CMF90R450Q

N-Channel Super Junction Power MOSFET

General Description

CMF90R450Q 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

- Low On-Resistance
- 100% avalanche tested
- Excellent ESD robustness
- Multi-layer Epitaxial Chip Technology
- RoHS Compliant

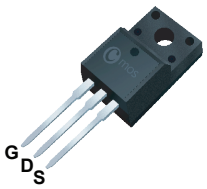
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
900V	0.45Ω	11A

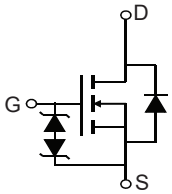
Applications

- Charger
- Adaptor
- Power Supply
- Electrodeless lamp

TO-220F Pin Configuration



TO-220F



Type	Package	Marking
CMF90R450Q	TO-220F	CMF90R450Q

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	900	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	11	A
I_D@T_C=100℃	Continuous Drain Current	7	A
I_{DM}	Pulsed Drain Current	44	A
EAS	Single Pulse Avalanche Energy [1]	50	mJ
P_D@T_C=25℃	Total Power Dissipation	31	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	75	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	4	℃/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	900	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=7.1A	---	---	0.45	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=800V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=± 30V , V_{DS}=0V	---	---	±10	uA
gfs	Forward Transconductance	V_{DS}=10V , I_D=11A	---	30	---	S
Q_g	Total Gate Charge	I_D=11A V_{DS}=640V V_{GS}=10V	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	7	---	
Q_{gd}	Gate-Drain Charge		---	9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{GS}=10V V_{DD}=400V I_D=11A R_G=25Ω	---	25	---	ns
T_r	Rise Time		---	45	---	
$T_{d(off)}$	Turn-Off Delay Time		---	140	---	
T_f	Fall Time		---	22	---	
C_{iss}	Input Capacitance	V_{DS}=100V , V_{GS}=0V, f=1MHz	---	920	---	pF
C_{oss}	Output Capacitance		---	48	---	
C_{rss}	Reverse Transfer Capacitance		---	3	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	11	A
I_{SM}	Pulsed Source Current		---	---	44	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=11A ,T_J=25℃	---	---	1.4	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs V_{DD}=100V , I_{SD}=11A	---	441	---	ns
Q_{rr}	Reverse Recovery Charge		---	5.4	---	μC

Notes:

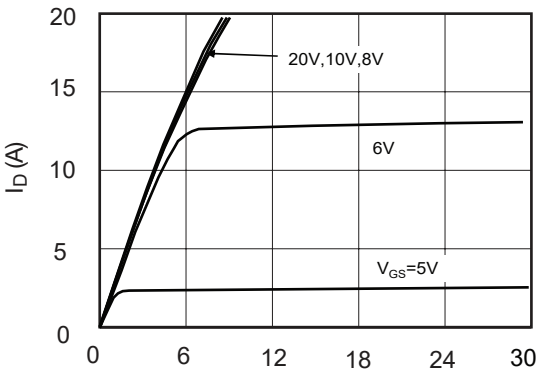
1.The EAS data shows Max. rating . The test condition is V_{DD}=80V,V_{GS}=10V,L=5mH,I_{AS}=4.5A

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

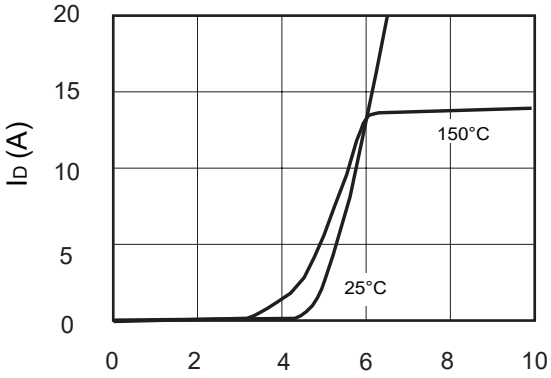
Cmos assumes no liability for customers' product design or applications.

Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

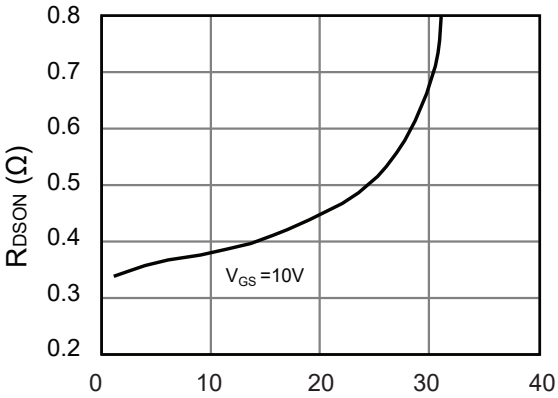
Typical Characteristics



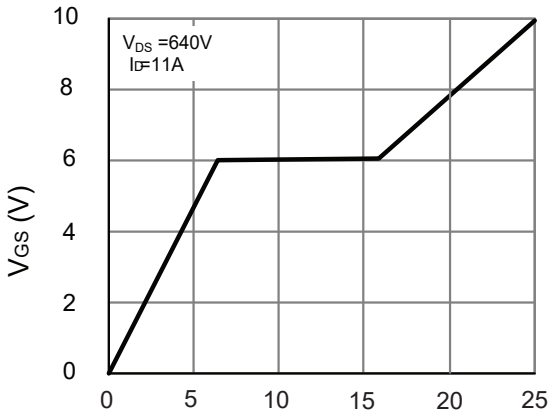
Output Characteristics



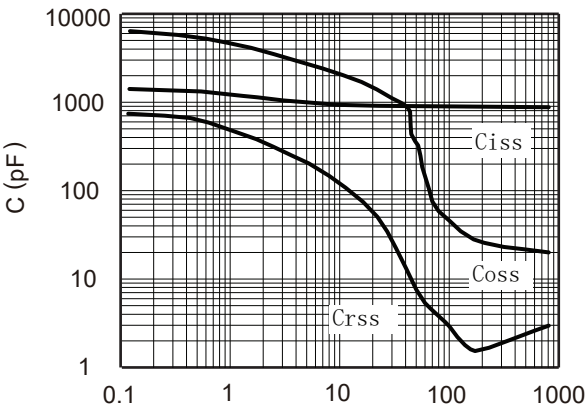
transfer characteristics



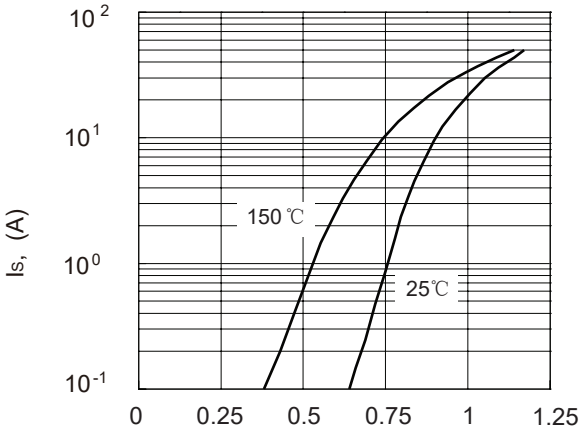
drain-source on-resistance



