

General Description

CMSV60R190Q 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. These user friendly devices give an advantage of Low EMI to designers as well as low switching loss.

Features

- Fast switching
- 100% avalanche tested
- RoHS Compliant

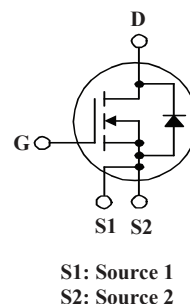
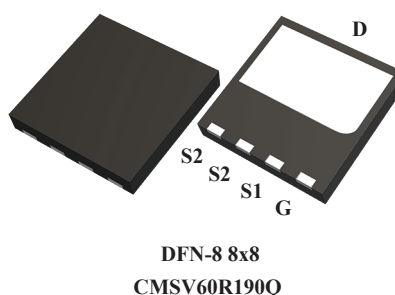
Product Summary

BVDSS	R _{DS(on)} max.	ID
600V	0.199Ω	20A

Applications

- Server and Telecom Power Supplies
- Solar Inverters
- Adaptors

DFN-8 8x8 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°C	Continuous Drain Current	20	A
I _D @T _C =100°C	Continuous Drain Current	12	A
I _{DM}	Pulsed Drain Current	80	A
EAS	Single Pulse Avalanche Energy (Note 1)	605	mJ
P _D @T _C =25°C	Total Power Dissipation	140	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 _{θJA}	Thermal Resistance Junction-ambient	---	75	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.89	°C/W

600V, 180mΩ typ., 20A N-Channel Super Junction Power MOSFET

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	$V_{GS}=10V$, $I_D=10A$	---	0.18	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	$V_{DS}=10V$, $I_D=10A$	---	16	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	8.2	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	36	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	9	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	14	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$	---	25	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	90	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=20A$	---	212	---	
T_f	Fall Time	$R_G=25\Omega$	---	68	---	
C_{iss}	Input Capacitance	$V_{DS}=100V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1430	---	pF
C_{oss}	Output Capacitance		---	60	---	
C_{rss}	Reverse Transfer Capacitance		---	4.3	---	

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		---	---	80	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^{\circ}\text{C}$	---	0.95	1.4	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	347	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{DD}=100V$, $I_{SD}=20A$	---	5.3	---	μC

Note :

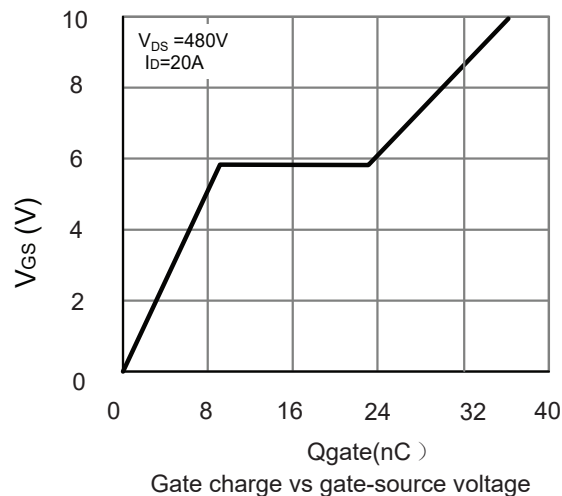
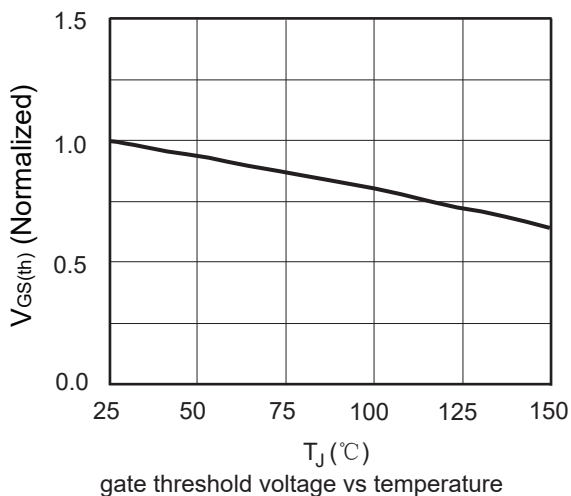
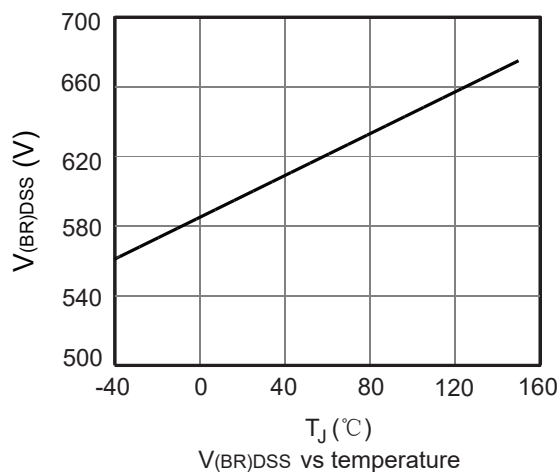
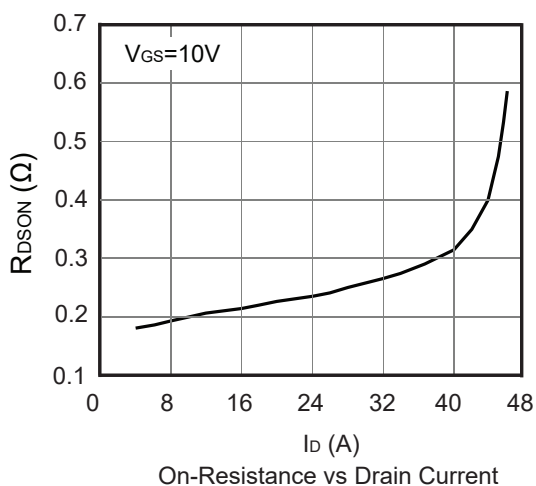
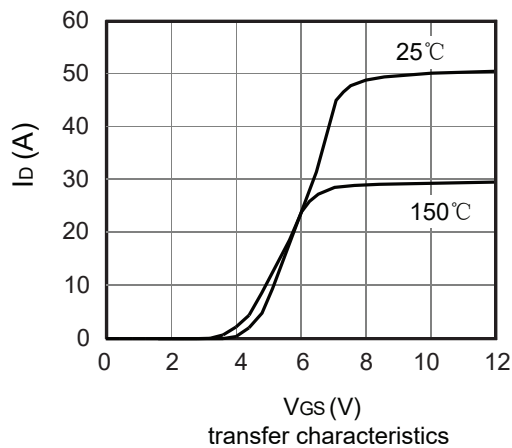
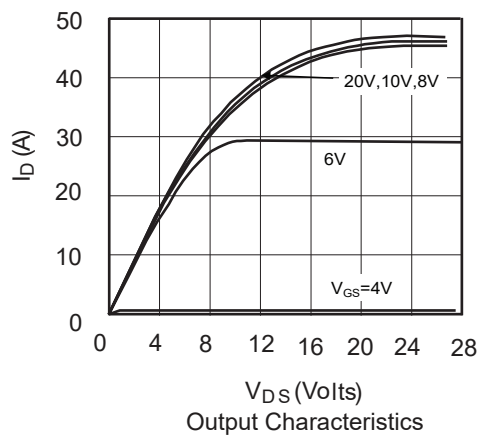
1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=10mH$, $I_{AS}=11A$.

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

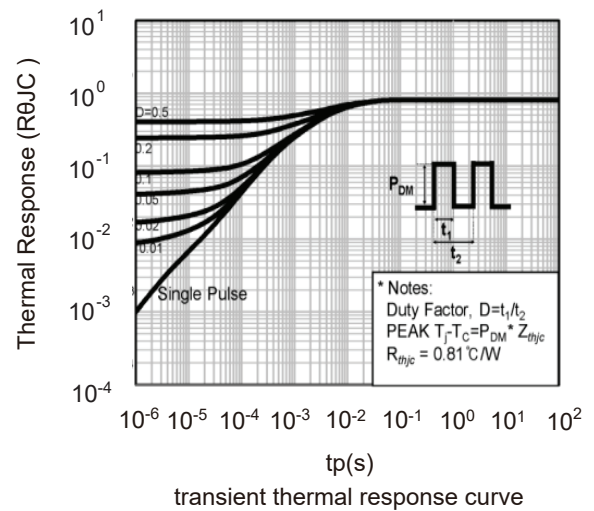
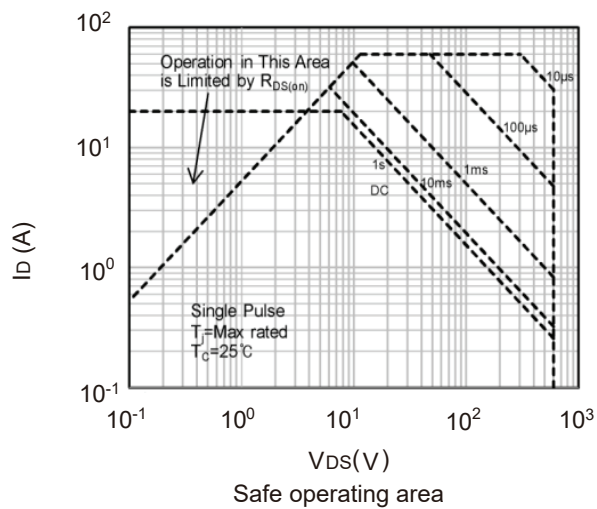
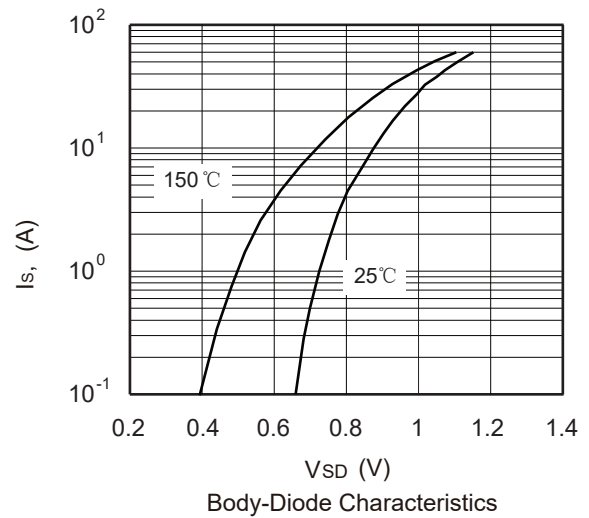
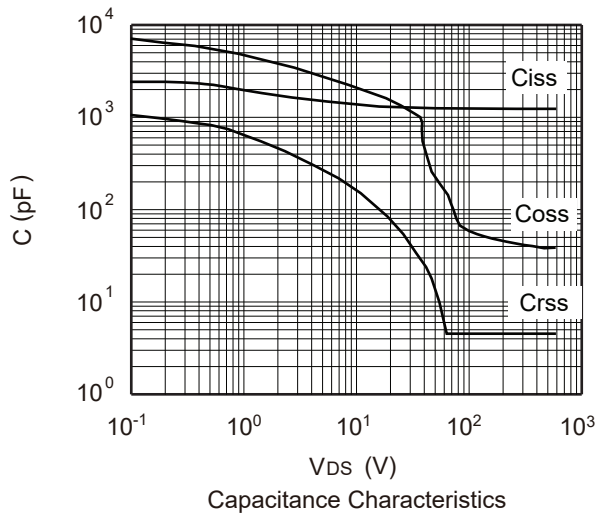
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics

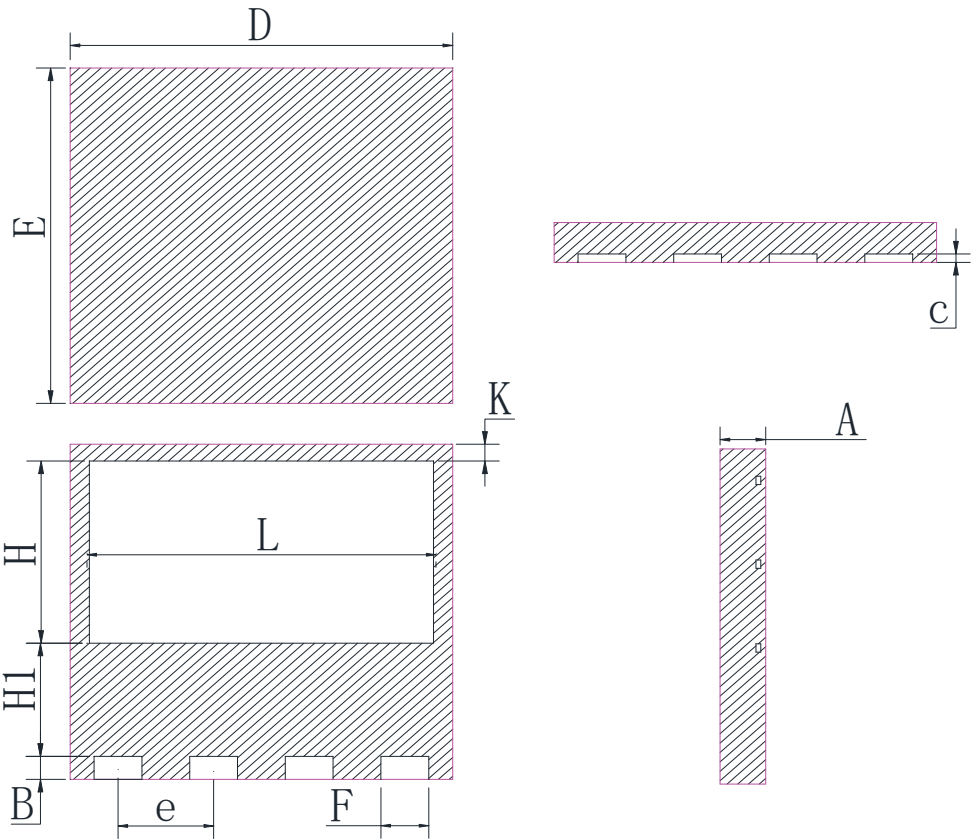


Typical Characteristics



Package Dimension

DFN-8 8x8 Unit :mm



Symbol	Min	Typ	Max
A	0.90	0.95	1.00
B	0.45	0.55	0.65
C	0.153	0.203	0.253
D	7.90	8.00	8.10
E	7.90	8.00	8.10
e	1.90	2.00	2.10
F	0.90	1.00	1.10
H	4.20	4.35	4.45
H1	2.60	2.70	2.80
K	0.30	0.40	0.50
L	7.10	7.20	7.30