CMD240/CMU240

40V N-Channel MOSFET

General Description

The CMD240 and CMU240 uses Trench MOSFET technology that is uniquely optimized to provide the most efficient high frequency switching performance. Power losses are minimized due to an extremely low combination of RDS(ON) and Crss.

Product Summary

BVDSS	RDSON	ID
40V	4mΩ	80A

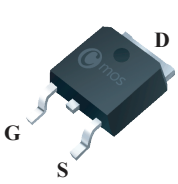
Applications

- Power Management in Note book
- LCD Display inverter
- DC/DC converter
- Load Switch

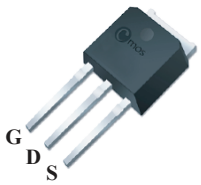
Features

- RDS(ON)<4mΩ @ VGS=10V
- RDS(ON)<5mΩ @ VGS=4.5V
- Reliable and Rugged
- Lead Free

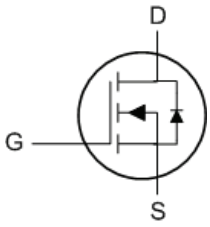
TO-252/251 Pin Configuration



TO-252
(CMD240)



TO-251
(CMU240)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃[1]	Continuous Drain Current	80	A
I_D@T_C=100℃[1]	Continuous Drain Current	55	A
I_{DM}[2]	Pulsed Drain Current	300	A
E_{AS}[3]	Single Pulse Avalanche Energy	196	mJ
P_D@T_C=25℃	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	℃
T_J	Operating Junction Temperature Range	-55 to 175	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady-State)	---	50	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case(Steady-State)	---	1	℃/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	40	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=30A	---	---	4	mΩ
		V_{GS}=4.5V , I_D=20A	---	---	5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=30V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=30V , 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}=15V , I_D=11A	---	20	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.2	---	Ω
Q_g	Total Gate Charge	V_{DS}=20V , V_{GS}=10V , I_D=20A	---	45	---	nC
Q_{gs}	Gate-Source Charge		---	9	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=20V , V_{GS} =10V , R_G=3Ω R_L =1Ω	---	15	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	11	---	
C_{iss}	Input Capacitance	V_{DS}=20V , V_{GS}=0V , f=1MHz	---	7500	---	pF
C_{oss}	Output Capacitance		---	1000	---	
C_{rss}	Reverse Transfer Capacitance		---	90	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_{SD}=30A	---	---	1	V

Note :
1. The maximum current rating is package limited.
2. Repetitive rating, pulse width limited by junction temperature T_J(MAX)=175°C. Ratings are based on low frequency and duty cycles to keep initial T_J =25°C.
3. The EAS data shows Max. rating . The test condition is V_{DD}=20V , V_{GS}=10V , L=0.5mH , I_{AS}=28A