

General Description

The 120N03A 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
- Fast Switching
- Low On-Resistance

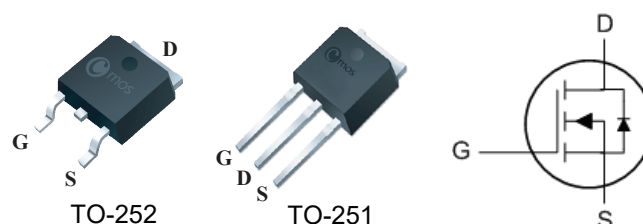
Product Summary

BVDSS	RDS(ON)	ID
30V	2.9mΩ	120A

Applications

- Uninterruptible Power Supply
- DC Motor Control
- Load Switch

TO-252/251 Pin Configuration



Type	Package	Marking
CMD120N03A	TO-252	CMD120N03A
CMU120N03A	TO-251	CMU120N03A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	120	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current ¹	96	A
I_{DM}	Pulsed Drain Current ¹	360	A
EAS	Single Pulse Avalanche Energy ($I_D=90\text{A}$)	88	mJ
P_D	Total Power Dissipation	136	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.5	$^\circ\text{C/W}$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	---	2.9	$m\Omega$
		$V_{GS}=4.5V$, $I_D=15A$	---	---	3.6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	2.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=24V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=15A$	---	40	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	0.8	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	18	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=15V$	---	3	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=0$ to $10V$	---	3	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=15V$	---	22	---	ns
T_r	Rise Time	$R_{GEN}=3\Omega$	---	21	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_L=0.75\Omega$	---	52	---	
T_f	Fall Time	$V_{GS}=10V$	---	8	---	
C_{iss}	Input Capacitance	$V_{DS}=15V$, $V_{GS}=0V$, $f=1MHz$	---	4300	---	pF
C_{oss}	Output Capacitance		---	480	---	
C_{rss}	Reverse Transfer Capacitance		---	65	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	120	A
I_{SM}	Pulsed Source Current		---	---	360	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

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