

General Description

The 60R190Q have been fabricated using an advanced high voltage MOSFET process that is designed to deliver high levels of performance and robustness in popular AC-DC applications. These parts can be adopted quickly into new and existing offline power supply designs.

Features

- Fast switching
- 100% avalanche tested
- RoHS Compliant

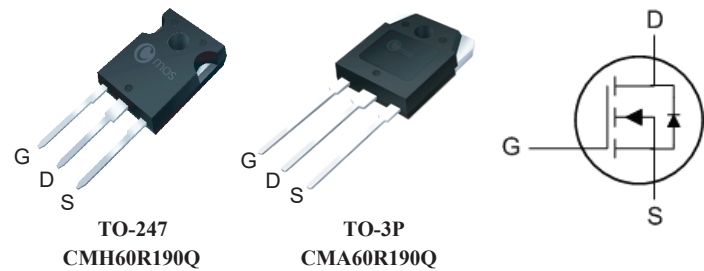
Product Summary

BVDSS	RDSON	ID
600V	0.199Ω	20A

Applications

- Charger
- Adaptor
- Power Supply

TO-3P/TO-247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	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	20	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	14	A
I_{DM}	Pulsed Drain Current (Note 1)	60	A
EAS	Single Pulse Avalanche Energy (Note 2)	275	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	250	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Note 3,4)	---	65	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.47	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	600	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=9.5A$	---	---	0.199	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	$V_{DS}=15V, I_D=9A$	---	15	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	5	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	50	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	12	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$ $V_{GS}=10V$ $I_D=20A$ $R_G=25\Omega$	---	30	---	ns
T_r	Rise Time		---	73	---	
$T_{d(off)}$	Turn-Off Delay Time		---	145	---	
T_f	Fall Time		---	45	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1\text{MHz}$	---	2000	---	pF
C_{oss}	Output Capacitance		---	1300	---	
C_{rss}	Reverse Transfer Capacitance		---	75	---	

Diode Characteristics

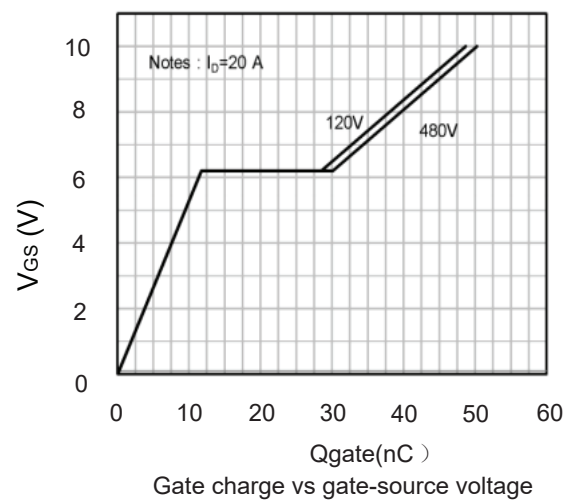
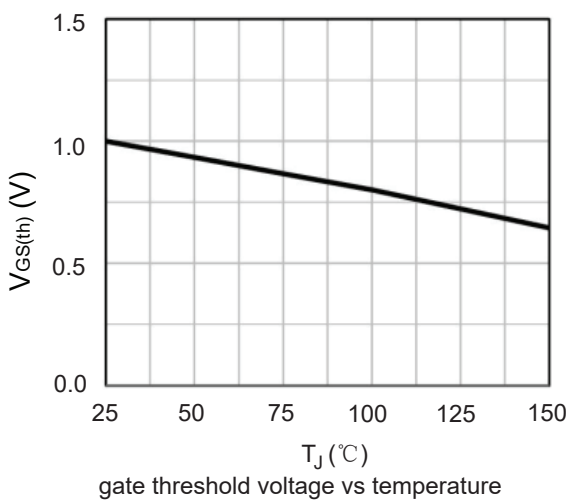
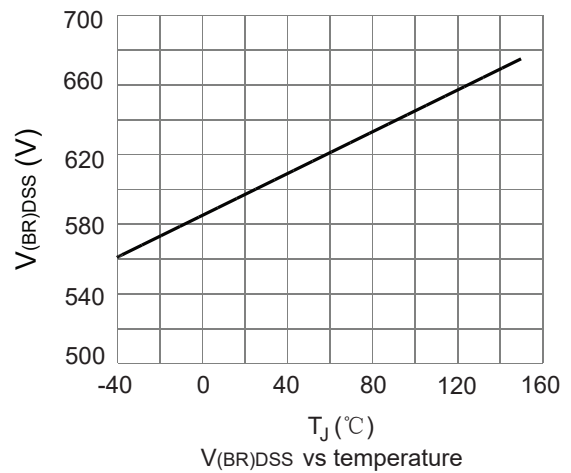
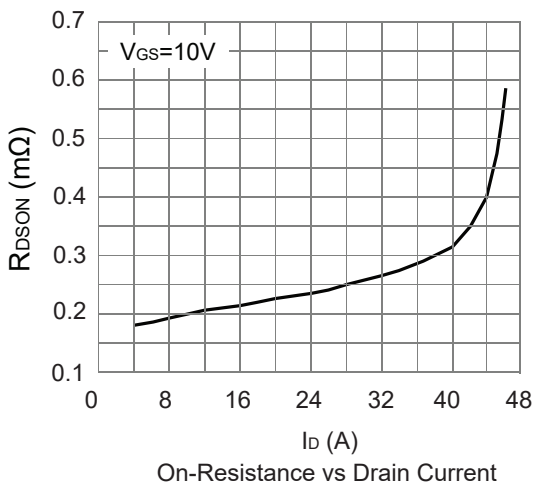
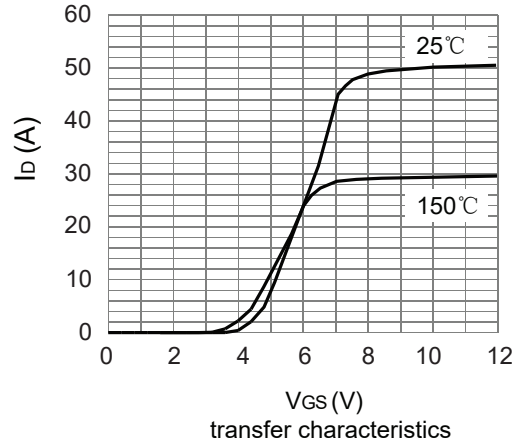
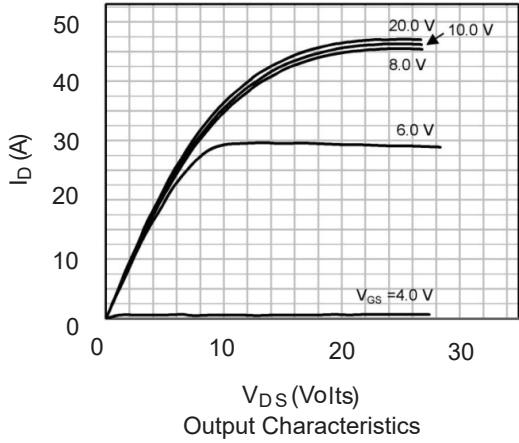
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	20	A
I_{SM}	Pulsed Source Current		---	---	60	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	---	---	1.4	V

Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. $L=5\text{mH}$, $I_{AS}=10.5A$, $V_D=80V$, Starting $T_J=25^\circ\text{C}$.
3. The value of $R_{\theta JA}$ is measured with the device in a still air environment with $T_A=25^\circ\text{C}$.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics



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