CML10N06

60V, 36mΩ typ ., 10A N-Channel MOSFET

General Description

The CML10N06 uses advanced technology to provide excellent $R_{DS(ON)}$. This device is suitable for use as a synchronous switch in PWM applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
60V	42mΩ	10A

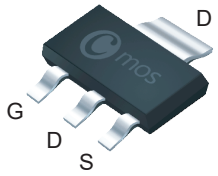
Applications

- DC-AC converters
- Motor / Body load control
- Power train management
- Distributed power architectures and VRMs

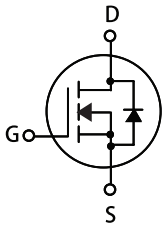
Features

- Low On-Resistance
- Simple Drive Requirements
- Surface mount package
- RoHS Compliant

SOT-223 Pin Configuration



SOT-223



Type	Package	Marking
CML10N06	SOT- 223	CML10N06

Absolute Maximum Ratings (Tc=25℃ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	10	A
I_D@T_C=100℃	Continuous Drain Current	7	A
I_{DM}	Pulsed Drain Current	30	A
P_D@T_C=25℃	Total Power Dissipation	8.5	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	---	100	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	14.7	℃/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	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=5A	---	36	42	mΩ
		V_{GS}=4.5V , I_D=5A	---	41	50	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1.0	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V , V_{GS} =0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V, I_D=5A	---	6.6	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.3	---	Ω
Q_g	Total Gate Charge	I_D=12A V_{DS}=48V V_{GS}=10V	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	2.2	---	
Q_{gd}	Gate-Drain Charge		---	4.3	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=48V V_{GS} =10V R_G = 2.5Ω I_D =12A	---	7	---	ns
T_r	Rise Time		---	13	---	
$T_{d(off)}$	Turn-Off Delay Time		---	18	---	
T_f	Fall Time		---	2.5	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	640	---	pF
C_{oss}	Output Capacitance		---	45	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

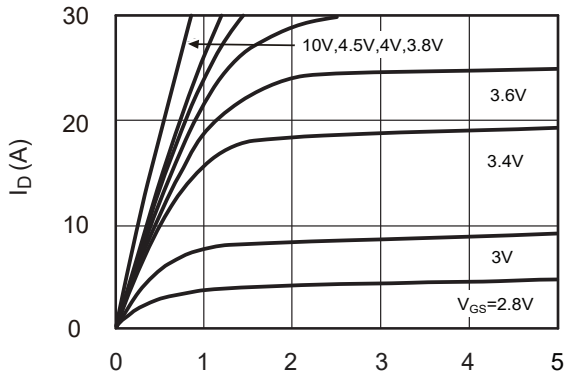
Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	10	A
I_{SM}	Pulsed Source Current		---	---	30	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=10A ,T_J=25℃	---	0.87	1.2	V

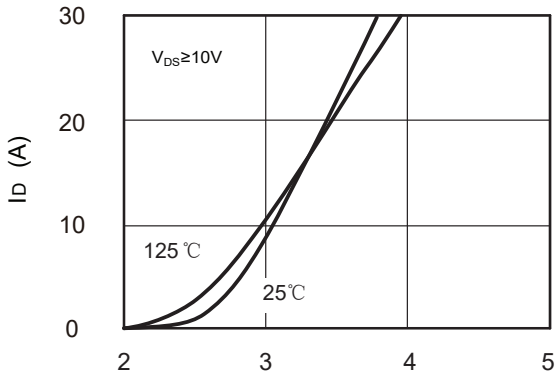
Note :

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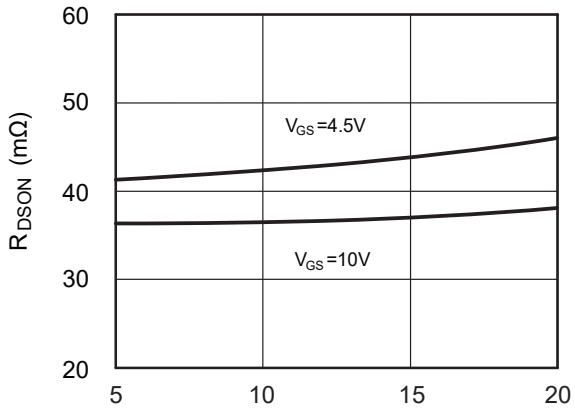
Typical Characteristics



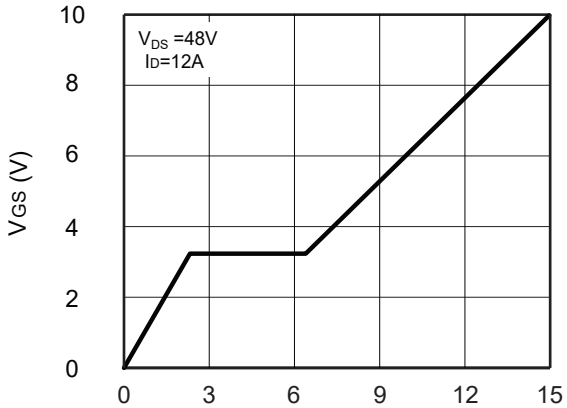
Output Characteristics



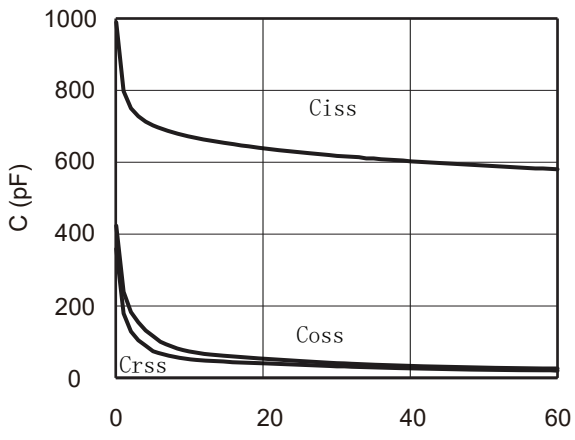
transfer characteristics



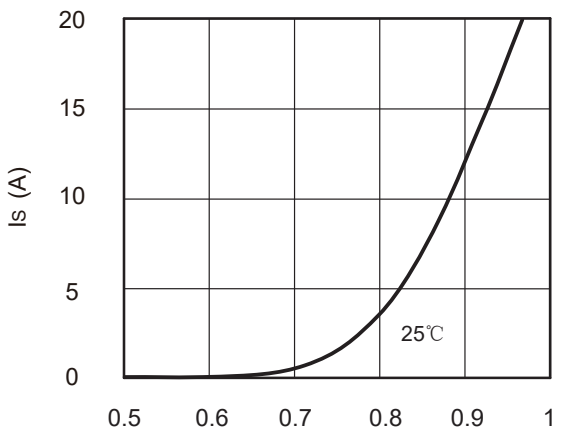
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

SOT-223 Unit :mm

