

General Description

CMSV65R310 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

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

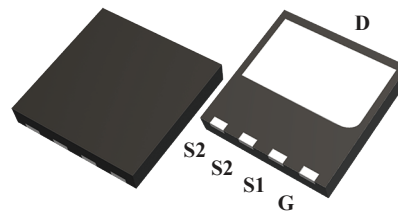
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	300mΩ	13A

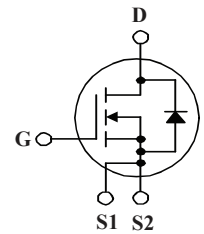
Applications

- Server and Telecom Power Supplies
- Solar Inverters
- Adaptors

DFN-8 8x8 Pin Configuration



DFN-8 8x8
CMSV65R310



S1: Driver Source
S2: Power Source

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	650	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	13	A
I _D @T _C =100°C	Continuous Drain Current	8	A
I _{DM}	Pulsed Drain Current	52	A
EAS	Single Pulse Avalanche Energy ¹	240	mJ
P _D @T _C =25°C	Total Power Dissipation	105	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	---	57	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.19	°C/W

650V, 273mΩ typ., 13A N-Channel Super Junction Power MOSFET

Electrical Characteristics(T_J=25°C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	650	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =7.5A	---	273	300	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =650V , V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} = 10V , I _D =5A	---	6.6	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	8.0	---	Ω
Q _g	Total Gate Charge	I _D = 7.5A	---	24	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} = 480V	---	5	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V (Note 2)	---	10	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} = 400V	---	14	---	ns
T _r	Rise Time	V _{GS} = 10V	---	24	---	
T _{d(off)}	Turn-Off Delay Time	R _G = 25Ω	---	97	---	
T _f	Fall Time	I _D = 7.5A (Note 2)	---	22	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	650	---	pF
C _{oss}	Output Capacitance		---	40	---	
C _{rss}	Reverse Transfer Capacitance		---	2	---	

Diode Characteristics

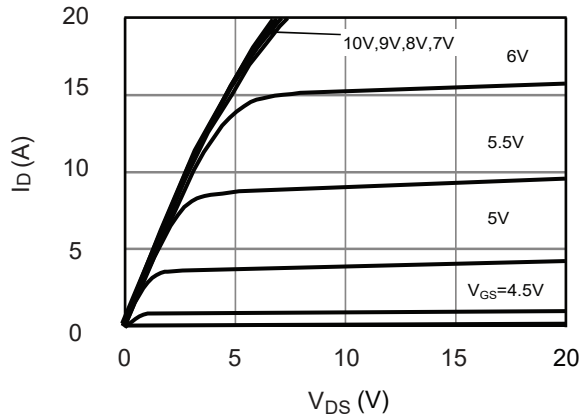
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	13	A
I _{SM}	Pulsed Source Current		---	---	52	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =7.5A , T _J =25°C	---	0.83	1.2	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	250	---	ns
Q _{rr}	Reverse Recovery Charge	V _{DS} =100V , I _{SD} =7.5A	---	2.94	---	μC

Note :

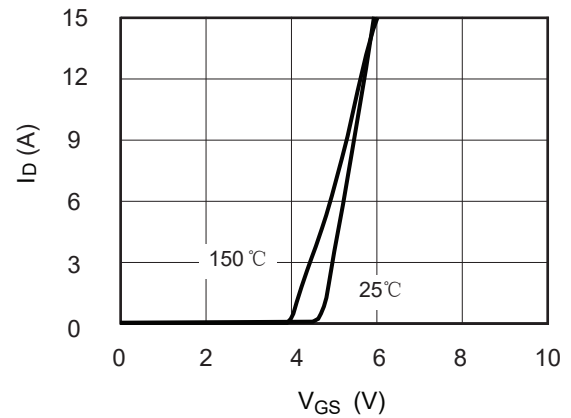
- The EAS data shows Max. rating . The test condition is V_{DD}=80V , V_{GS}=10V , L=30mH , I_{AS}=4A.
- Guaranteed by design, not subject to production testing.

This product has been designed and qualified for the consumer market.
 Cmos assumes no liability for customers' product design or applications.
 Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

