

N-Channel Super Junction Power MOSFET

General Description

The 65R280Q 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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	± 30	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	14	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	11	A
I_{DM}	Pulsed Drain Current	56	A
EAS	Single Pulse Avalanche Energy ¹	360	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	57	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	59	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	2.2	$^\circ C/W$

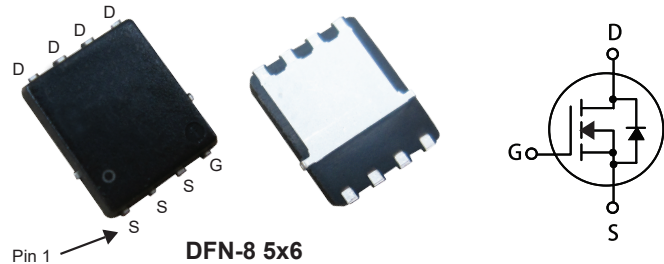
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
650V	0.3 Ω	14A

Applications

- LCD & PDP TV
- Adaptor
- UPS

DFN-8 5x6 Pin Configuration



Type	Package	Marking
CMSA65R280Q	DFN-8 5*6	CMSA65R280Q

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=6A$	---	---	0.3	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=650V, V_{GS}=0V, T_J=25^\circ\text{C}$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	± 100	nA
gfs	Forward Transconductance	$V_{DS}=20V, I_D=6A$	---	10	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	23	---	Ω
Q_g	Total Gate Charge	$V_{DS}=520V, V_{GS}=10V, I_D=14A$	---	30	---	nC
Q_{gs}	Gate-Source Charge		---	7.1	---	
Q_{gd}	Gate-Drain Charge		---	10	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=325V, R_G=25\Omega$ $I_D=14A$ $V_{GS}=10V$	---	25	---	ns
T_r	Rise Time		---	60	---	
$T_{d(off)}$	Turn-Off Delay Time		---	150	---	
T_f	Fall Time		---	52	---	
C_{iss}	Input Capacitance	$V_{DS}=100V, V_{GS}=0V, f=1\text{MHz}$	---	1000	---	pF
C_{oss}	Output Capacitance		---	45	---	
C_{rss}	Reverse Transfer Capacitance		---	3.1	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V, \text{Force Current}$	---	---	14	A
I_{SM}	Pulsed Source Current		---	---	56	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=12A, T_J=25^\circ\text{C}$	---	0.86	1.2	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	377	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{DD}=100V, I_{SD}=13.8A$	---	5.2	---	μC

Notes:

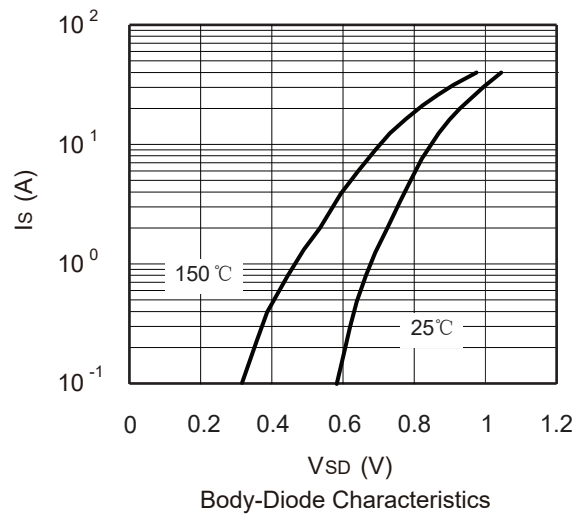
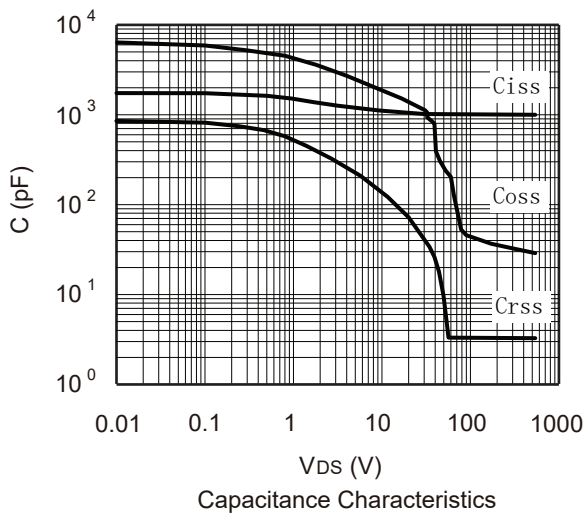
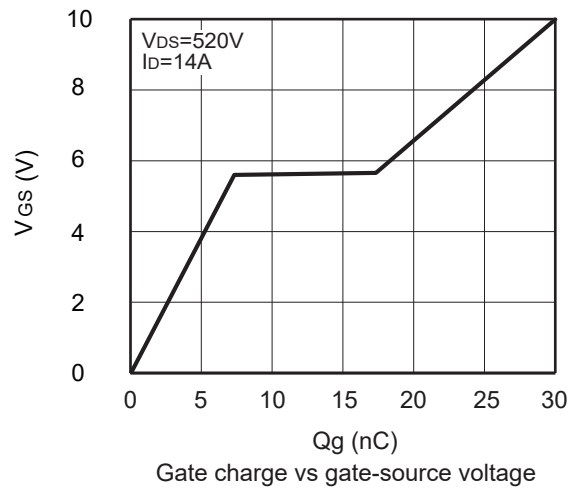
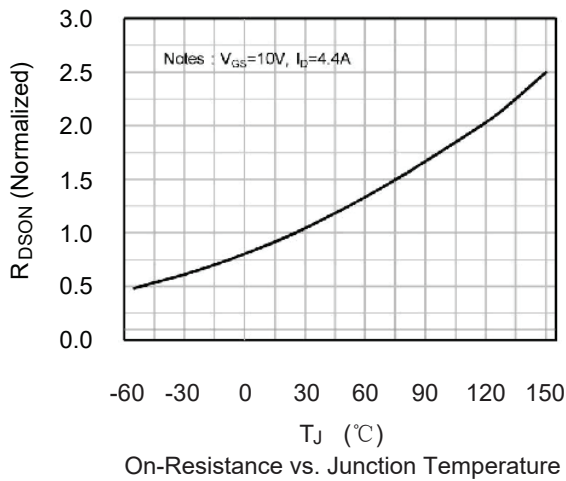
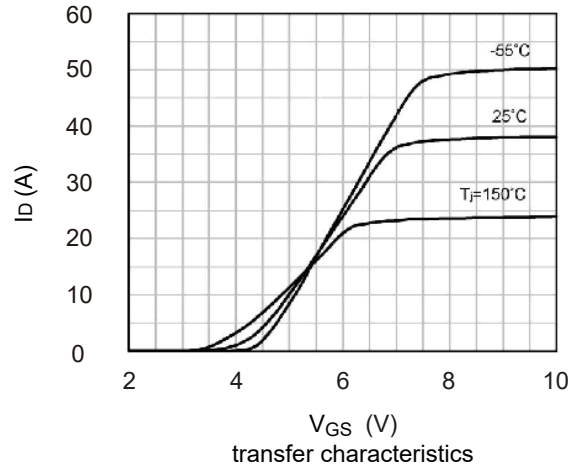
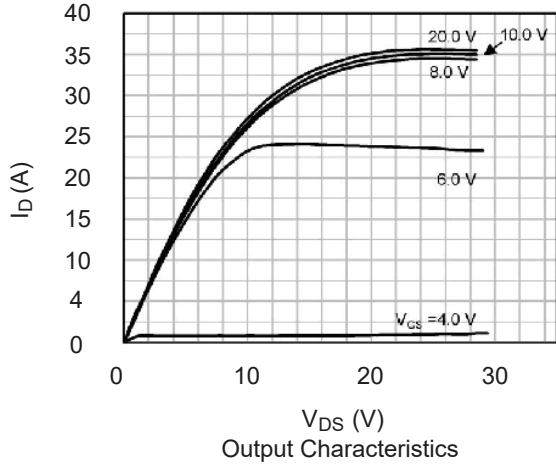
1.The EAS data shows Max. rating .The test condition is $V_{DS}=50V, V_{GS}=10V, L=20mH, I_{AS}=6A$.

