CMF70P06

-60V, 13mΩ typ., -70A P-Channel MOSFET

General Description

The CMF70P06 uses advanced trench technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
-60V	15mΩ	-70A

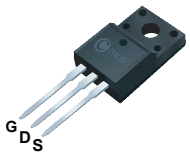
Applications

- Inverters
- Motor drive
- DC / DC converter

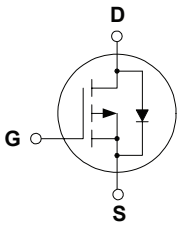
Features

- Fast switching
- 100% avalanche tested
- Lower On-resistance
- RoHS Compliant

TO-220F Pin Configuration



TO-220F
(CMF70P06)



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-70	A
I_D@T_C=100℃	Continuous Drain Current	-46	A
I_{DM}	Pulsed Drain Current	-280	A
EAS	Single Pulse Avalanche Energy[1]	722	mJ
P_D@T_C=25℃	Total Power Dissipation	60	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.08	℃/W

-60V, 13mΩ typ., -70A P-Channel MOSFET

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	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-20A	---	13	15	mΩ
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-4.5V , I_D=-10A	---	16	24	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-60V, V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=-10V, I_D=-20A	---	33	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	130	---	Ω
Q_g	Total Gate Charge	I_D=-25A V_{DS} =-30V V_{GS} =-10V	---	89	---	nC
Q_{gs}	Gate-Source Charge		---	13	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V, I_{DS} =-1A R_L =30Ω R_G=6Ω V_{GEN}=-10V	---	16	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	120	---	
T_f	Fall Time		---	61	---	
C_{iss}	Input Capacitance	V_{DS}=-25V ,V_{GS}=0V , f=1MHz	---	4900	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

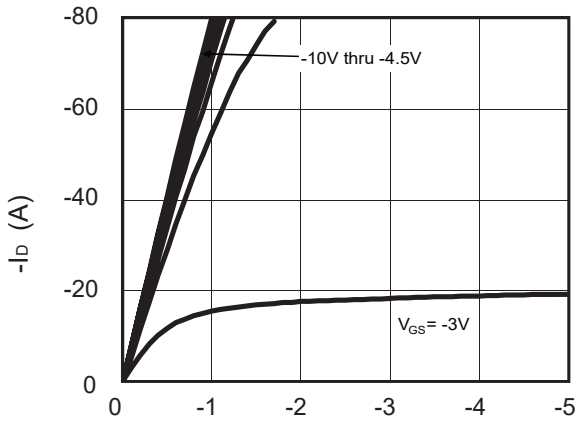
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-70	A
I_{SM}	Pulsed Source Current		---	---	-280	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-10A ,T_J=25℃	---	---	-1.2	V

Notes:

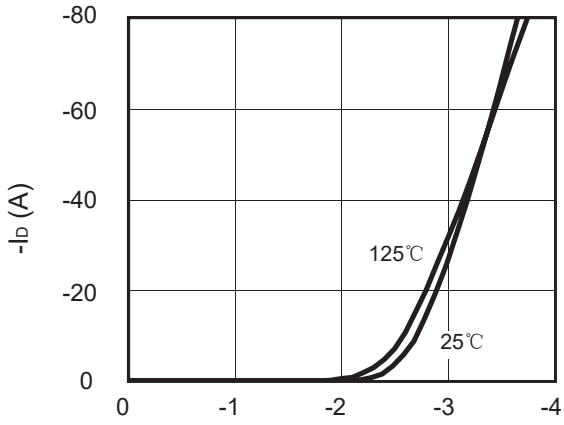
1.The EAS data shows Max. rating . The test condition is V_{DD}=-40V , V_{GS}=-10V , L=5mH , I_D=17A

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.

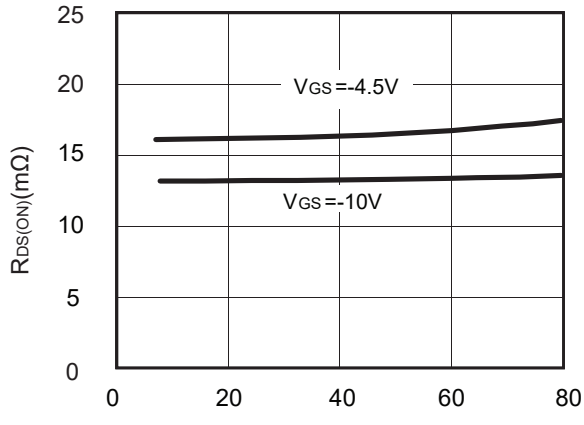
Typical Characteristics



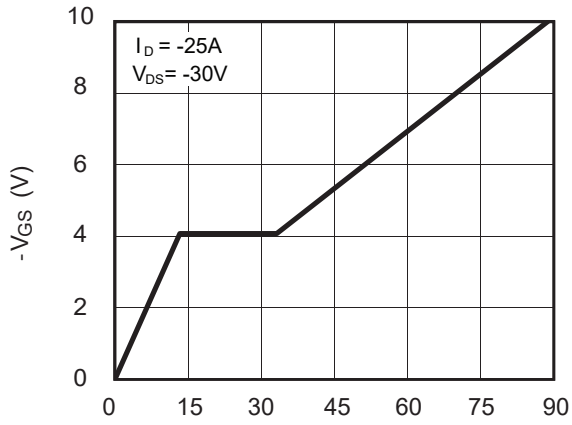
On-Region Characteristics



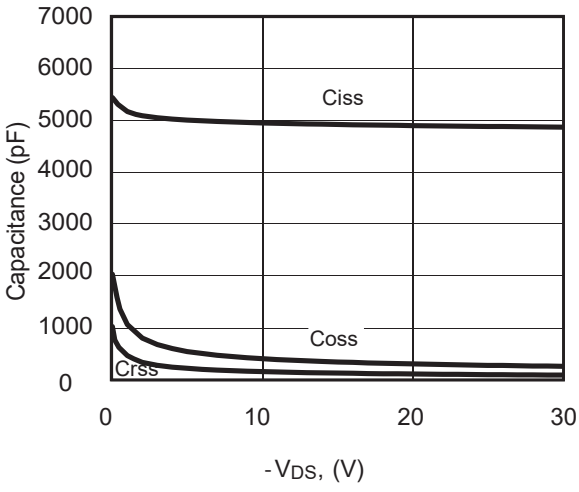
transfer characteristics



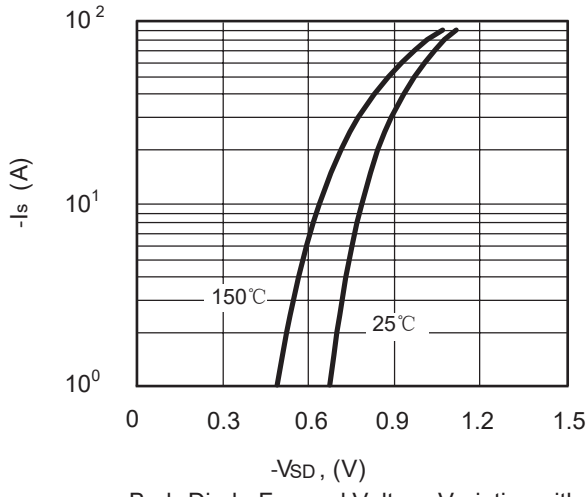
On-Resistance vs. Drain Current



Gate Charge Characteristics



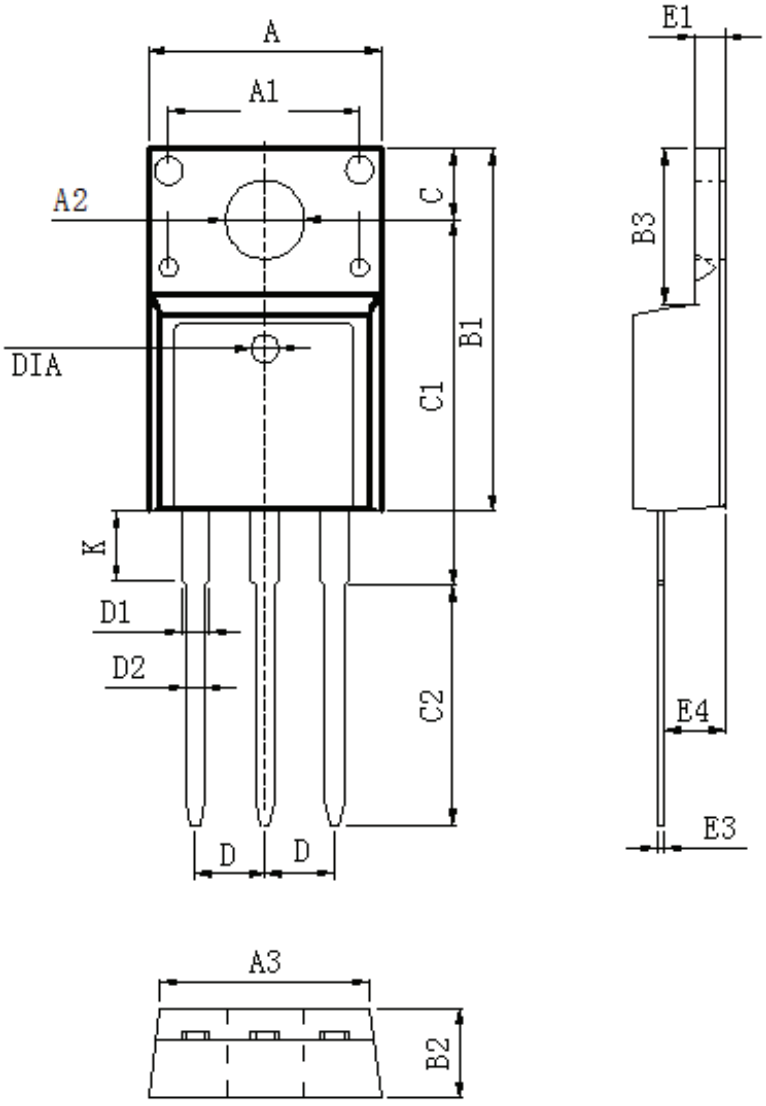
Capacitance Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature

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)