

General Description

CMF80R450P 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.

Features

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

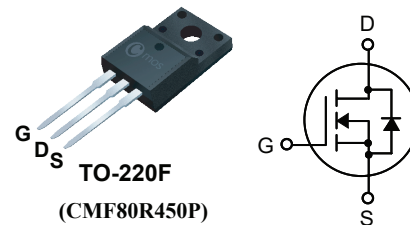
Product Summary

BVDSS	R _{DS(on)} max.	ID
800V	0.4Ω	11A

Applications

- Adaptor
- Motor Control
- DC – DC Converters
- PFC Power Supply Stages
- Switching Applications

TO-220F Pin Configuration



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

Symbol	Parameter	Rating	Units
V _{DSS}	Drain-Source Voltage	800	V
I _D	Drain Current - Continuous (T _C = 25°C) - Continuous (T _C = 100°C)	11	A
		7	A
I _{DM}	Drain Current - Pulsed	33	A
V _{GSS}	Gate-Source Voltage	±30	V
E _{AS}	Single Pulsed Avalanche Energy	260	mJ
P _D	Power Dissipation (T _C = 25°C)	35	W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter	Rating	Units
R _{θJC}	Thermal Resistance, Junction-to-Case	3.57	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient	62.5	°C/W

Electrical Characteristic (Tc=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	800	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 800 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	2	--	4	V
R _{DS(on)}	Static Drain-Source on-Resistance	V _{GS} = 10 V, I _D = 7A	--	0.3	0.4	Ω
g _{FS}	Forward Transconductance	V _{DS} = 15V, I _D = 4A	--	9	--	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	--	2.1	--	Ω

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{DS} = 100V, V _{GS} = 0 V f = 1.0 MHz	--	1280	--	pF
C _{oss}	Output Capacitance		--	48	--	pF
C _{rss}	Reverse Transfer Capacitance		--	3	--	pF

Switching Characteristics

t _{d(on)}	Turn-On Delay Time	V _{DS} = 400 V, I _D = 11A R _G = 25 Ω, V _{GS} = 10V	--	25	--	ns
t _r	Turn-On Rise Time		--	45	--	ns
t _{d(off)}	Turn-Off Delay Time		--	120	--	ns
t _f	Turn-Off Fall Time		--	45	--	ns
Q _g	Total Gate Charge	V _{DS} = 640 V, I _D = 11A V _{GS} = 10 V	--	38	--	nC
Q _{gs}	Gate-Source Charge		--	7.5	--	nC
Q _{gd}	Gate-Drain Charge		--	16	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

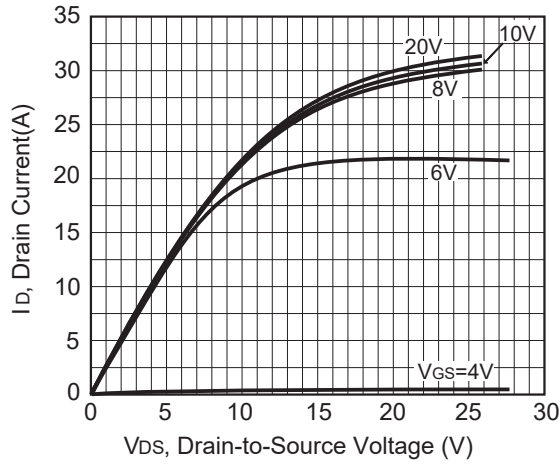
I _S	Maximum Continuous Drain-Source Diode Forward Current	--	--	11	A	
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current	--	--	33	A	
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 10A	--	--	1.4	V
t _{rr}	Reverse Recovery Time	V _{DD} = 100V, I _F = 11A	--	356	--	ns
Q _{rr}	Reverse Recovery Charge	dI _F / dt = 100 A/μs	--	4.7	--	μC

