CMD12N15A/CMU12N15A

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150V N-Channel MOSFET

General Description

The 12N15A uses advanced trench technology and design to provide excellent RDS(ON). This device is ideal for PWM, load switching and general purpose applications.

Features

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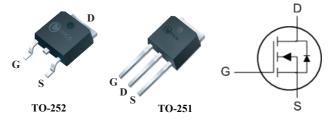- 100% avalanche tested
- RoHS Compliant

Product Summary

BVDSS	RDSON	ID
150V	0.36Ω	12A

Applications

- DC-DC Converters
- Power switching application

TO-252/251 Pin Configuration

TO-252   TO-251

Type	Package	Marking
CMD12N15A	TO-252	CMD12N15A
CMU12N15A	TO-251	CMU12N15A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	150	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25℃$	Continuous Drain Current	12	A
$I_D@T_C=100℃$	Continuous Drain Current	10	A
I_{DM}	Pulsed Drain Current	36	A
EAS	Single Pulse Avalanche Energy	5.4	mJ
$P_D@T_C=25℃$	Total Power Dissipation	50	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
$R_{θJA}$	Thermal Resistance Junction-ambien	---	44	℃/W
$R_{θJC}$	Thermal Resistance Junction -Case	---	2.8	℃/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	150	---	---	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance	V$_{GS}$=10V , I$_D$=6A	---	---	0.36	Ω
		V$_{GS}$=4.5V , I$_D$=6A	---	---	0.42	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ =250uA	1	---	3	V
I$_{DSS}$	Drain-Source Leakage Current	V$_{DS}$= 150V , V$_{GS}$=0V	---	---	1	uA
		V$_{DS}$= 150V , V$_{GS}$=0V , T$_J$=125℃	---	---	5	
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$= ±20V , V$_{DS}$=0V	---	---	±100	nA
gfs	Forward Transconductance	V$_{DS}$=10V , I$_D$=6A	---	6	---	S
R$_g$	Gate Resistance	V$_{DS}$=0V , V$_{GS}$=0V , f=1MHz	---	2.5	---	Ω
Q$_g$	Total Gate Charge	V$_{DS}$=75V , V$_{GS}$ =10V , I$_D$=7A	---	12	---	nC
Q$_{gs}$	Gate-Source Charge		---	3	---	
Q$_{gd}$	Gate-Drain Charge		---	4	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=75V , V$_{GS}$ =10V R$_G$ =27Ω , I$_{DS}$=7A	---	6	---	ns
T$_r$	Rise Time		---	10	---	
T$_{d(off)}$	Turn-Off Delay Time		---	16	---	
T$_f$	Fall Time		---	21	---	
C$_{iss}$	Input Capacitance	V$_{DS}$=75V , V$_{GS}$=0V , f=1MHz	---	720	---	pF
C$_{oss}$	Output Capacitance		---	25	---	
C$_{rss}$	Reverse Transfer Capacitance		---	13	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Continuous Source Current	V$_G$=V$_D$=0V , Force Current	---	---	12	A
V$_{SD}$	Diode Forward Voltage	V$_{GS}$=0V , I$_S$=12A , T$_J$=25℃	---	---	1.2	V

Note :

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.