

General Description

The 100N68K uses advanced technology and design to provide excellent RDS(ON) .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Max $r_{DS(on)}$ =7m Ω at V_{GS} = 10V
- Fast Switching
- RoHS Compliant

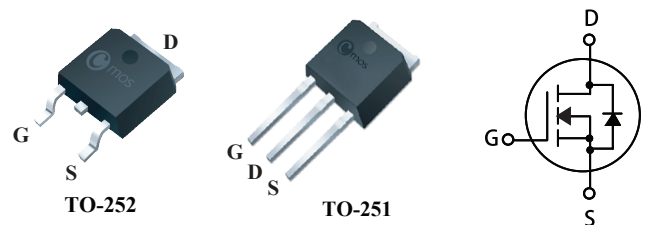
Product Summary

BVDSS	RDSON	ID
68V	7m Ω	100A

Applications

- Inverters
- Power Supplies

TO-252/251 Pin Configuration



Type	Package	Marking
CMD100N68K	TO-252	CMD100N68K
CMU100N68K	TO-251	CMU100N68K

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	68	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	100	A
$I_D@T_C=100^\circ C$		80	A
I_{DM}	Pulsed Drain Current	400	A
E_{AS}	Drain-Source Avalanche Energy ¹	450	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	170	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.4	$^\circ C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	68	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=28A$	---	---	7	m Ω
		$V_{GS}=6V, I_D=20A$	---	---	13	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=48V, V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V, I_D=20A$	---	22	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	2.5	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	91	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=30V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	19	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V$	---	10	---	ns
T_r	Rise Time	$I_D=30A$	---	8	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=1.8\Omega$	---	41	---	
T_f	Fall Time	$V_{GS}=10V$	---	16	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	5000	---	pF
C_{oss}	Output Capacitance		---	287	---	
C_{rss}	Reverse Transfer Capacitance		---	258	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=28A$	---	---	1.2	V

Notes:

1. Starting $T_J = 25^{\circ}\text{C}$, $L=0.5\text{mH}$, $I_{AS}=42.5\text{A}$, $V_{DD}=30\text{V}$, $V_{GS}=10\text{V}$.

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