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

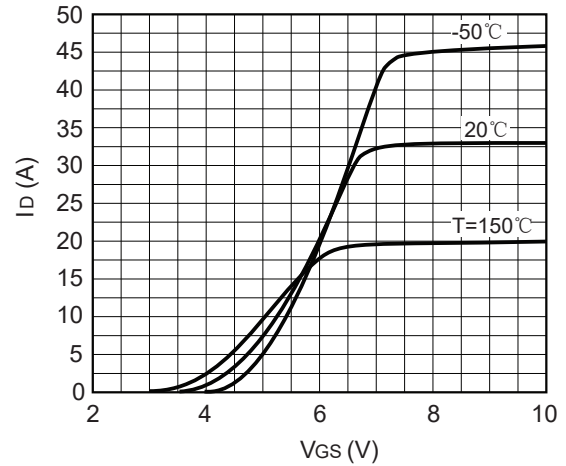
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Cmos reserves the right to improve product design, functions and reliability without notice. Please refer to the latest version of specification.

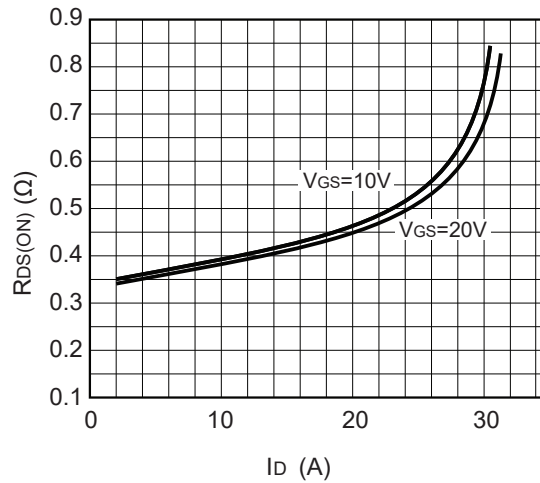
Typical Characteristics



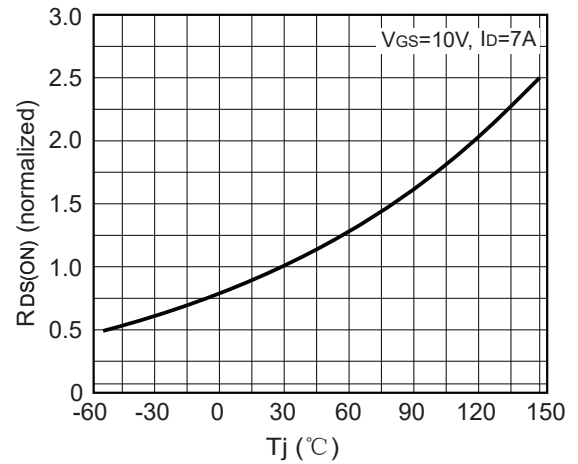
Output Characteristics



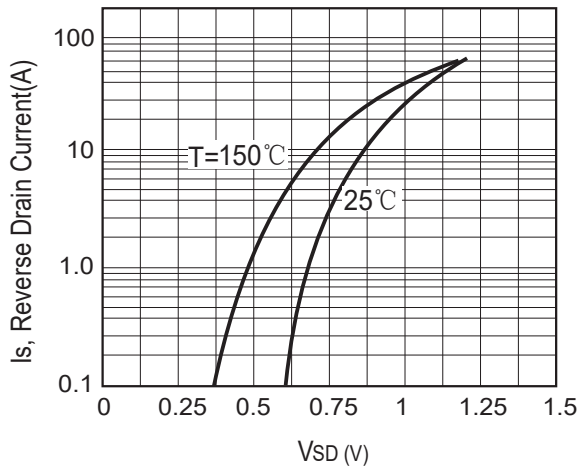
Transfer Characteristics



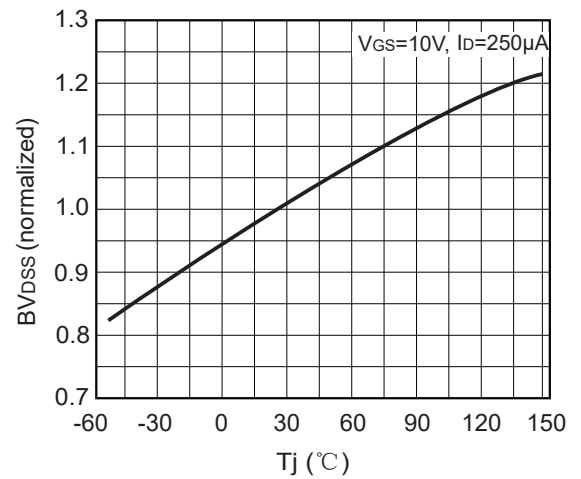
On-Resistance Variation with Drain Current and Gate Voltage



