CMF4N65A

650V, 1.9Ω typ., 5A N-Channel MOSFET

General Description

The CMF4N65A uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).It will provide much high efficiency by using optimized charge coupling technology.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
650V	2.5Ω	5A

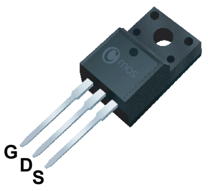
Applications

- Charger
- Adaptor
- Power Supply
- Electrodeless lamp

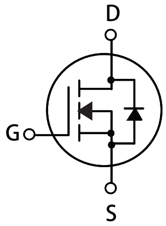
Features

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

TO-220F Pin Configuration



TO-220F



Type	Package	Marking
CMF4N65A	TO-220F	CMF4N65A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25℃$	Continuous Drain Current	5*	A
$I_D@T_C=100℃$	Continuous Drain Current	4*	A
I_{DM}	Pulsed Drain Current	20*	A
EAS	Single Pulse Avalanche Energy [1]	360	mJ
$P_D@T_C=25℃$	Total Power Dissipation	35	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	3.57	℃/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	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=2A	---	1.9	2.5	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}=650V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=± 30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V , I_D=2A	---	5	---	S
Q_g	Total Gate Charge	I_D=4.5A V_{DS}=520V V_{GS}=10V	---	15	---	nC
Q_{gs}	Gate-Source Charge		---	2	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$T_{d(on)}$	Turn-On Delay Time	V_{GS}=10V V_{DD}=325V I_D=4.5A R_G=25Ω	---	11	---	ns
T_r	Rise Time		---	41	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	51	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V, f=1MHz	---	730	---	pF
C_{oss}	Output Capacitance		---	55	---	
C_{rss}	Reverse Transfer Capacitance		---	7	---	

Diode Characteristics

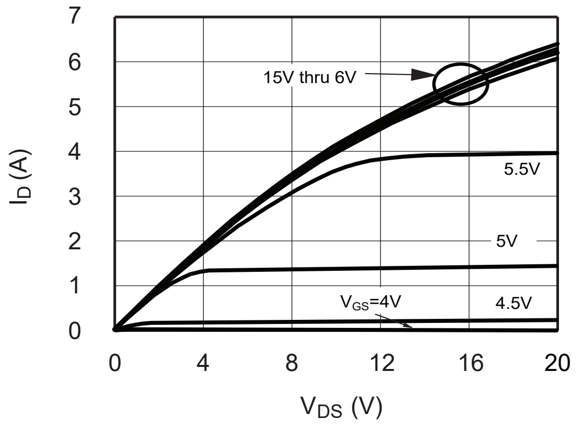
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	5	A
I_{SM}	Pulsed Source Current		---	---	20	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=4A	---	---	1.2	V

Note :

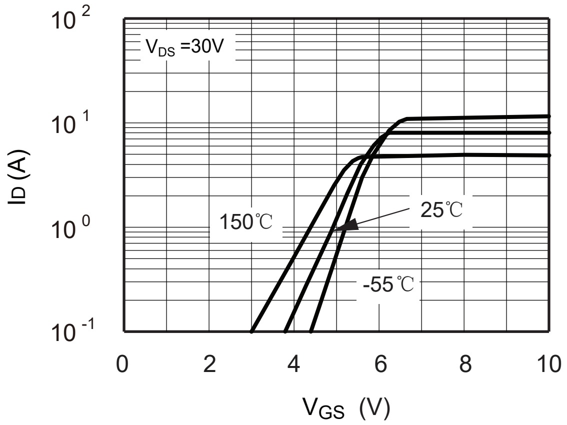
1. The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=20mH , I_{AS}=6A.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