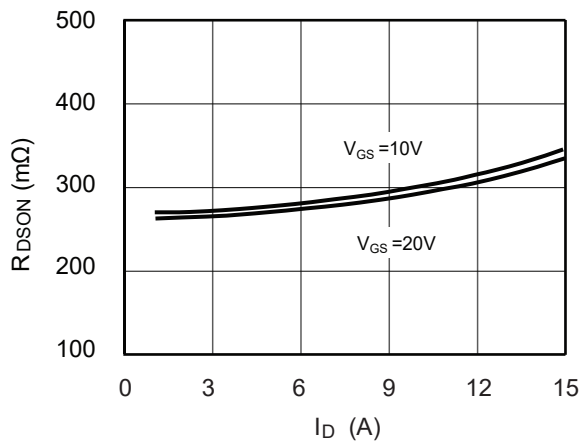
Typical Characteristics



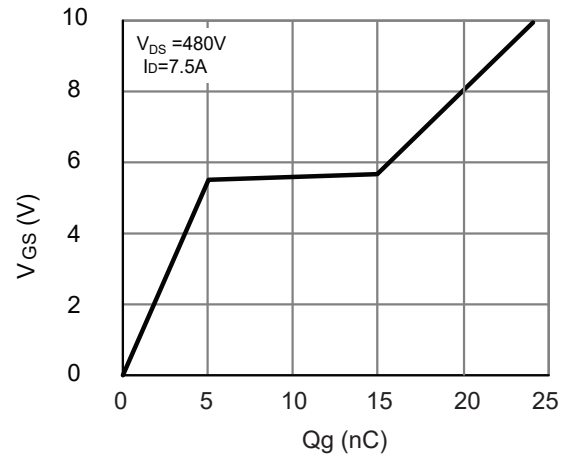
Output Characteristics



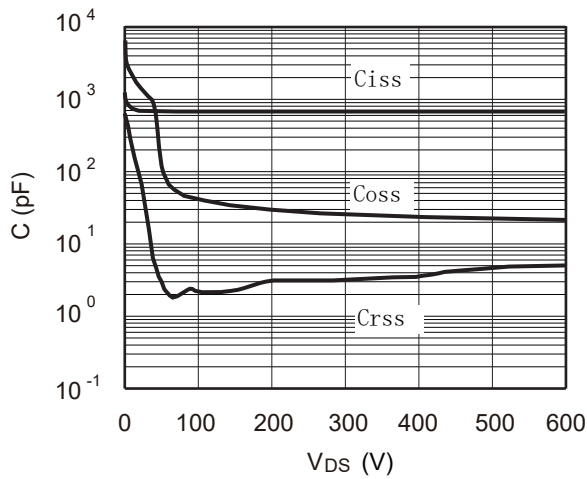
transfer characteristics



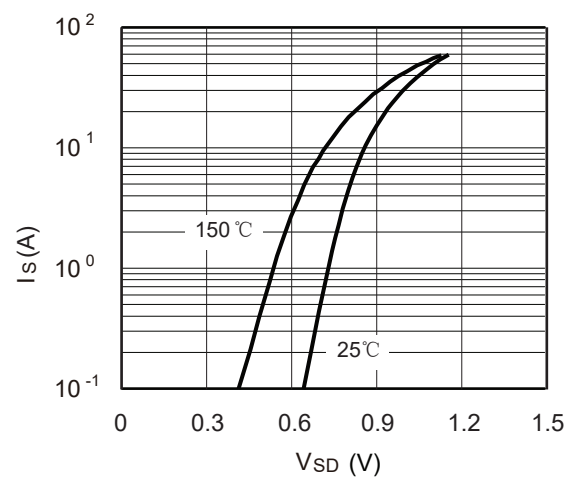
drain-source on-resistance



Gate charge vs gate-source voltage



Capacitance Characteristics

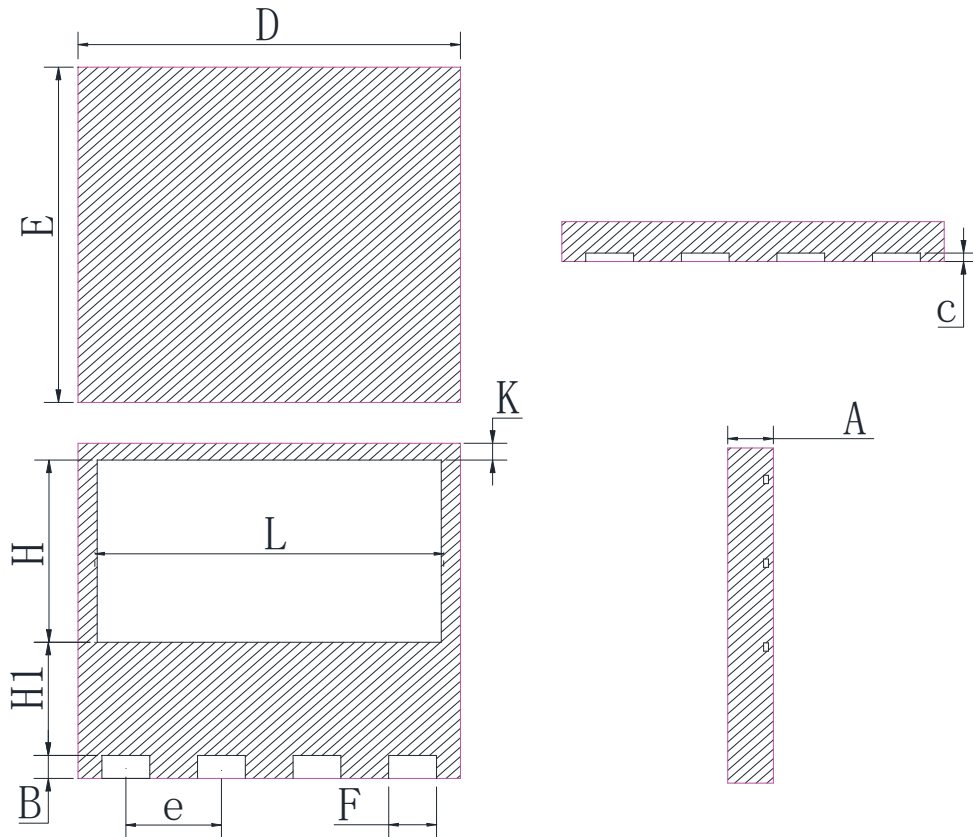


Body-Diode Characteristics

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