On-Resistance Variation with Temperature

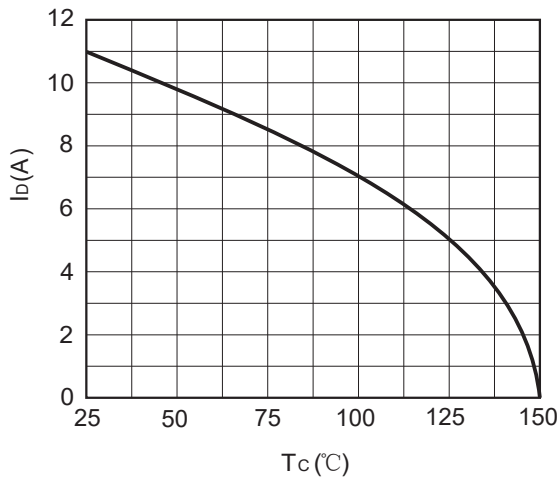


Body Diode Forward Voltage Variation with Source Current and Temperature

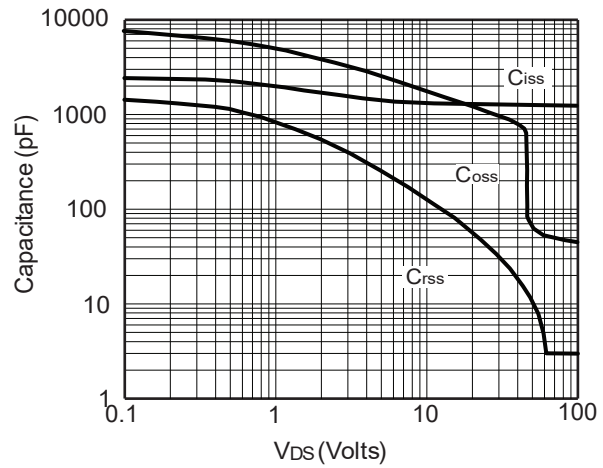


Breakdown Voltage Variation vs Temperature

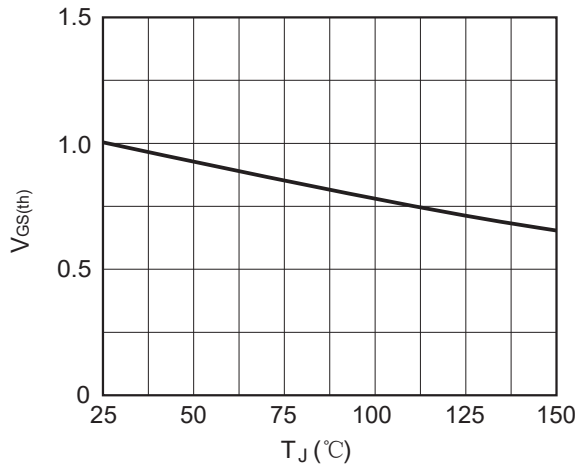
Typical Characteristics



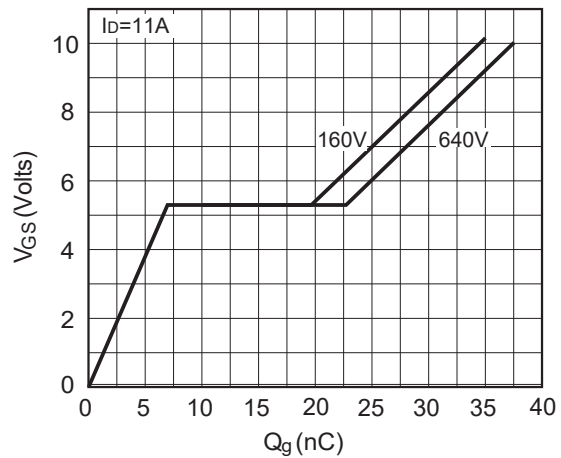