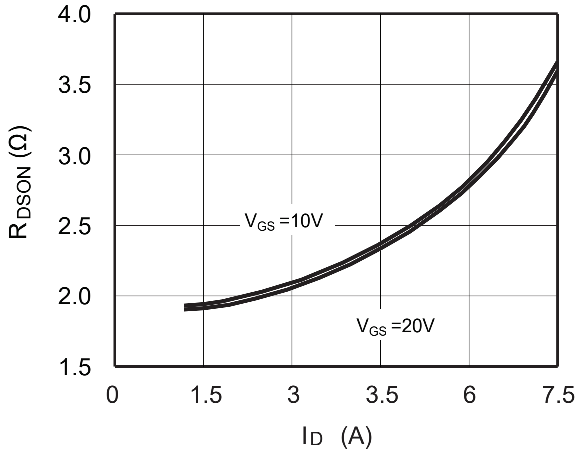
Typical Characteristics



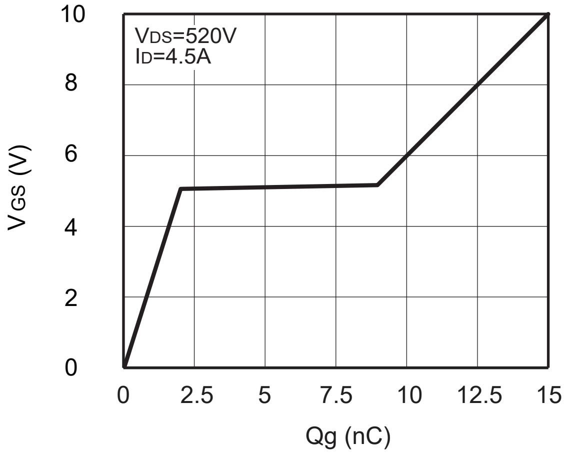
Output Characteristics



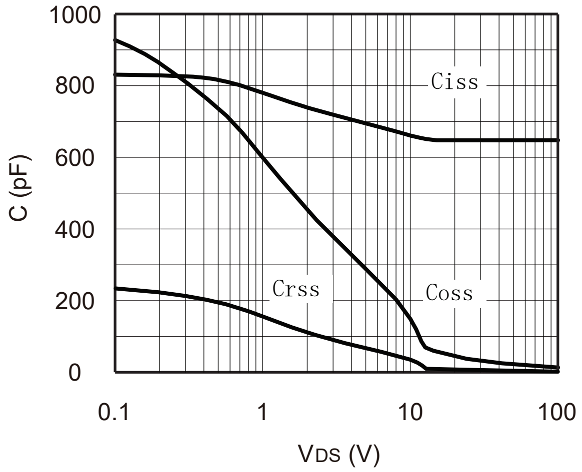
transfer characteristics



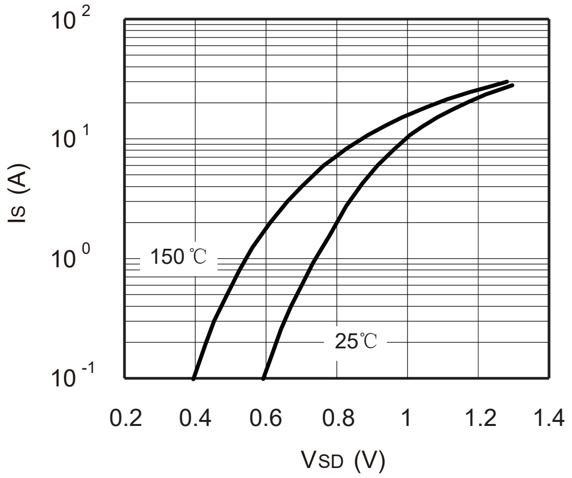
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



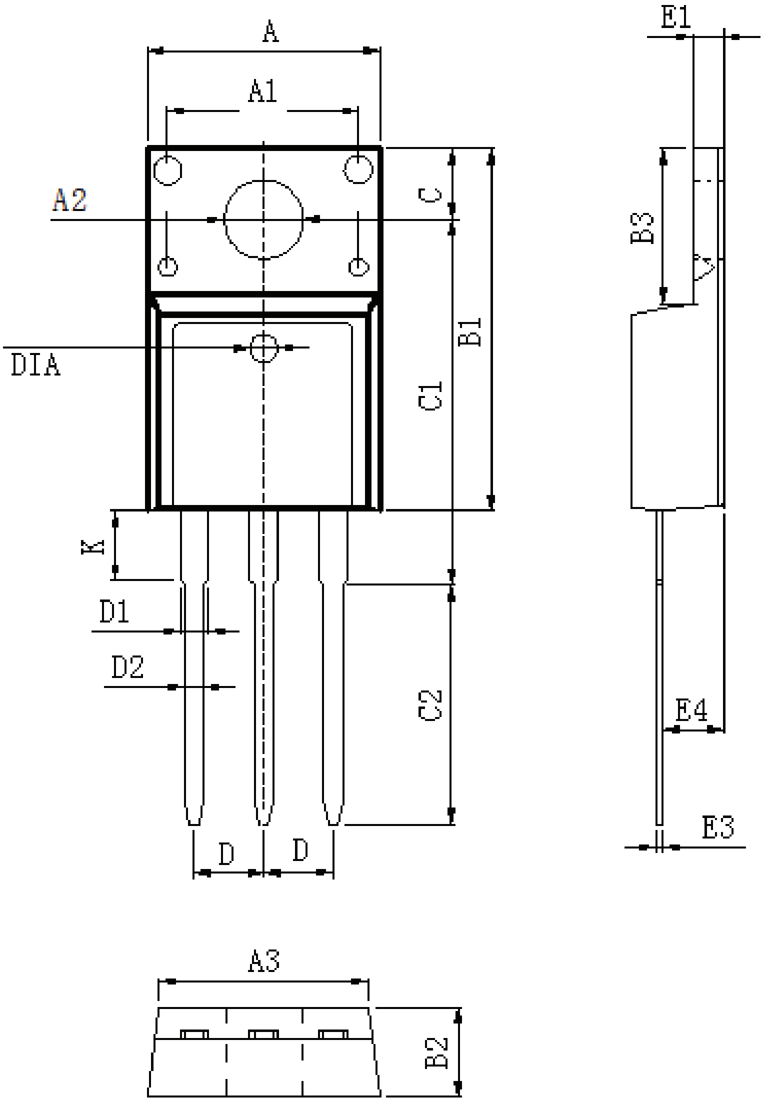
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

TO-220F Unit :mm



DIM	MILLIMETERS
A	10.16±0.3
A1	7.00±0.1
A2	3.3±0.2
A3	9.5±0.2
B1	15.87±0.3
B2	4.7±0.2
B3	6.68±0.4
C	3.3±0.2
C1	12.57±0.3
C2	10.02±0.5
D	2.54±0.05
D1	1.28±0.2
D2	0.8±0.1
K	3.1±0.3
E1	2.54±0.1
E3	0.5±0.1
E4	2.76±0.2
DIA	⊙1.5(deep 0.2)