

N-Channel Super Junction Power MOSFET

General Description

The series of devices use advanced super junction technology and design to provide excellent RDS(ON) with low gate charge.

This super junction MOSFET fits the industry's AC-DC SMPS requirements for PFC, AC/DC power conversion, and industrial power applications.

Features

- 5A, 650V, $R_{DS(on)} = 0.88\Omega$ @ $V_{GS} = 10V$
- 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	5	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	4	A
I_{DM}	Pulsed Drain Current	15	A
EAS	Single Pulse Avalanche Energy	50	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	35	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	---	62	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	3.4	$^\circ C/W$

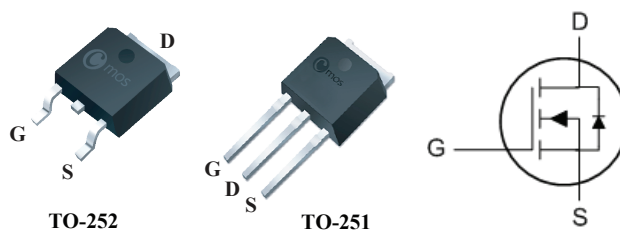
Product Summary

BVDSS	RDSON	ID
650V	0.9Ω	5A

Applications

- Power factor correction (PFC)
- Switched mode power supplies(SMPS)
- Uninterruptible Power Supply (UPS)

TO252 / TO251 Pin Configuration



Type	Package	Marking
CMD65R900Q	TO-252	CMD65R900Q
CMU65R900Q	TO-251	CMU65R900Q

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=3A$	---	---	0.9	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
g_{fs}	Forward Transconductance	$V_{DS}=30V$, $I_D=3A$	---	3	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	20	---	Ω
Q_g	Total Gate Charge	$V_{DS}=520V$, $V_{GS}=10V$, $I_D=4.7A$	---	12	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	3	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=325V$, $R_G=25\Omega$ $I_D=4.7A$ $V_{GS}=10V$	---	14	---	ns
T_r	Rise Time		---	25	---	
$T_{d(off)}$	Turn-Off Delay Time		---	57	---	
T_f	Fall Time		---	24	---	
C_{iss}	Input Capacitance	$V_{DS}=50V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	390	---	pF
C_{oss}	Output Capacitance		---	439	---	
C_{rss}	Reverse Transfer Capacitance		---	19.5	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	5	A
I_{SM}	Pulsed Source Current		---	---	15	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=5A$, $T_J=25^\circ\text{C}$	---	---	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.
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