CMSA65R380Q

N-Channel Super Junction Power MOSFET

General Description

The CMSA65R380Q uses advanced technology to provide excellent R DS (ON) . This device is suitable to be used as the low side FET in SMPS,load switching and general purpose.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
650V	0.365Ω	8A

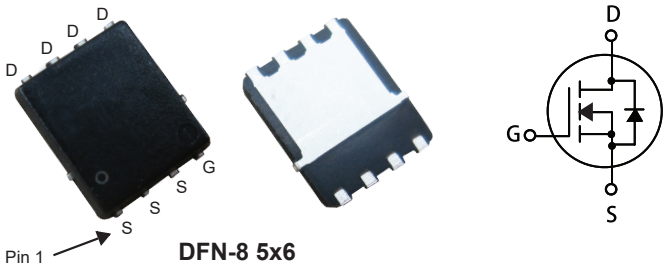
Applications

- Load Switch
- Networking DC-DC Power System
- High Frequency Point-of-Load Synchronous Buck Converter for MB/NB/UMPC/VGA

Features

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

DFN-8 5x6 Pin Configuration



DFN-8 5x6

Type	Package	Marking
CMSA65R380Q	DFN-8 5*6	CMSA65R380Q

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℃	Continuous Drain Current	8	A
I_D@T_C=100℃	Continuous Drain Current	6.4	A
I_{DM}	Pulsed Drain Current	32	A
EAS	Single Pulse Avalanche Energy[1]	40	mJ
P_D@T_C=25℃	Total Power Dissipation	57	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	59	℃/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.63	℃/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	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=5A	---	---	0.365	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}= V_{GS}, I_D = 250μA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=650V , V_{GS}=0V , T_J=25℃	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V, I_D=5A	---	8	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	23	---	Ω
Q_g	Total Gate Charge	V_{DS}=520V, V_{GS}=10V , I_D=8A	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	5.3	---	
Q_{gd}	Gate-Drain Charge		---	7.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=325V , R_G=425Ω I_D =8A V_{GS} =10V	---	20	---	ns
T_r	Rise Time		---	40	---	
$T_{d(off)}$	Turn-Off Delay Time		---	110	---	
T_f	Fall Time		---	36	---	
C_{iss}	Input Capacitance	V_{DS}=100V ,V_{GS}=0V , f=1MHz	---	750	---	pF
C_{oss}	Output Capacitance		---	42	---	
C_{rss}	Reverse Transfer Capacitance		---	3.1	---	

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		---	---	32	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=11A ,T_J=25℃	---	0.89	1.4	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs V_{DD} =100V , I_F =10.6A	---	324	---	ns
Q_{rr}	Reverse Recovery Charge		---	3.8	---	μC

Notes:

1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=20mH , I_{AS}=2A.

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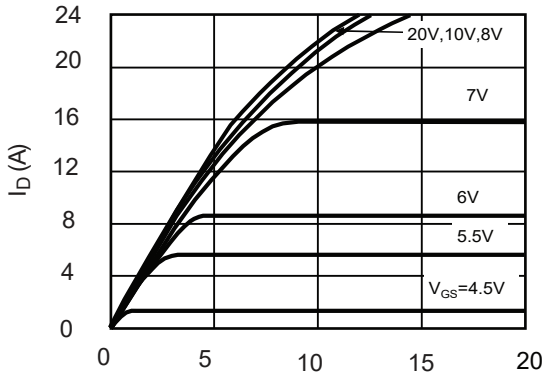
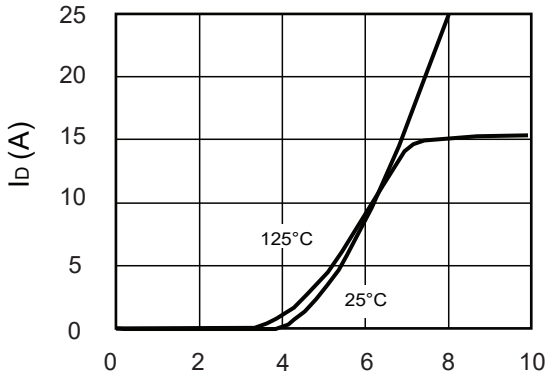
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

