

General Description

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

Features

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

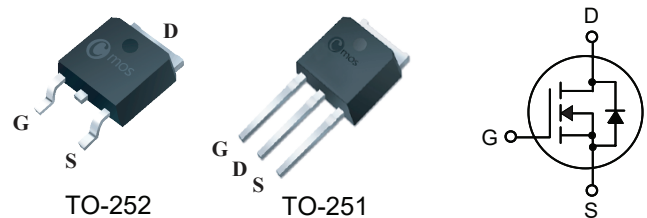
Product Summary

BVDSS	RDSON	ID
20V	3mΩ	80A

Applications

- DC/DC Converters
- Motor drives

TO-252/251 Pin Configuration



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
$I_D@T_C=25^{\circ}C$	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	°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(Steady State) ²	---	45	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.9	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, 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	m Ω
		$V_{GS}=2.5V$, $I_D=15A$	---	2.4	4	
		$V_{GS}=1.8V$, $I_D=15A$	---	3.1	5	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	0.4	---	1	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=16V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 8V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	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	$I_D=50A$	---	30	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=10V$	---	15	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=4.5V$	---	8	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=10V$	---	20	---	ns
T_r	Rise Time	$I_D=50A$	---	15	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1\Omega$	---	45	---	
T_f	Fall Time	$V_{GEN}=10V$	---	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	$V_{GS}=0V$, $I_F=28A$, $T_J=25^{\circ}\text{C}$	---	---	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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