CMD8972A/CMU8972A

20V N-Channel MOSFET

General Description

The 8972A uses innovative packaging technology to provide excellent RDS(ON). This deviceis suitable for use as a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
20V	3mΩ	80A

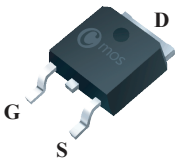
Applications

- DC/DC Converters
- Motor drives

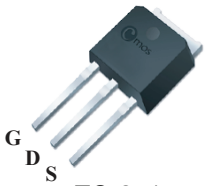
Features

- Simple Drive Requirement
- Low On-Resistance
- RoHS Compliant

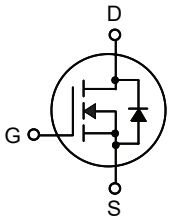
TO-252/251 Pin Configuration



TO-252



TO-251



Type	Package	Marking
CMD8972A	TO-252	CMD8972A
CMU8972A	TO-251	CMU8972A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±8	V
I_D@T_C=25℃	Continuous Drain Current	80	A
I_{DM}	Pulsed Drain Current	320	A
EAS	Single Pulse Avalanche Energy[1]	468	mJ
P_D	Total Power Dissipation	100	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(Steady State) [2]	---	45	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.9	℃/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=1mA	20	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=4.5V, I_D=15A	---	2	3	mΩ
		V_{GS}=2.5V , I_D=15A	---	2.4	4	
		V_{GS}=1.8V , I_D=15A	---	3.1	5	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	0.4	---	1	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=16V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±8V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS} = 10V , I_D =20A	---	42	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	4.3	---	Ω
Q_g	Total Gate Charge	I_D=50A V_{DS} =10 V V_{GS} =4.5V	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	8	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD} =10V I_D=50 A R_G=1Ω V_{GEN}=10V	---	20	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	V_{DS}=15V , V_{GS}=0V , f=1MHz	---	6800	---	pF
C_{oss}	Output Capacitance		---	750	---	
C_{rss}	Reverse Transfer Capacitance		---	700	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	80	A
I_{SM}	Pulsed Source Current		---	---	320	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=28 A , T_J=25℃	---	---	1.2	V

Note :

1.The EAS data shows Max. rating .The test condition is V_{DS}=20V,V_{GS}=10V,L=0.5mH,I_{AS}=43.3A

2.Surface Mounted on 1" x 1" FR4 board.

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