CMD12P10S / CMU12P10S

100V P-Channel MOSFET

General Description

The 12P10S uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

Features

- P-Channel
- Low ON-resistance.
- Fast Switching
- 100% avalanche tested

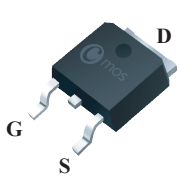
Product Summary

BVDSS	RDSON	ID
-100V	0.24Ω	-9A

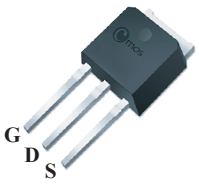
Applications

- Power Switch
- DC / DC converter

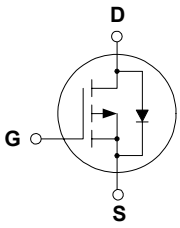
TO-252/251 Pin Configuration



TO-252
(CMD12P10S)



TO-251
(CMU12P10S)



Absolute Maximum Ratings

Symbol	Parameter		Rating	Units
V_{DS}	Drain-Source Voltage		-100	V
V_{GS}	Gate-Source Voltage		±30	V
I_D@T_C=25°C	Continuous Drain Current		-9	A
I_{DM}	Pulsed Drain Current	(Note 1)	-27	A
I_{AR}	Avalanche Current	(Note 1)	-9	A
P_D@T_C=25°C	Total Power Dissipation		40	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.5	°C/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	-100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-6A	---	---	0.24	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250 uA	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-100V , V_{GS}=0V	---	---	-1	uA
		V_{DS}=-80V , T_C =125℃	---	---	-10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-20V, I_D=-10A (Note 2)	---	12	---	S
Q_g	Total Gate Charge	I_D=-9A	---	18	---	nC
Q_{gs}	Gate-Source Charge	V_{DS} =-80V	---	4	---	
Q_{gd}	Gate-Drain Charge	V_{GS} =-10V (Note 2, 3)	---	8	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =-50V	---	13	---	ns
T_r	Rise Time	I_D=-9A	---	140	---	
$T_{d(off)}$	Turn-Off Delay Time	R_G=25Ω	---	30	---	
T_f	Fall Time	(Note 2, 3)	---	50	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	1300	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	I_S=-9A, V_{GS}=0V	---	105	---	ns
Q_{rr}	Reverse Recovery Charge	dI/dt=-100A/μs (Note 2)	---	0.4	---	μC
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-12A	---	---	-1.2	V

Notes:
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. Pulse Test : Pulse width ≤300 s, Duty cycle ≤2%
3. Essentially independent of operating temperature