Maximum Drain Current vs. Case Temperature



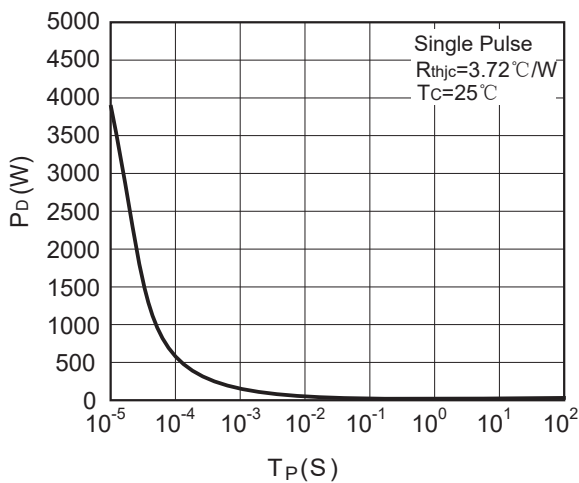
Capacitance Characteristics



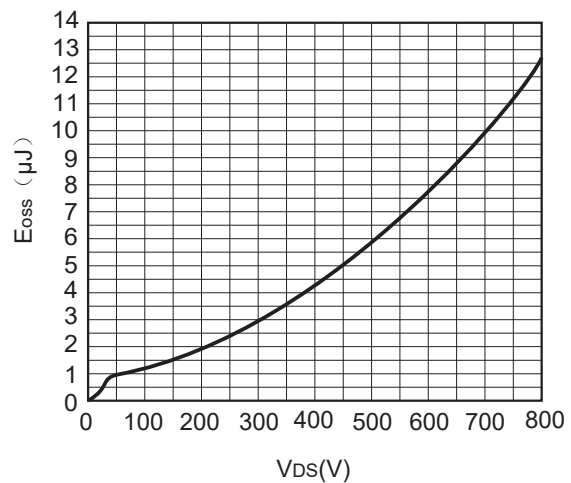
$V_{GS(th)}$ Variation with Temperature



Gate-Charge Characteristics

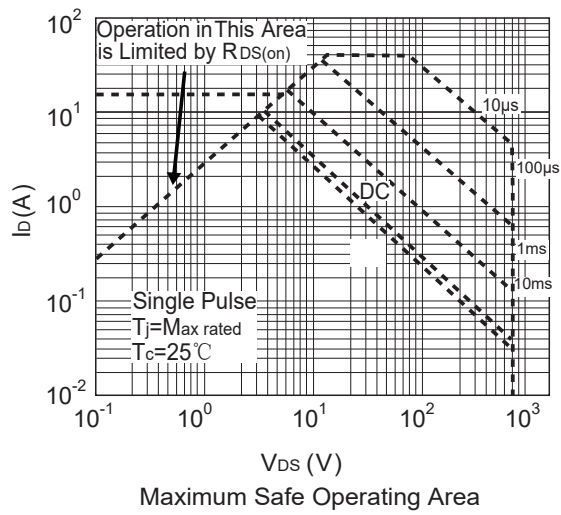
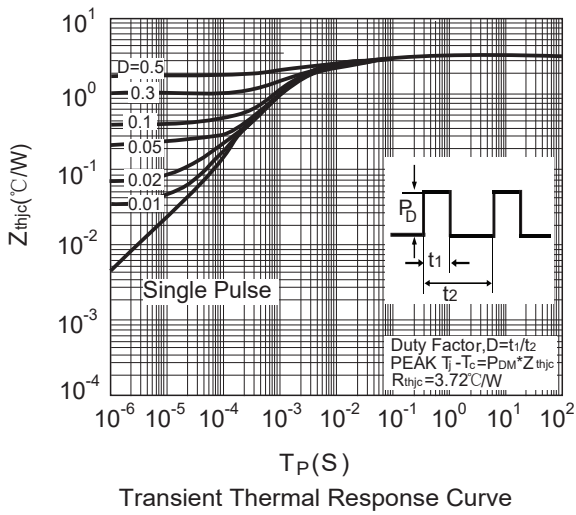


Transient Thermal Response Curve

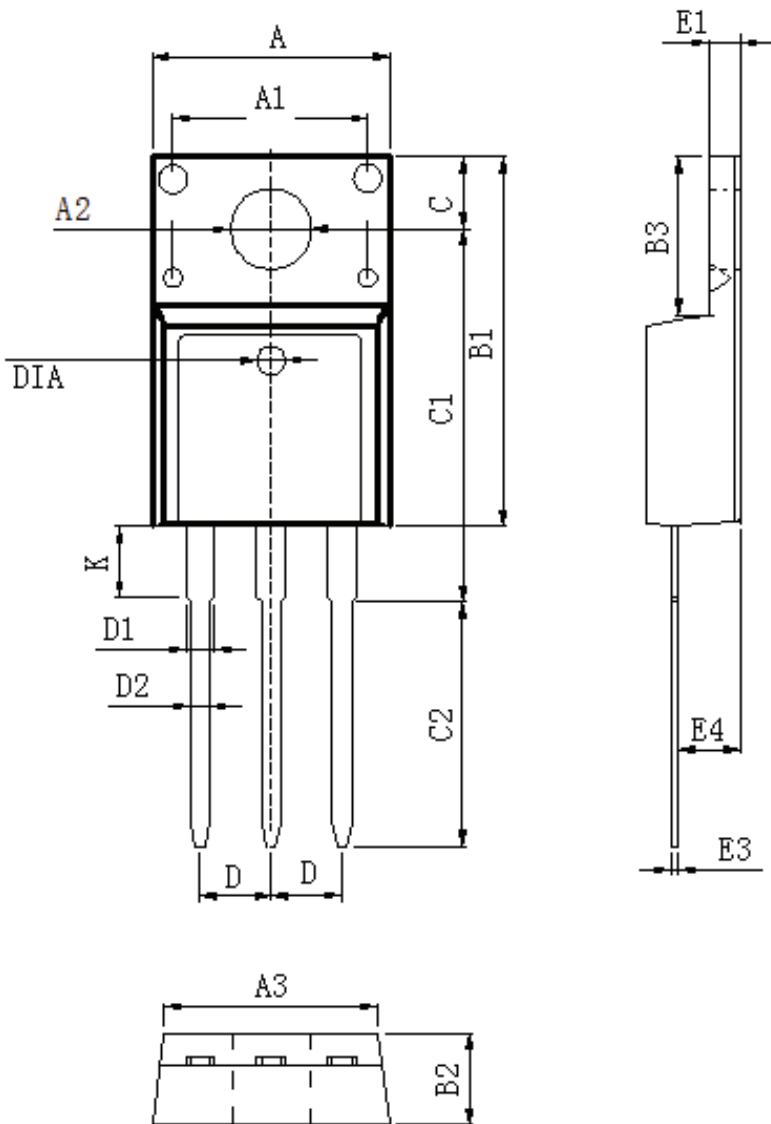


Output Capacitance Stored Energy

Typical Characteristics



Package Dimensions



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)

Unit :mm

Dimensions in Millimeters