

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

- Low On-Resistance
- 100% avalanche tested
- ROHS compliant

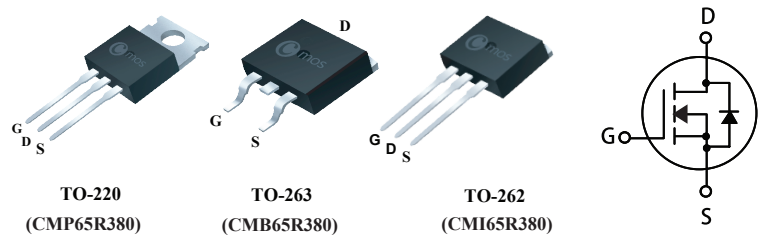
Product Summary

BVDSS	RDSON	ID
650V	0.38Ω	11A

Applications

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

TO-220/263/262 Pin Configuration



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	11	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	9	A
I_{DM}	Pulsed Drain Current	44	A
EAS	Single Pulse Avalanche Energy ¹	202	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	83	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	---	62.5	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.5	$^{\circ}C/W$

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	$V_{GS}=10V$, $I_D=4.5A$	---	---	0.38	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	$V_{DS}=10V$, $I_D=4.5A$	---	8	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	23	---	Ω
Q_g	Total Gate Charge	$V_{DS}=520V$, $V_{GS}=10V$, $I_D=10.6A$	---	21	---	nC
Q_{gs}	Gate-Source Charge		---	8	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=325V$, $R_G=25\Omega$ $I_D=10.6A$ $V_{GS}=10V$	---	20	---	ns
T_r	Rise Time		---	39	---	
$T_{d(off)}$	Turn-Off Delay Time		---	109	---	
T_f	Fall Time		---	37	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	780	---	pF
C_{oss}	Output Capacitance		---	900	---	
C_{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_{GS}=V_{DS}=0V$, Force Current	---	---	11	A
I_{SM}	Pulsed Source Current		---	---	44	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=9A$, $T_J=25^\circ\text{C}$	---	0.87	1.4	V
t_{rr}	Reverse Recovery Time	$V_{GS}=0V$, $V_{DD}=100V$, $I_S=10.6A$, $dI/dt=100A/\mu s$	---	324	---	ns
Q_{rr}	Reverse Recovery Charge		---	3.8	---	μC

Notes:

