CMP60R580Q/CMB60R580Q/CMI60R580Q/CMF60R580Q

600V N-Channel MOSFET

General Description

The 60R580Q is power MOSFET using advanced super junction technology that can realize very low on-resistance and gate charge. This advanced technology has been tailored to minimize conduction loss, provide superior switching performance, and withstand extreme dv/dt rate and higher avalanche energy.

Product Summary

BVDSS	RDSON	ID
600V	0.58Ω	8A

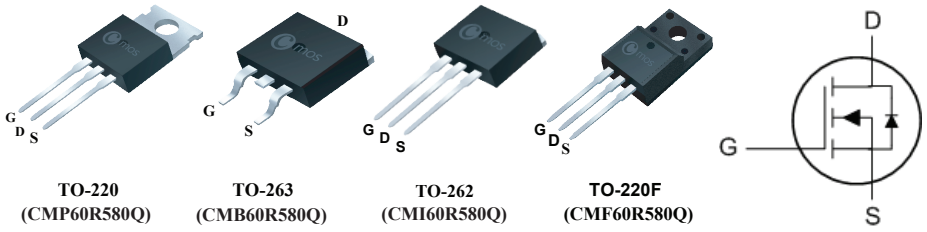
Applications

- Charger
- Adaptor
- AC/DC power conversion

Features

- Improved dv/dt capability
- 100% avalanche tested
- RoHS Compliant

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	600		V
V_{GS}	Gate-Source Voltage	±30		V
I_D@T_C=25℃	Continuous Drain Current	8	8*	A
I_D@T_C=100℃	Continuous Drain Current	5	5*	A
I_{DM}	Pulsed Drain Current	24	24*	A
EAS	Single Pulse Avalanche Energy	60		mJ
P_D@T_C=25℃	Total Power Dissipation	70	28	W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1.9	4.5	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

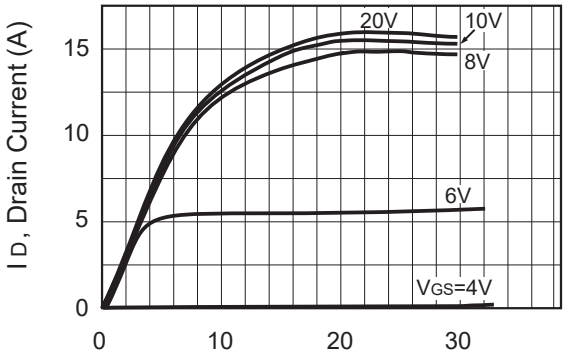
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	600	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=2.5A	---	---	0.58	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=600V , V_{GS}=0V	---	---	1	uA
		V_{DS}=600V , T_C=150℃	---	10	---	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V, I_D =2A	---	7	---	S
Q_g	Total Gate Charge	I_D=8A V_{DS}=480V V_{GS}=10V	---	20	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	7	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=300V I_D=8A R_G=25Ω V_{GS}=10V	---	15	---	ns
T_r	Rise Time		---	35	---	
$T_{d(off)}$	Turn-Off Delay Time		---	50	---	
T_f	Fall Time		---	25	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	500	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	10	---	

Diode Characteristics

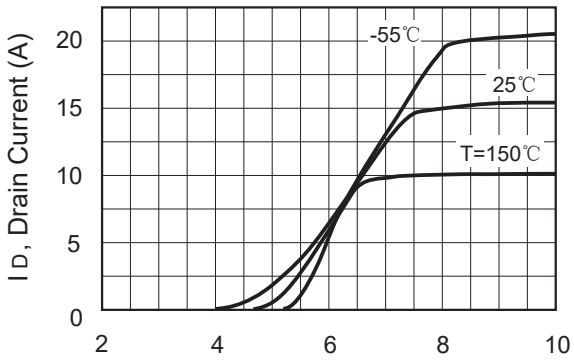
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	8	A
I_{SM}	Pulsed Source Current		---	---	24	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=8A	---	---	1.2	V
trr	Reverse Recovery Time	IF = 8A dI / dt = 100 A/μs	---	---	303	A
Q_{rr}	Reverse Recovery Charge		---	---	2.4	V

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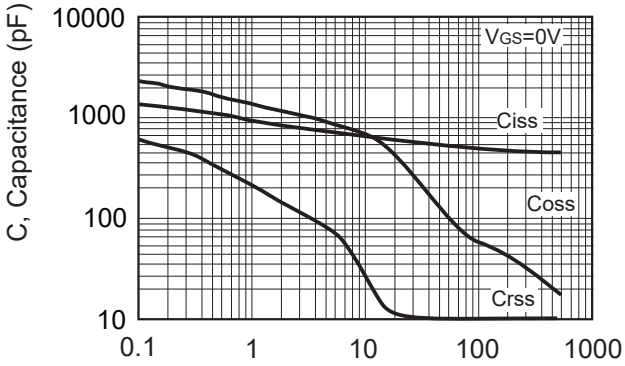
Typical Characteristics



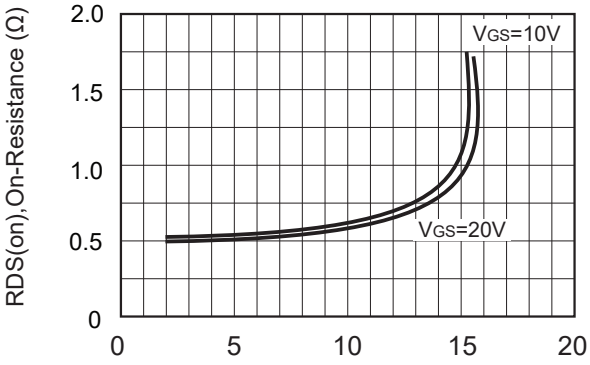
Output Characteristics



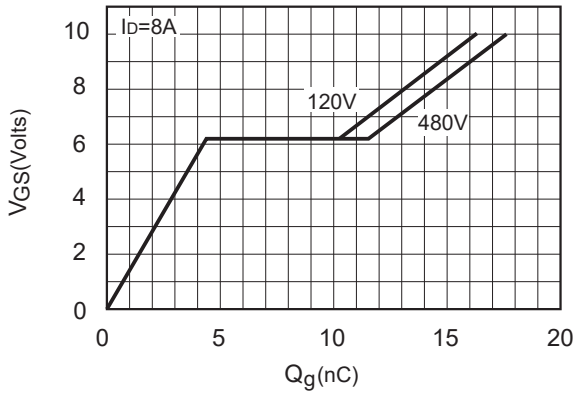
Transfer Characteristics



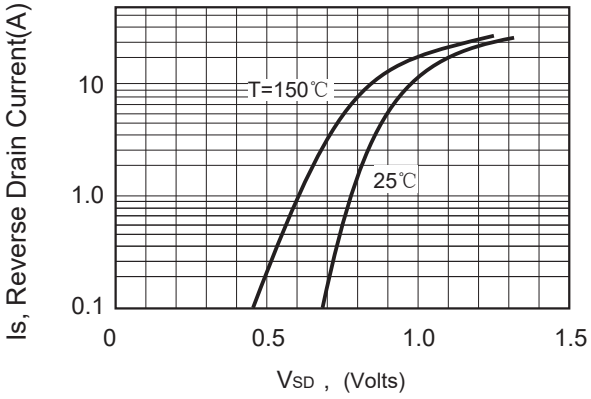
Capacitance Characteristics



On-Resistance vs. Drain Current



Gate-Charge Characteristics



Body-Diode Characteristics