Gate charge vs gate-source voltage

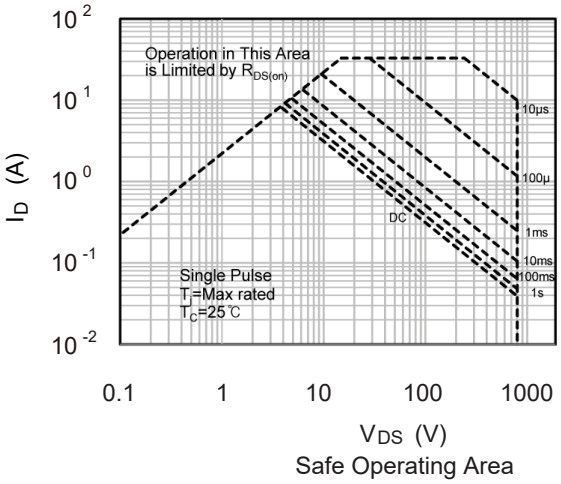


Capacitance Characteristics

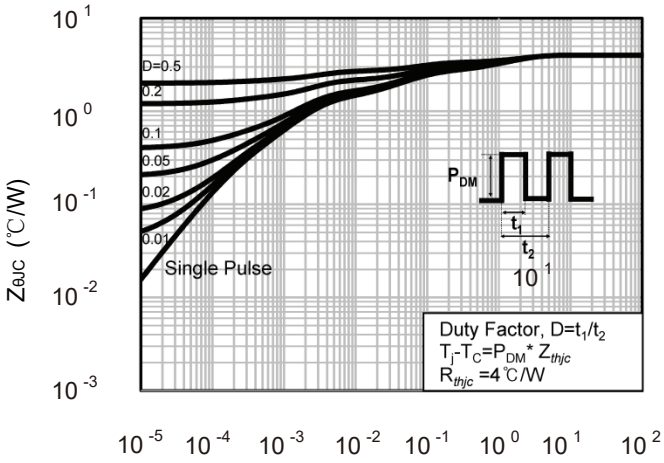


Body-Diode Characteristics

Typical Characteristics



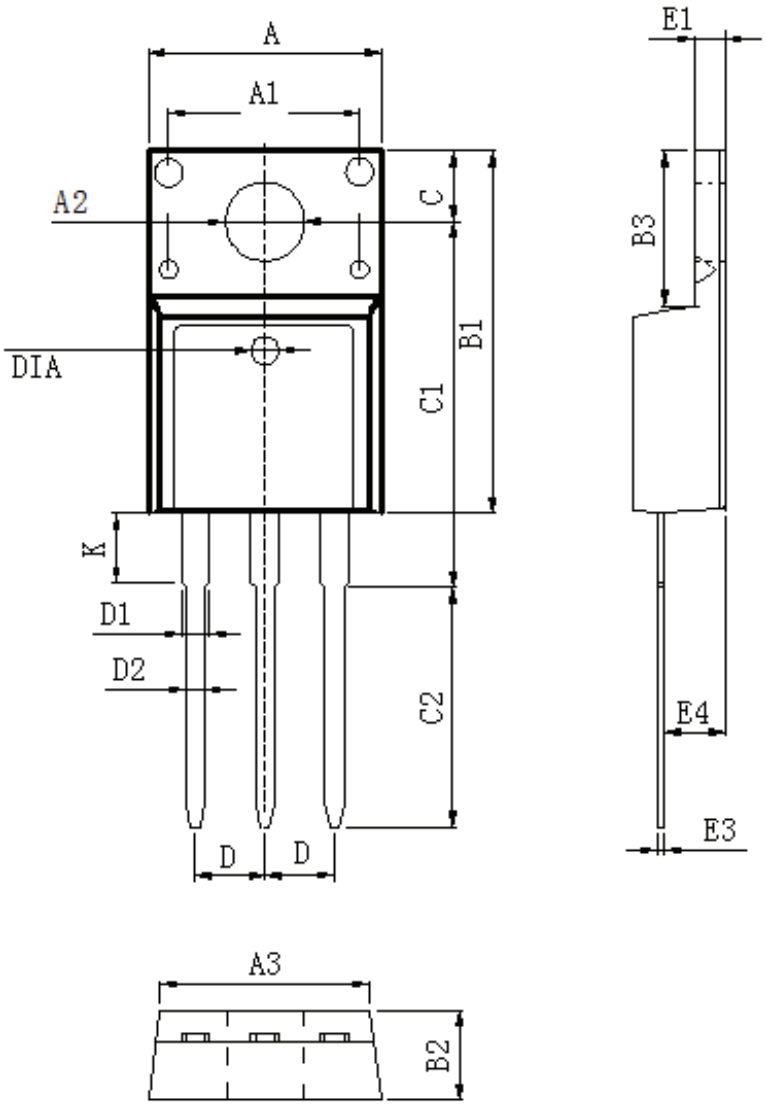
Safe Operating Area



Transient thermal impedance

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)