CMP5015/CMF5015

150V N-Channel MOSFET

General Description

These N-Channel enhancement mode power field effect transistors uses advanced trench Technology, which provides low on-state resistance, high switching performance and excellent quality. These devices are well suited for high efficiency switching DC/DC converters, switch mode power supplies, DC-AC converters for uninterrupted power supplies and motor controls.

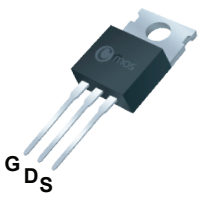
Product Summary

BVDSS	RDSON	ID
150V	90mΩ	20A

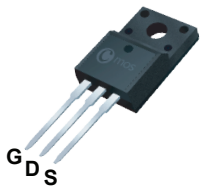
Applications

- Switch mode power supplies (SMPS)
- PWM Motor Controls
- DC-DC converters

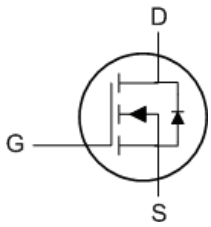
TO-220/220F Pin Configuration



TO-220



TO-220F



Type	Package	Marking
CMP5015	TO-220	CMP5015
CMF5015	TO-220F	CMF5015

Features

- 100% avalanche tested
- Fast Switching
- Improved dv/dt capability

Absolute Maximum Ratings

Symbol	Parameter	CMP5015/CMF5015		Units
V_{DS}	Drain-Source Voltage	150		V
V_{GS}	Gate-Source Voltage	±20		V
I_D@T_C=25℃	Continuous Drain Current	20	20*	A
I_D@T_C=100℃	Continuous Drain Current	14	14*	A
I_{DM}	Pulsed Drain Current	60	60*	A
EAS	Single Pulse Avalanche Energy [1]	160		mJ
P_D@T_C=25℃	Total Power Dissipation	56	68	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	CMP5015	CMF5015	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	2.2	2.25	℃/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	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=10A	---	---	90	mΩ
		V_{GS}=4.5V , I_D=8A	---	---	105	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=120V, V_{GS}=0V, T_J=25℃	---	---	1	uA
		V_{DS}=100V , V_{GS}=0V , T_J=125℃	---	---	10	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V , I_D=10A	---	15	---	S
Q_g	Total Gate Charge	I_D=20A V_{DS}=75V V_{GS}=10V	---	100	---	nC
Q_{gs}	Gate-Source Charge		---	25	---	
Q_{gd}	Gate-Drain Charge		---	37	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=75V, V_{GS}=10V $I_D \approx$20A R_{GS}=2.5Ω	---	16	---	ns
T_r	Rise Time		---	70	---	
$T_{d(off)}$	Turn-Off Delay Time		---	25	---	
T_f	Fall Time		---	40	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	1600	---	pF
C_{oss}	Output Capacitance		---	220	---	
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	---	---	20	A
I_{SM}	Pulsed Source Current		---	---	60	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=19 A, T_J=25℃	---	---	1.2	V

Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=50V,V_{GS}=10V,L= 5mH,I_{AS}=8A

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