CMF80R450Q

800V N-Channel MOSFET

General Description

CMF80R450Q 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

- 100% avalanche tested
- Excellent ESD robustness
- Low Power Loss by High Speed Switching and Low On-Resistance
- RoHS Compliant

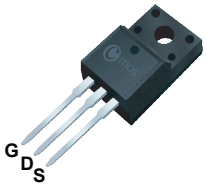
Product Summary

BVDSS	RDSON	ID
800V	0.45Ω	11A

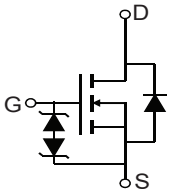
Applications

- Charger
- Adaptor
- Power Supply
- Electrodeless lamp

TO-220F Pin Configuration



TO-220F



Type	Package	Marking
CMF80R450Q	TO-220F	CMF80R450Q

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	800	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]	120	mJ
P_D@T_C=25℃	Total Power Dissipation	30	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	800	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=7.1A	---	0.39	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	---	25	---	nC
Q_{gs}	Gate-Source Charge	V_{DS}=640V	---	6.9	---	
Q_{gd}	Gate-Drain Charge	V_{GS}=10V	---	9.3	---	
$T_{d(on)}$	Turn-On Delay Time	V_{GS}=10V	---	25	---	ns
T_r	Rise Time	V_{DD}=400V	---	42	---	
$T_{d(off)}$	Turn-Off Delay Time	I_D=11A	---	140	---	
T_f	Fall Time	R_G=25Ω	---	22	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V, f=1MHz	---	960	---	pF
C_{oss}	Output Capacitance		---	1250	---	
C_{rss}	Reverse Transfer Capacitance		---	35	---	

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	---	---	1.4	V

Notes:
1.The EAS data shows Max. rating . The test condition is V_{DD}=80V,VGS=10V,L=15mH,IAS=4A

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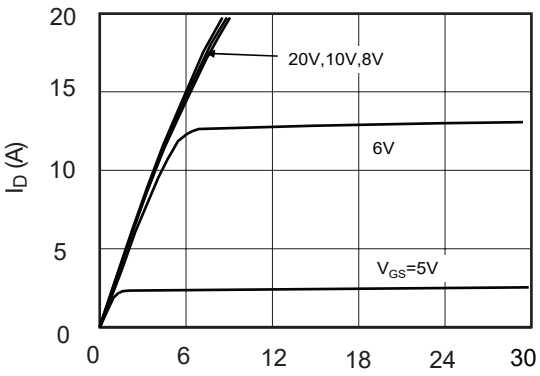
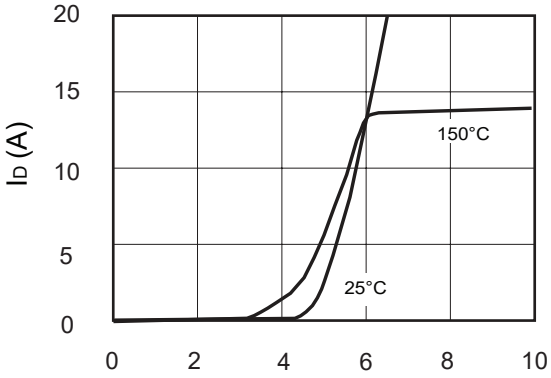
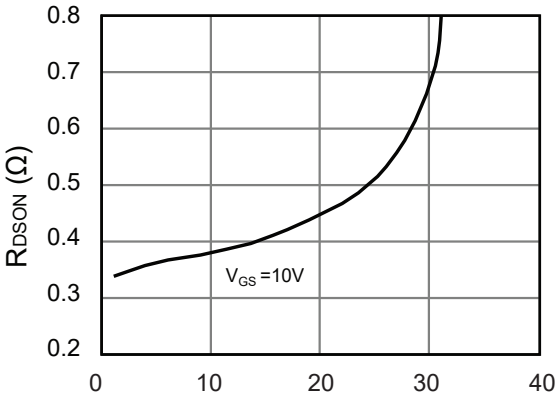
Typical Characteristics



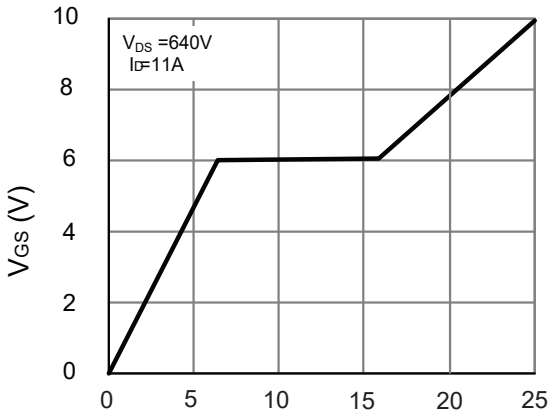
Output Characteristics



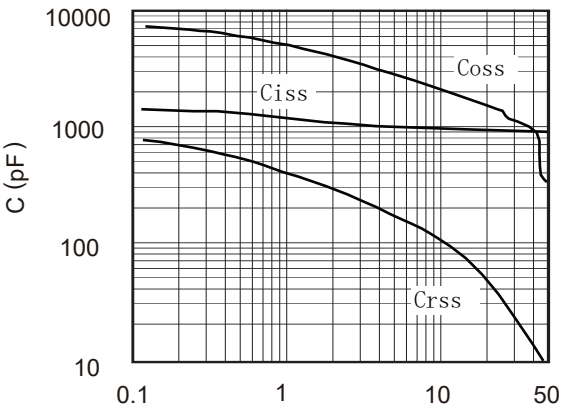
transfer characteristics



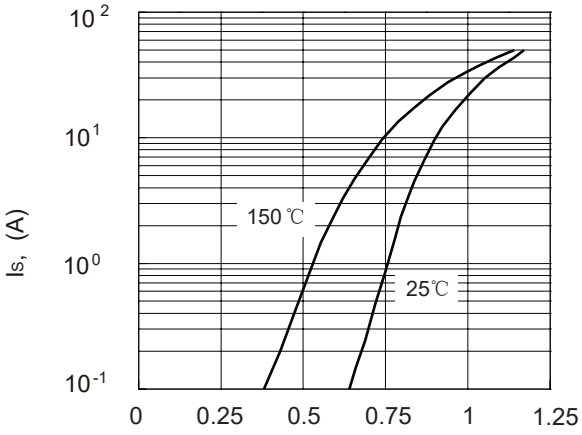
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics