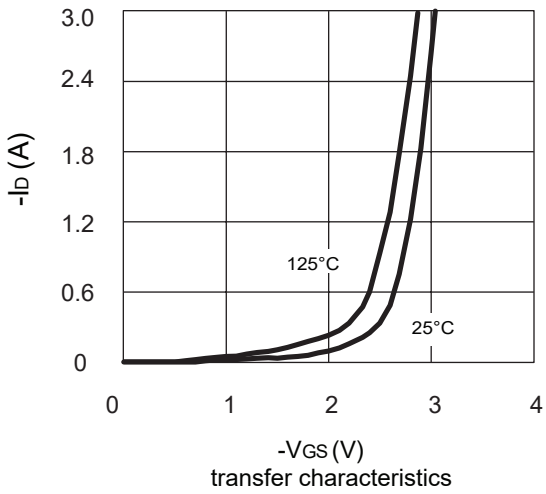
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

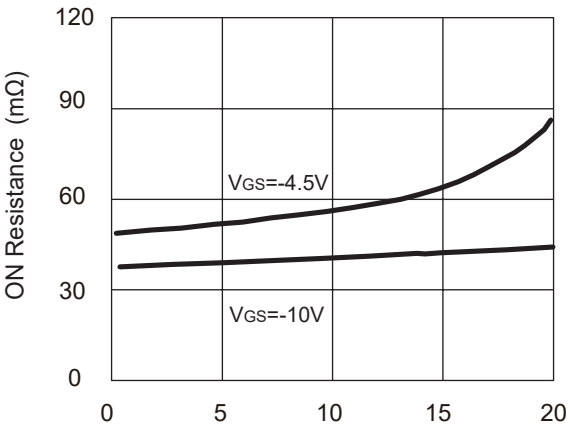
Typical Characteristics



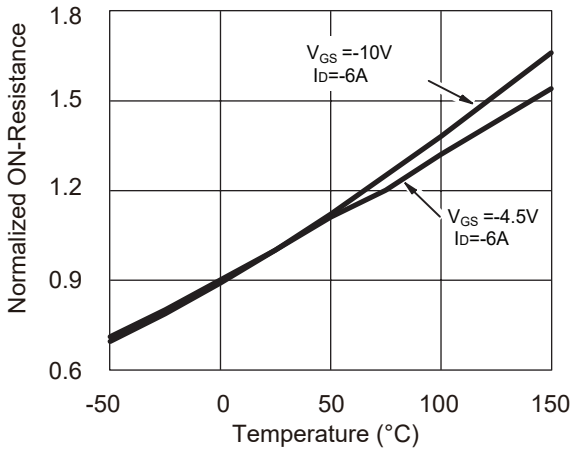
Output Characteristics



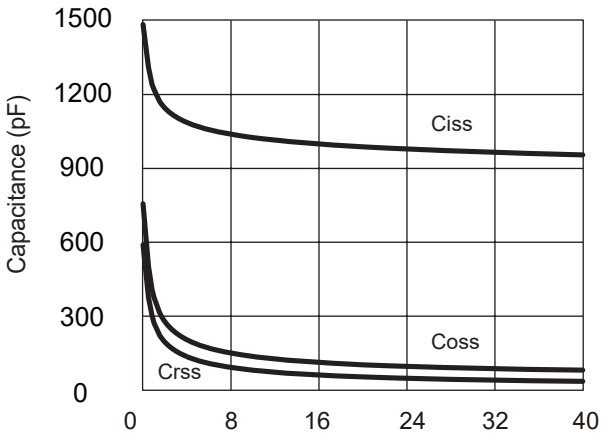
transfer characteristics



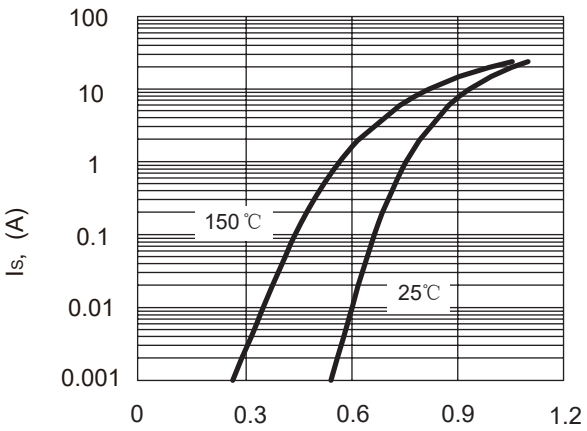
Resistance V.S Drain Current



On-Resistance vs. Junction Temperature



Capacitance Characteristics



Body-Diode Characteristics