

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.

Features

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

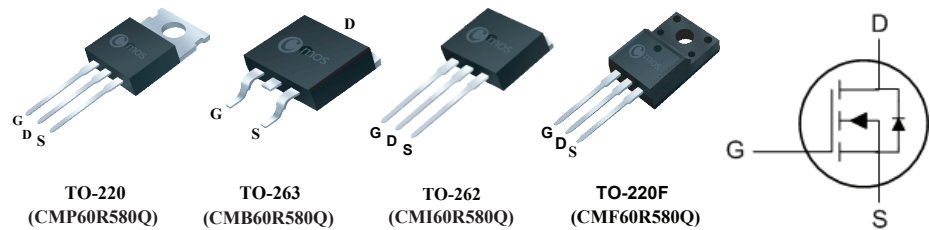
Product Summary

BVDSS	RDSON	ID
600V	0.58Ω	8A

Applications

- Charger
- Adaptor
- AC/DC power conversion

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
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	8	8*	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	5	5*	A
I_{DM}	Pulsed Drain Current	24	24*	A
EAS	Single Pulse Avalanche Energy	60		mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	70	28	W
T_{STG}	Storage Temperature Range	-55 to 150		°C
T_J	Operating Junction Temperature Range	-55 to 150		°C

Thermal Data

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

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	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	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=600V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=600V$, $T_C=150^{\circ}\text{C}$	---	10	---	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=15V$, $I_D=2A$	---	7	---	S
Q_g	Total Gate Charge	$I_D=8A$	---	20	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	7	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$	---	15	---	ns
T_r	Rise Time	$I_D=8A$	---	35	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=25\Omega$	---	50	---	
T_f	Fall Time	$V_{GS}=10V$	---	25	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	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
t_{rr}	Reverse Recovery Time	$I_F=8A$	---	---	303	A
Q_{rr}	Reverse Recovery Charge	$di/dt=100\text{A}/\mu s$	---	---	2.4	V

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Typical Characteristics