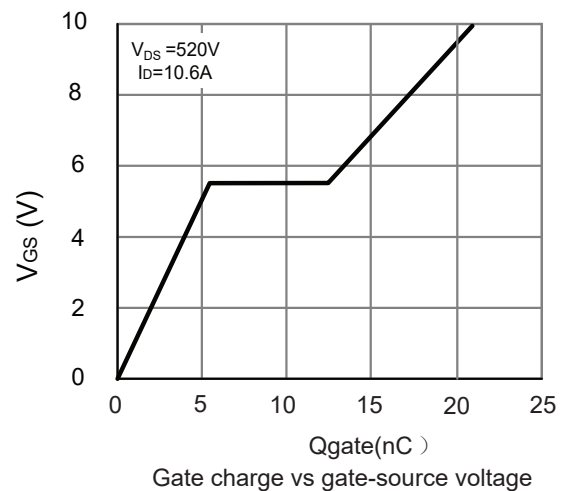
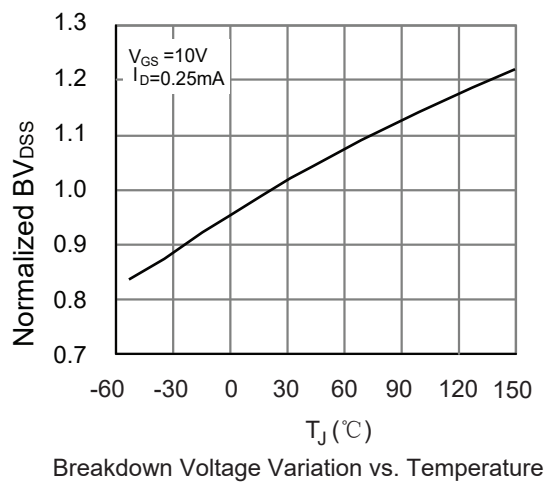
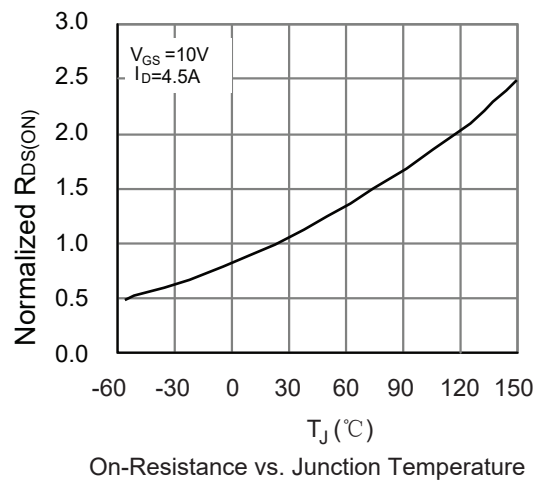
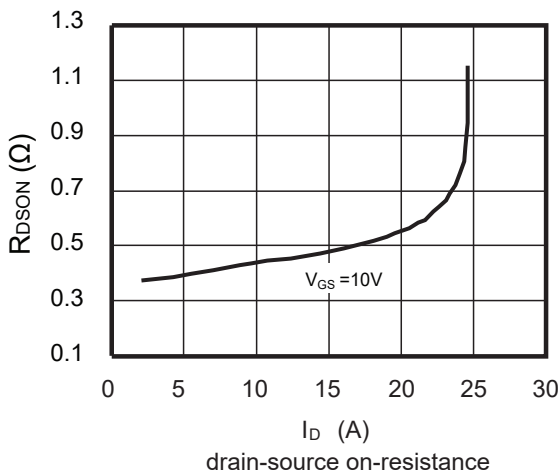
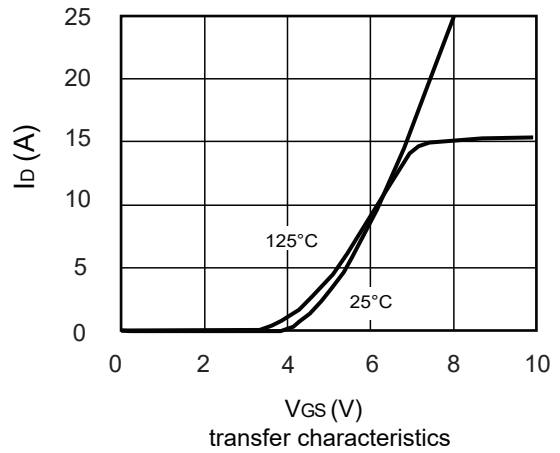
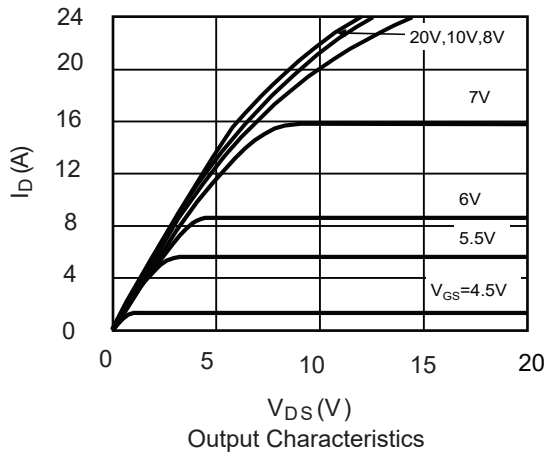
1.The EAS data shows Max. rating .The test condition is $V_{DS}=80V$, $V_{GS}=10V$, $L=20mH$, $I_{AS}=4.5A$.

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics



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