CMD012N10/CMU012N10

100V N-Channel MOSFET

General Description

The 012N10 uses advanced trench technology and design to provide excellent RDS(ON). This device is ideal for PWM, load switching and general purpose applications.

Product Summary

BVDSS	RDSON	ID
100V	10mΩ	60A

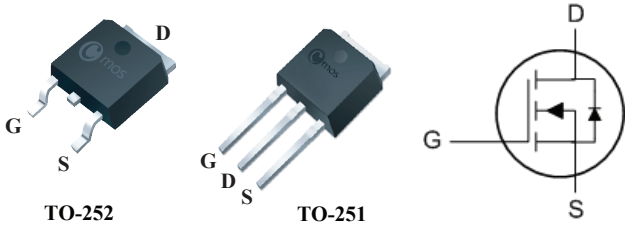
Applications

- DC-DC Converters
- Power switching application

Features

- Low On-Resistance
- High Reliability Capability with Passivation
- 100% avalanche tested
- RoHS Compliant

TO-252/251 Pin Configuration



Type	Package	Marking
CMD012N10	TO-252	CMD012N10
CMU012N10	TO-251	CMU012N10

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	60	A
I_D@T_C=100℃	Continuous Drain Current	41	A
I_{DM}	Pulsed Drain Current	180	A
EAS	Single Pulse Avalanche Energy[1]	40	mJ
P_D@T_C=25℃	Total Power Dissipation	120	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 (PCB mount)[2]	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.2	℃/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=20A	---	---	10	mΩ
		V_{GS}=4.5V, I_D=15A	---	---	13	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}= 100V, V_{GS}=0V	---	---	1	uA
		V_{DS}= 100V, V_{GS}=0V , T_J=55℃	---	---	5	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V, I_D=10A	---	20	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	V_{DS}=50V , V_{GS}=10V, I_D=20A	---	35	---	nC
Q_{gs}	Gate-Source Charge		---	11	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=50V , V_{GS}=10V , R_L =2Ω R_{GEN} =3Ω	---	13	---	ns
T_r	Rise Time		---	8.6	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	4	---	
C_{iss}	Input Capacitance	V_{DS}=50V , V_{GS}=0V , f=1MHz	---	1700	---	pF
C_{oss}	Output Capacitance		---	235	---	
C_{rss}	Reverse Transfer Capacitance		---	12	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	60	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=15A , T_J=25℃	---	---	1.2	V

Note :

1.The test condition is V_{DD}=30V,V_{GS}=10V,L=1mH,I_D=8A

2.Surface mounted on 1 in2 copper pad of FR4 board

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