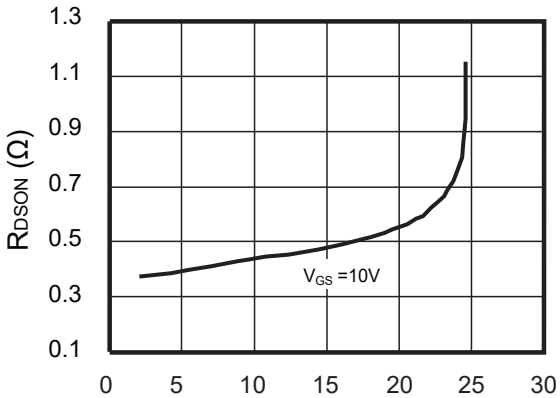
Typical Characteristics



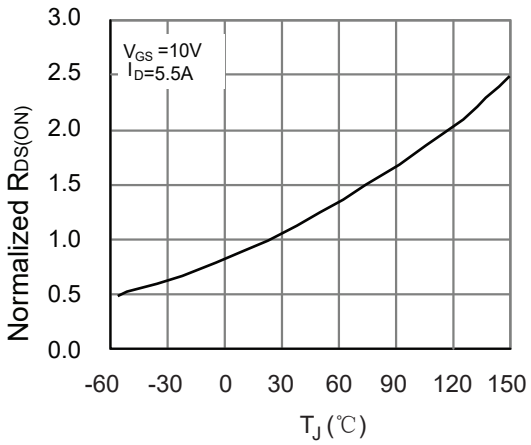
Output Characteristics



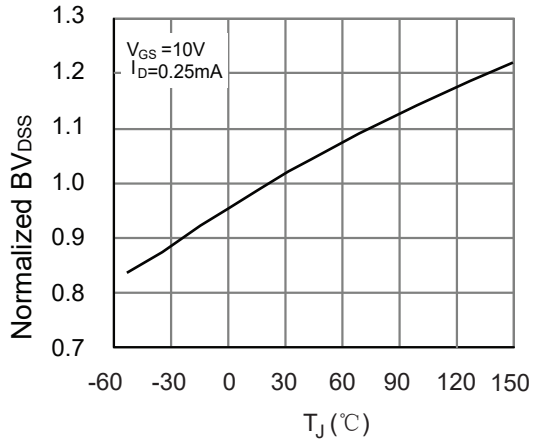
transfer characteristics



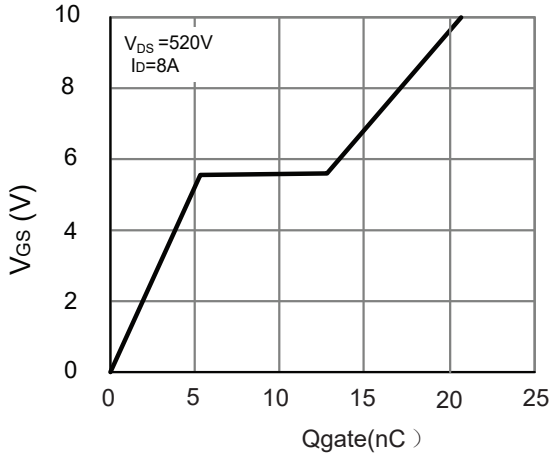
drain-source on-resistance



On-Resistance vs. Junction Temperature

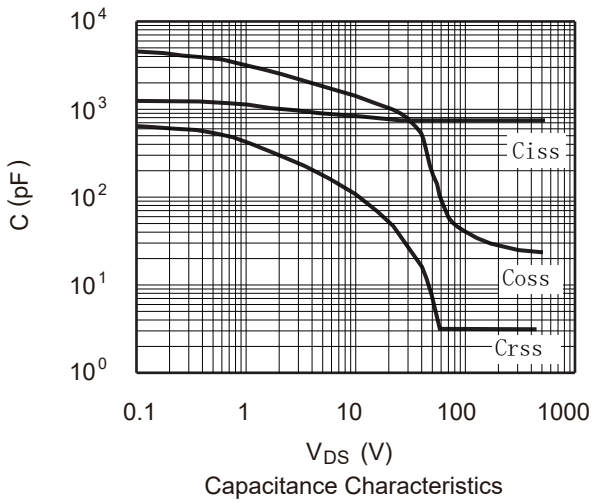


Breakdown Voltage Variation vs. Temperature

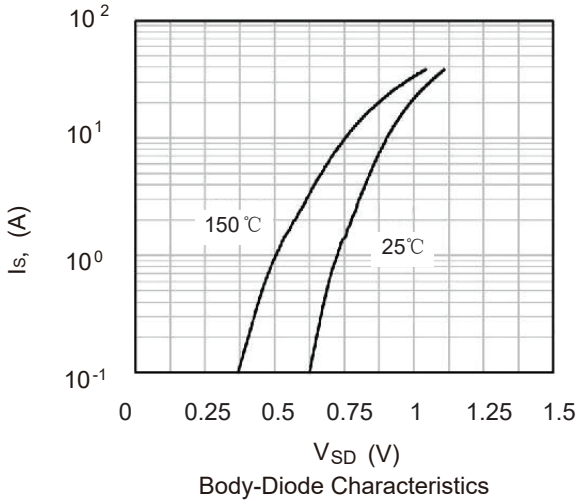


Gate charge vs gate-source voltage

Typical Characteristics



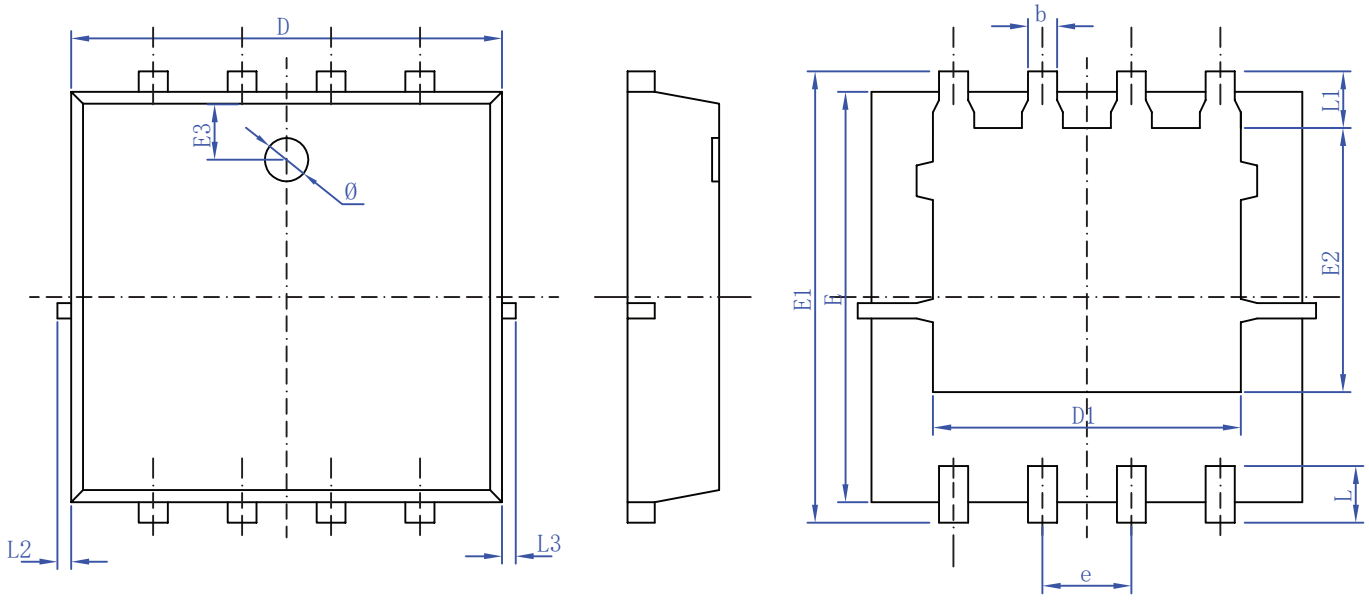
Capacitance Characteristics

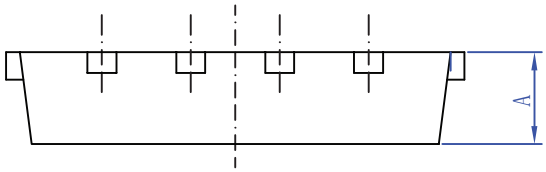


Body-Diode Characteristics

Package Dimension

DFN-8 5x6 Unit :mm





Dimensions In Millimeters			
Symbol	Min.	Max.	Ave.
A	0.900	1.100	1.000
D	4.950	5.150	5.050
D1	3.850	4.250	4.050
E	5.750	5.950	5.850
E1	5.950	6.350	6.150
E2	3.300	3.700	3.500
E3	0.900	1.300	1.100
b	0.250	0.350	0.300
e	1.220	1.320	1.270
L	0.585	0.785	0.685
L1	0.525	0.725	0.625
Ø	1.000	1.400	1.200
L2	0~0.100		
L3	0~0.100		

注：
1.未注公差±0.05未标注圆角R max=0.25