

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 60N68K is N-Channel MOSFET, It has specifically been designed to minimize input capacitance and gate charge. The device is therefore suitable in advanced high-efficiency switching applications.

Features

- Minimize input capacitance and gate charge
- 100% avalanche tested
- Low On-Resistance

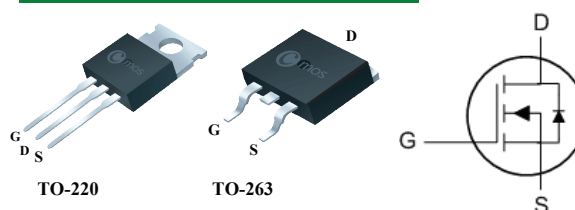
Product Summary

BVDSS	RDSON	ID
68V	12mΩ	60A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO-220/263 Pin Configuration



Type	Package	Marking
CMP60N68K	TO-220	CMP60N68K
CMB60N68K	TO-263	CMB60N68K

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	68	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	60	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	48	A
I_{DM}	Pulsed Drain Current	180	A
EAS	Single Pulse Avalanche Energy	270	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	104	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.2	$^\circ\text{C}/\text{W}$

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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	$V_{GS}=10V$, $I_D=25A$	---	---	12	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=68V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=20A$	---	21	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.2	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	36	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=56V$	---	9	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	17	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=35V$	---	11	---	ns
T_r	Rise Time	$I_D=30A$	---	51	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1\Omega$	---	22	---	
T_f	Fall Time	$V_{GS}=10V$	---	9	---	
C_{iss}	Input Capacitance	$V_{DS}=30V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3000	---	pF
C_{oss}	Output Capacitance		---	260	---	
C_{rss}	Reverse Transfer Capacitance		---	150	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	180	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	---	1.0	V

Note :

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