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

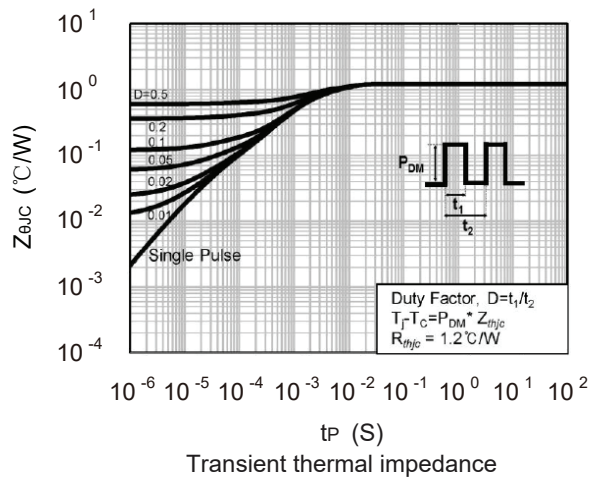
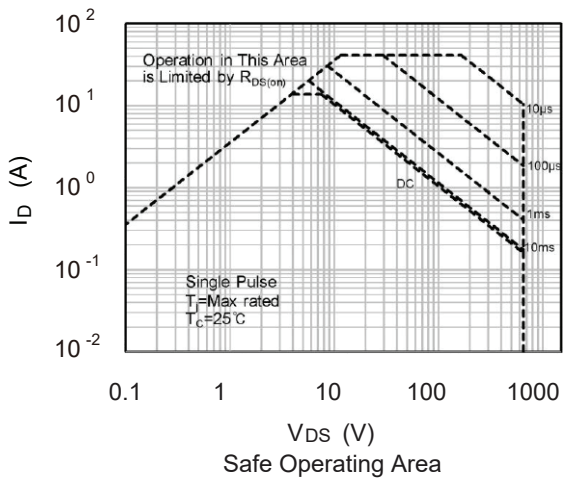
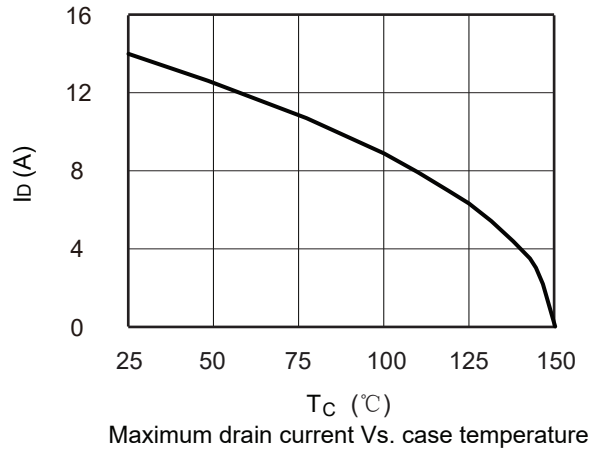
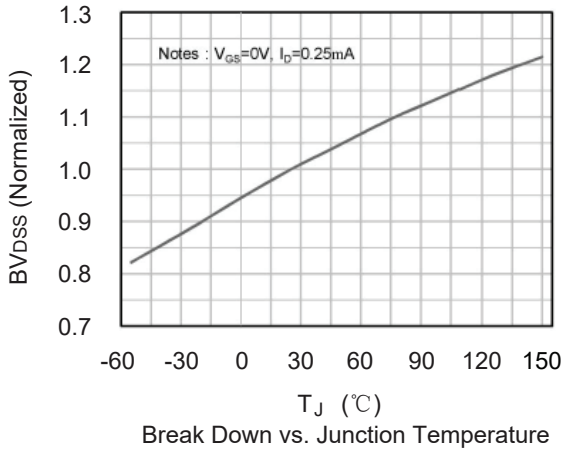
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Cmos reserves the right to improve product design, functions and reliability without notice. Please refer to the latest version of specification.

