

General Description

The CMF60N20 is a N-channel Power 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

- Advanced Process Technology
- Ultra Low On-Resistance
- Dynamic dv/dt Rating
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated
- Lead-Free

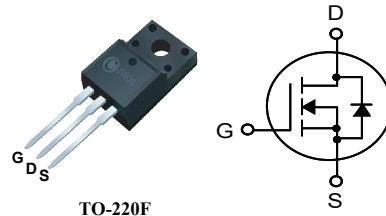
Product Summary

BVDSS	RDS(on)	ID
200V	28mΩ	60A

Applications

- LED power controller
- DC-DC & DC-AC converters
- High current, High speed switching
- Solenoid and relay drivers
- Motor control, Audio amplifiers

TO-220F Pin Configuration



Type	Package	Marking
CMF60N20	TO-220F	CMF60N20

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D @ T_c = 25^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	60	A
$I_D @ T_c = 100^\circ C$	Continuous Drain Current, $V_{GS} @ 10V$	48	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy	1400	mJ
$P_D @ T_c = 25^\circ C$	Power Dissipation	46	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient (PCB mount)	---	62	°C/W
$R_{\theta JC}$	Junction-to-Case	---	0.57	°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	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{D}}=250\text{\textmu A}$	200	---	---	V
$\text{R}_{\text{DS(ON)}}$	Static Drain-Source On-Resistance	$\text{V}_{\text{GS}}=10\text{V}$, $\text{I}_{\text{D}}=30\text{A}$	---	---	28	$\text{m}\Omega$
$\text{V}_{\text{GS(th)}}$	Gate Threshold Voltage	$\text{V}_{\text{GS}}=\text{V}_{\text{DS}}$, $\text{I}_{\text{D}}=250\text{\textmu A}$	3	---	5	V
I_{DSS}	Drain-Source Leakage Current	$\text{V}_{\text{DS}}=200\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$	---	---	1	\textmu A
I_{GSS}	Gate-Source Leakage Current	$\text{V}_{\text{GS}}=\pm 20\text{V}$, $\text{V}_{\text{DS}}=0\text{V}$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$\text{V}_{\text{DS}}=10\text{V}$, $\text{I}_{\text{D}}=25\text{A}$	---	35	---	S
R_{g}	Gate Resistance	$\text{V}_{\text{DS}}=0\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	3.2	---	Ω
Q_{g}	Total Gate Charge	$\text{I}_{\text{D}}=30\text{A}$	---	100	---	nC
Q_{gs}	Gate-Source Charge	$\text{V}_{\text{DS}}=100\text{V}$	---	30	---	
Q_{gd}	Gate-Drain Charge	$\text{V}_{\text{GS}}=10\text{V}$	---	40	---	
$\text{T}_{\text{d(on)}}$	Turn-On Delay Time	$\text{V}_{\text{DD}}=100\text{V}$	---	31	---	ns
T_{r}	Rise Time	$\text{I}_{\text{D}}=30\text{A}$	---	21	---	
$\text{T}_{\text{d(off)}}$	Turn-Off Delay Time	$\text{R}_{\text{G}}=2.5\Omega$	---	22	---	
T_{f}	Fall Time	$\text{V}_{\text{GS}}=10\text{V}$	---	32	---	
C_{iss}	Input Capacitance	$\text{V}_{\text{DS}}=25\text{V}$, $\text{V}_{\text{GS}}=0\text{V}$, $f=1\text{MHz}$	---	5600	---	pF
C_{oss}	Output Capacitance		---	338	---	
C_{rss}	Reverse Transfer Capacitance		---	136	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{s}	Continuous Source Current	$\text{V}_{\text{G}}=\text{V}_{\text{D}}=0\text{V}$, Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	240	A
V_{SD}	Diode Forward Voltage	$\text{V}_{\text{GS}}=0\text{V}$, $\text{I}_{\text{s}}=30\text{A}$, $T_J=25^\circ\text{C}$	---	---	1.2	V

Note :

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