CMF60R750P

600V N-Channel Super-Junction MOSFET

General Description

CMF60R750P is power MOSFET using advanced super junction technology that can realize very low on-resistance and gate charge.This super junction MOSFET fits the industry's AC-DC SMPS requirements for PFC, AC/DC power conversion, and industrial power applications.

Product Summary

BVDSS	RDSON	ID
600V	0.745Ω	5.7A

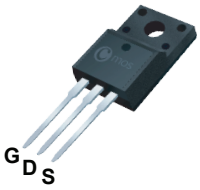
Applications

- Power factor correction（PFC）
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply（UPS）

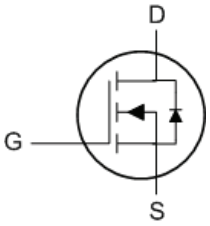
Features

- Low Power Loss by High Speed Switching and Low On-Resistance
- 100% avalanche tested
- New technology for high voltage device
- RoHS Compliant

TO-220F Pin Configuration



TO-220F
(CMF60R750P)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	600	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	5.7*	A
I_D@T_C=100℃	Continuous Drain Current	3.6*	A
I_{DM}	Pulsed Drain Current (Note 1)	18*	A
EAS	Single Pulse Avalanche Energy (Note 2)	73	mJ
dv/dt	Diode dv/dt ruggedness	15	V/ns
P_D@T_C=25℃	Total Power Dissipation	27.5	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

* Drain current limited by maximum junction temperature

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	4.6	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	600	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=5A	---	---	0.745	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=600V , V_{GS}=0V	---	---	1	μA
		V_{DS}=600V , V_{GS}=0V,T_j =150℃	---	10	---	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V , I_D=5A	---	5.3	---	S
Q_g	Total Gate Charge	I_D=5.7A V_{DS}=480V V_{GS}=10V	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	2.5	---	
Q_{gd}	Gate-Drain Charge		---	6.6	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=300V V_{GS}=10V I_D=5.7A R_G=25Ω	---	15	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	155	---	
T_f	Fall Time		---	29	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	670	---	pF
C_{oss}	Output Capacitance		---	360	---	
C_{rss}	Reverse Transfer Capacitance		---	21	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	5.7	A
I_{SM}	Pulsed Source Current		---	---	18	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=5.7A , T_J=25℃	---	---	1.4	V
t_{rr}	Reverse Recovery Time	V_{DD}=100V , I_F=5.7A di/dt=100A/μs	---	255	---	ns
Q_{rr}	Reverse Recovery Charge		---	1.7	---	nC

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. I_D=17A , L=0.5mH , V_{DD}=30V , Starting T_J=25 ℃.

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