Typical Characteristics



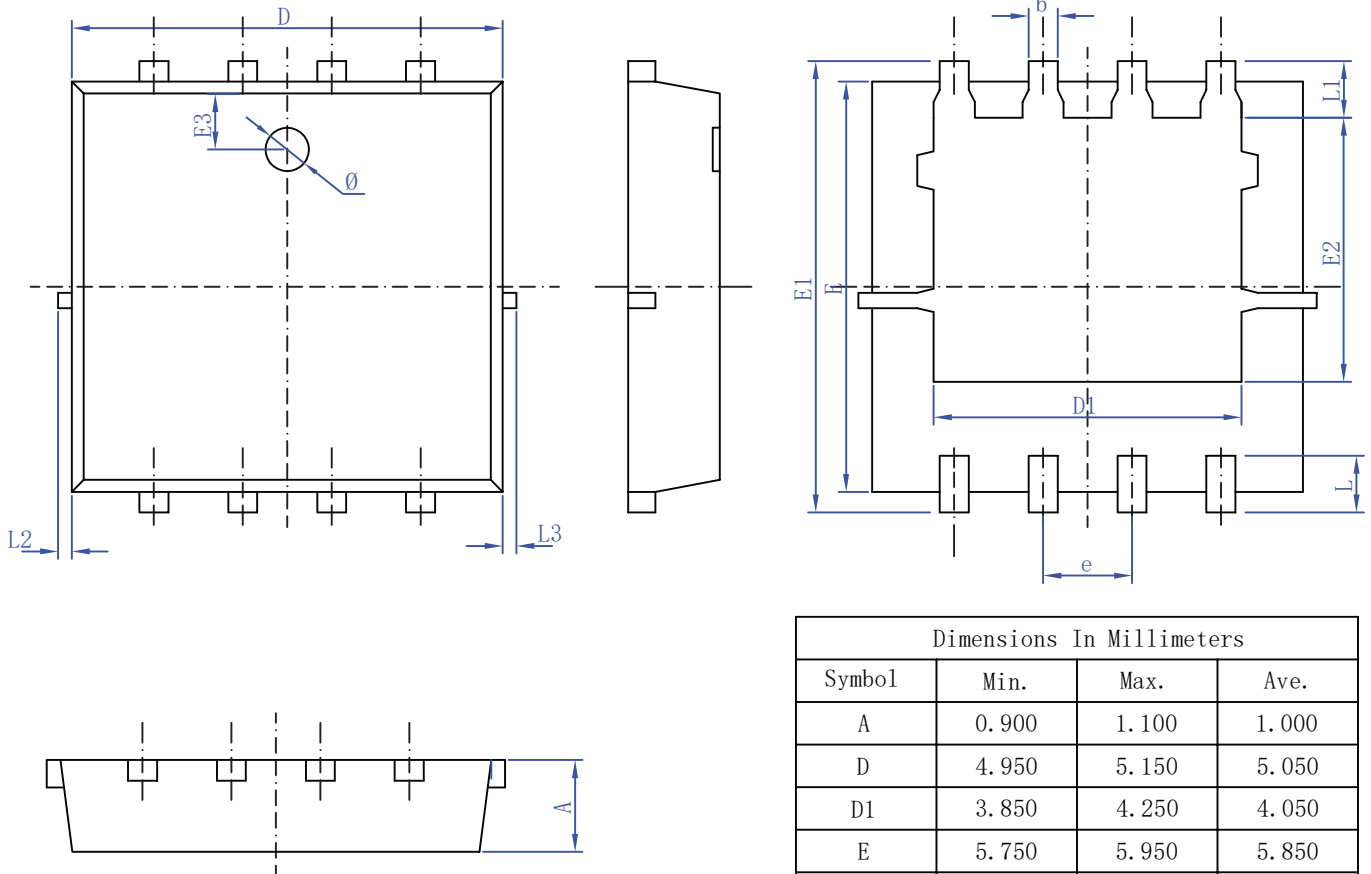
Typical Characteristics



Package Dimension

DFN-8 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