CMF4N150

1500V N-Channel MOSFET

General Description

The 4N150 uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for high efficiency switch mode power supply.

Product Summary

BVDSS	RDSON	ID
1500V	4.5Ω	4A

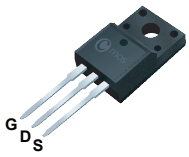
Applications

- Switch mode power supplies

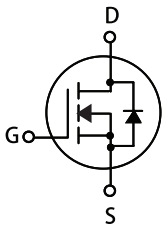
Features

- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

TO-220F Pin Configuration



TO-220F
(CMF4N150)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	1500	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	4	A
I_D@T_C=100℃	Continuous Drain Current	2.8	A
I_{DM}	Pulsed Drain Current	16	A
EAS	Single Pulse Avalanche Energy[1]	907	mJ
P_D@T_C=25℃	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	3.12	℃/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=250μA	1500	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=2A	---	3.6	4.5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =1mA	3	---	5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=1500V ,V_{GS}=0V	---	---	10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS} = 30V , I_D =2A	---	5.5	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2	---	Ω
Q_g	Total Gate Charge	I_D=4A V_{DS} =600V V_{GS} =10V	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=750V, I_D=2A R_G=4.7Ω , V_{GS}=10V	---	35	---	ns
T_r	Rise Time		---	30	---	
$T_{d(off)}$	Turn-Off Delay Time		---	45	---	
T_f	Fall Time		---	45	---	
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V , f=1MHz	---	2000	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

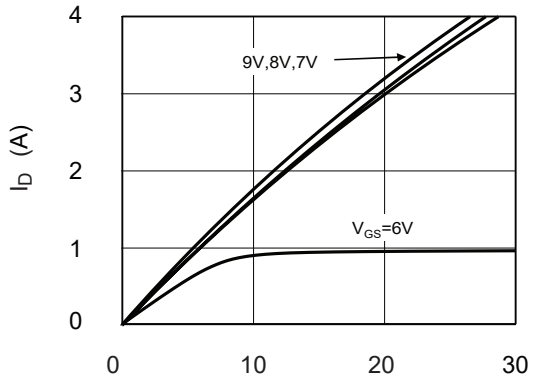
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	4	A
I_{SM}	Pulsed Source Current		---	---	16	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=2A , T_J=25℃	---	0.77	2	V

Notes:

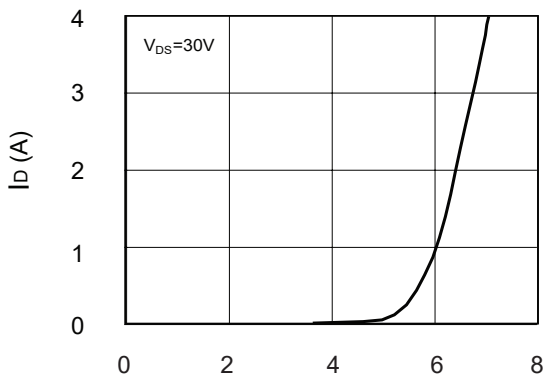
1.The EAS data shows Max. rating .The test condition is V_{DS}=100V , V_{GS}=10V , L=35mH , I_{AS}=7.2A.

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Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

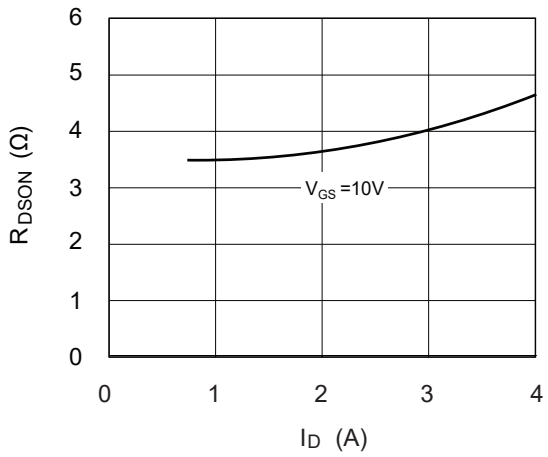
Typical Characteristics



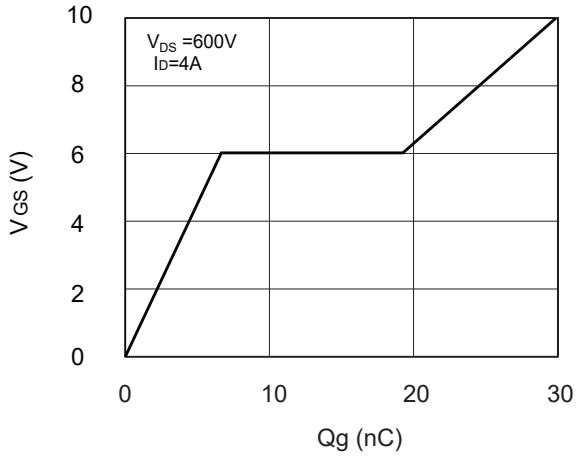
Output Characteristics



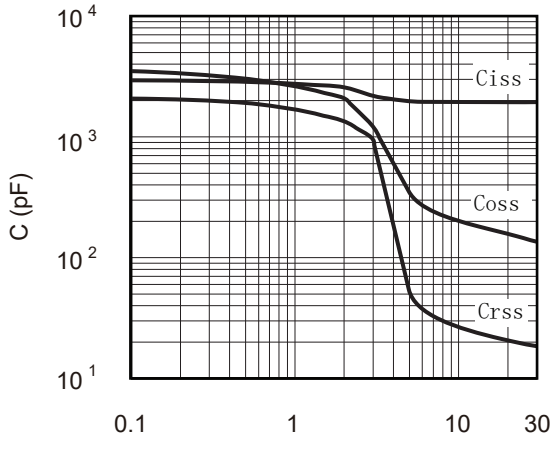
transfer characteristics



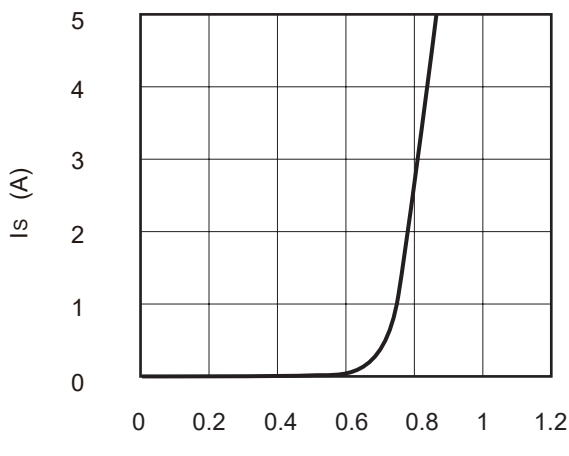
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics