

CMF70R360

700V, 0.33Ω typ., 13A N-Channel Super Junction Power MOSFET

General Description

The CMF70R360 is power MOSFET using Cmos's advanced super junction technology that can realize very low on-resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of Low EMI to designers as well as low switching loss.

Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% Avalanche Tested
- RoHS Compliant

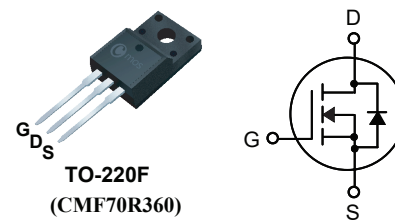
Product Summary

BVDSS	R _{DS(on) max.}	ID
700V	0.36Ω	13A

Applications

- Adaptor
- Motor Control
- DC – DC Converters

TO-220F Pin Configuration



Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V _{DSS}	Drain-Source Voltage	700	V
I _D	Drain Current - Continuous (T _C = 25°C) - Continuous (T _C = 100°C)	13	A
		8	A
I _{DM}	Drain Current - Pulsed	52	A
V _{GSS}	Gate-Source Voltage	±30	V
E _{AS}	Single Pulsed Avalanche Energy ¹	453	mJ
P _D	Power Dissipation (T _C = 25°C)	33	W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter	Rating	Units
R _{θC}	Thermal Resistance, Junction-to-Case Max.	3.79	°C/W
R _{θA}	Thermal Resistance, Junction-to-Ambient Max.	56	°C/W

Electrical Characteristic (T_c=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA	700	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 700 V, V _{GS} = 0 V	--	--	1	μA
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	3	--	4	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} = 10 V, I _D = 6.5A	--	0.33	0.36	Ω
g _{FS}	Forward Transconductance	V _{DS} = 20V, I _D = 6.5A	--	7.2	--	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	--	8.2	--	Ω

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} = 0 V f = 1.0 MHz	--	690	--	pF
C _{oss}	Output Capacitance		--	40	--	pF
C _{rss}	Reverse Transfer Capacitance		--	2.2	--	pF

Switching Characteristics

t _{d(on)}	Turn-On Delay Time	V _{DS} = 400 V, I _D = 6A R _G = 27 Ω , V _{GS} = 10V	--	20	--	ns
t _r	Turn-On Rise Time		--	26	--	ns
t _{d(off)}	Turn-Off Delay Time		--	105	--	ns
t _f	Turn-Off Fall Time		--	32	--	ns
Q _g	Total Gate Charge	V _{DS} = 480 V, I _D = 6A V _{GS} = 10V	--	26	--	nC
Q _{gs}	Gate-Source Charge		--	3.7	--	nC
Q _{gd}	Gate-Drain Charge		--	14	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-Source Diode Forward Current	--	--	13	A	
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current	--	--	52	A	
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 11A	--	0.87	1.4	V
t _{rr}	Reverse Recovery Time	V _{DD} = 100V, I _F = 6A	--	210	--	ns
Q _{rr}	Reverse Recovery Charge	dI _F / dt = 100 A/μs	--	2.05	--	μC

Note :

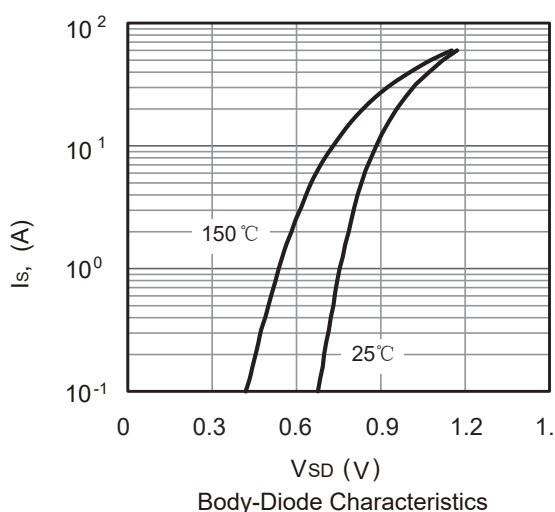
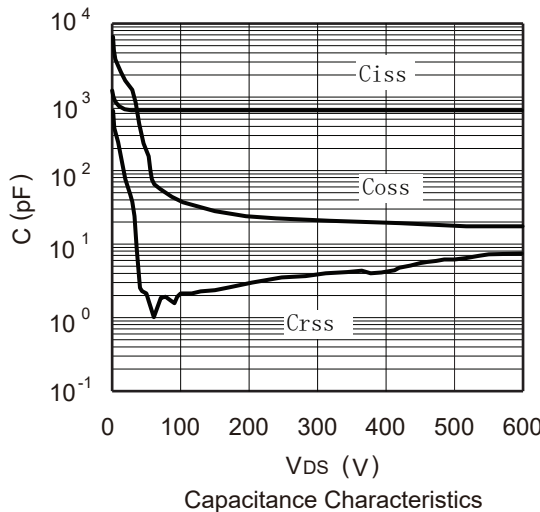
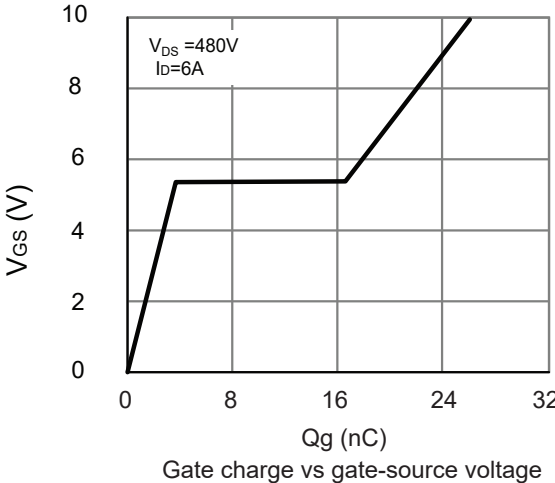
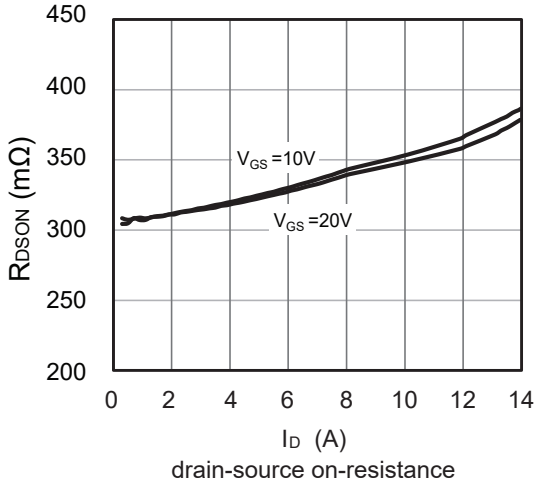
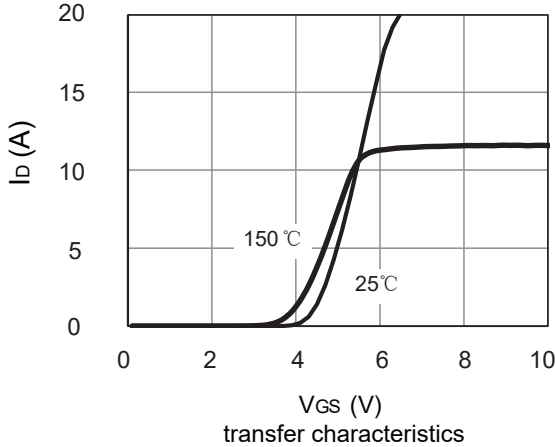
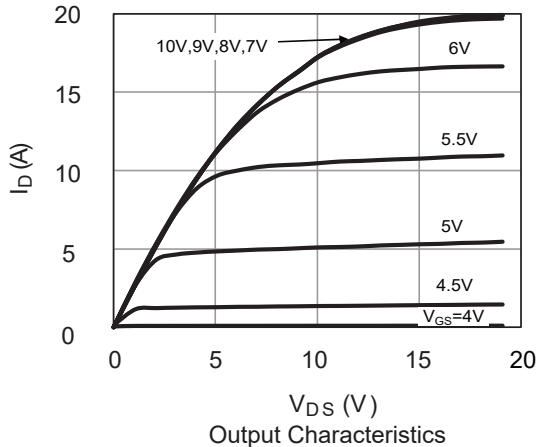
 1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=30mH , I_{AS}=5.5A.

This product has been designed and qualified for the consumer market.

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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

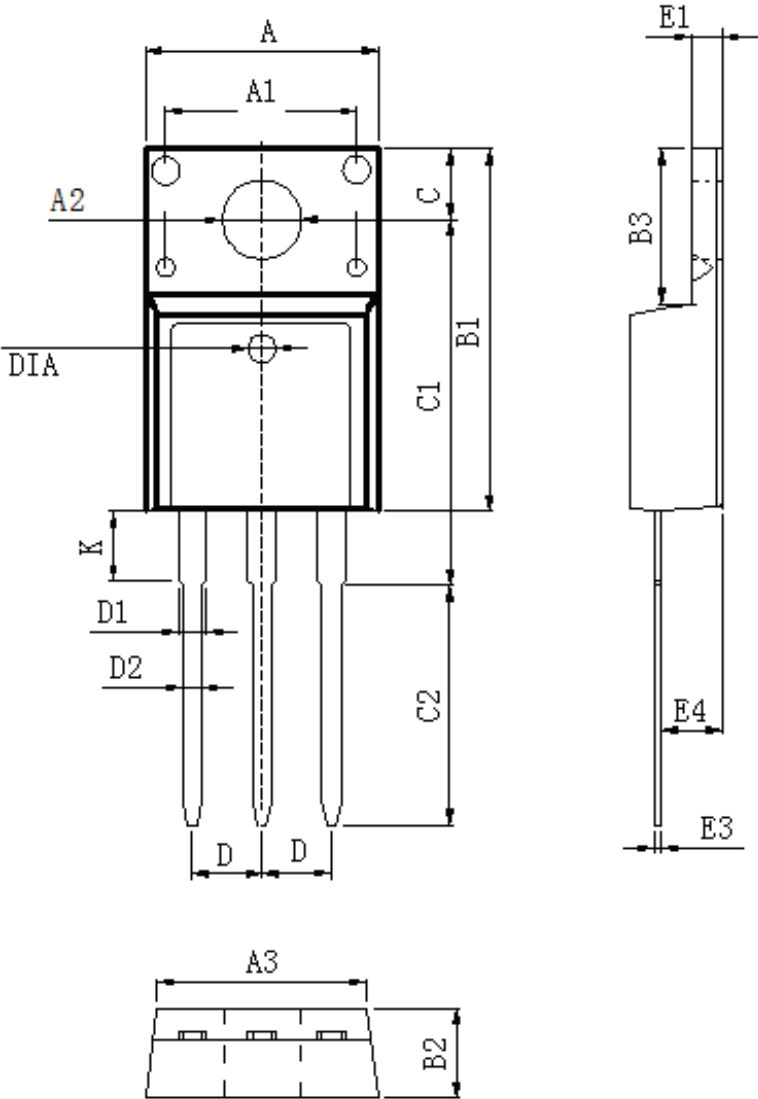
Typical Characteristics



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)