CMP8N60/CMF8N60

600V N-Channel MOSFET

General Description

These N-Channel enhancement mode power field effect transistors are produced using advanced technology which has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switched mode power supplies,active power factor correction, electronic lamp ballasts based on half bridge topology.

Product Summary

BVDSS	RDSON	ID
600V	1.2Ω	7.5A

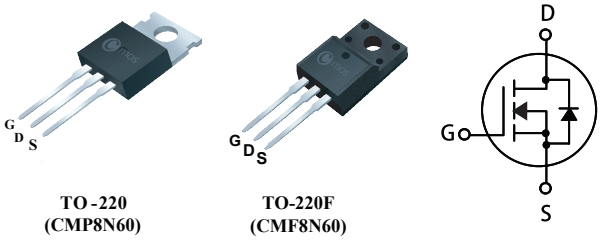
Applications

- Charger
- Adaptor
- Power Supply
- Electrodeless lamp

Features

- Originative New Design
- 100% avalanche tested
- Very Low Intrinsic Capacitances
- Fast switching
- RoHS Compliant

TO-220/220F Pin Configuration



TO-220 (CMP8N60)

TO-220F (CMF8N60)

Absolute Maximum Ratings

T_C = 25°C unless otherwise noted

Symbol	Parameter	CMP8N60/CMF8N60		Units
V_{DSS}	Drain-Source Voltage	600		V
I_D	Drain Current - Continuous (T_C = 25°C)	7.5	7.5*	A
	- Continuous (T_C = 100°C)	4.5	4.5*	A
I_{DM}	Drain Current - Pulsed	22	22*	A
V_{GSS}	Gate-Source Voltage	±30		V
E_{AS}	Single Pulsed Avalanche Energy [1]	605		mJ
I_{AR}	Avalanche Current	7.5		A
dv/dt	Peak Diode Recovery dv/dt	4.5		V/ns
P_D	Power Dissipation (T_C = 25°C)	135	40	W
	- Derate above 25°C	1.18	0.38	W/°C
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150		°C
T_L	Maximum lead temperature for soldering purposes, 1/8 from case for 5 seconds	300		°C

* Drain current limited by maximum junction temperature

Thermal Characteristics

Symbol	Parameter	CMP8N60/CMF8N60		Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case Max.	0.9	3.0	°C/W
$R_{\theta CS}$	Thermal Resistance, Case-to-Sink Typ.	---		°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient Max.	62.5		°C/W

Electrical Characteristic

T_C = 25°C unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0 V, I_D = 250 μA	600	--	--	V
$\triangle BV_{DSS}$ / $\triangle T_J$	Breakdown Voltage Temperature Coefficient	I_D = 250 μA, Referenced to 25°C	--	0.7	--	V/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = 600 V, V_{GS} = 0 V	--	--	1	μA
		V_{DS} = 480 V, T_C=125°C	--	--	10	
I_{GSSF}	Gate-Body Leakage Current, Forward	V_{GS} = 30 V, V_{DS} = 0 V	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	V_{GS} = -30 V, V_{DS} = 0 V	--	--	-100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250 μA	2.5	--	4.5	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = 10 V, I_D = 4A	--	1	1.2	Ω
g_{FS}	Forward Transconductance	V_{DS} = 20 V, I_D = 4A	--	9	--	S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 25 V, V_{GS} = 0 V, f = 1.0 MHz	--	1300	--	pF
C_{oss}	Output Capacitance		--	110	--	pF
C_{rss}	Reverse Transfer Capacitance		--	10	--	pF
Switching Characteristics						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = 300 V, I_D = 7.5A, R_G = 25 Ω	--	17	--	ns
t_r	Turn-On Rise Time		--	61	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	81	--	ns
t_f	Turn-Off Fall Time		--	65	--	ns
Q_g	Total Gate Charge	V_{DS} = 480 V, I_D = 7.5A, V_{GS} = 10 V	--	28	--	nC
Q_{gs}	Gate-Source Charge		--	5	--	nC
Q_{gd}	Gate-Drain Charge		--	13	--	nC
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	7.5	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	22	A
V_{SD}	Drain-Source Diode Forward Voltage	V_{GS} = 0 V, I_S = 7.5A	--	--	1.4	V
t_{rr}	Reverse Recovery Time	V_{GS} = 0 V, I_S = 7.5A, dI_F / dt = 100 A/μs	--	370	--	ns
Q_{rr}	Reverse Recovery Charge		--	3.5	--	μC

Notes:

1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=10mH , I_{AS}=11A.

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