

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.

Features

- 8A, 650V, $R_{DS(on)} = 0.365\Omega$ @ $V_{GS} = 10V$
- Low On-Resistance
- 100% avalanche tested
- Low on-resistance and low conduction losses
- 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	8	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	6.4	A
I_{DM}	Pulsed Drain Current	32	A
EAS	Single Pulse Avalanche Energy	40	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	57	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

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	$^\circ C/W$

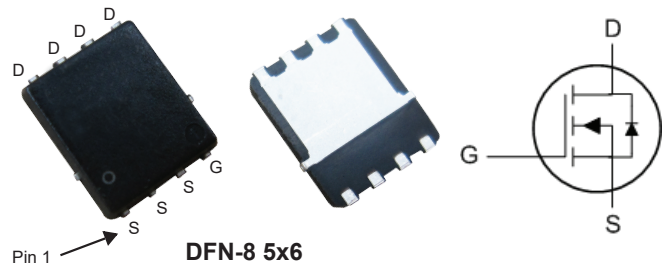
Product Summary

BVDSS	RDSON	ID
650V	0.365 Ω	8A

Applications

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

TO252 / TO251 Pin Configuration



Type	Package	Marking
CMSA65R380Q	DFN-8 5*6	CMSA65R380Q

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	$V_{GS}=10V, I_D=5A$	---	---	0.365	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	$V_{DS}=10V, I_D=5A$	---	8	---	S
R_g	Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1\text{MHz}$	---	23	---	Ω
Q_g	Total Gate Charge	$V_{DS}=520V, V_{GS}=10V, I_D=12A$	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	4	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=325V, R_G=4.7\Omega$ $I_D=6.5A$ $V_{GS}=6V$	---	10	---	ns
T_r	Rise Time		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	47	---	
T_f	Fall Time		---	13	---	
C_{iss}	Input Capacitance	$V_{DS}=100V, V_{GS}=0V, f=1\text{MHz}$	---	800	---	pF
C_{oss}	Output Capacitance		---	35.5	---	
C_{rss}	Reverse Transfer Capacitance		---	1.2	---	

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	$V_{GS}=0V, I_S=20A, T_J=25^\circ\text{C}$	---	---	1.2	V

Note :

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.