

CMH65R080SD

650V, 73mΩ typ., 40A N-Channel Super Junction Power MOSFE

General Description

The CMH65R080SD is power MOSFET using Cmos's advanced super junction technology. The resulting devices provide all benefits of a fast switching super junction MOSFET while offering an extremely fast and robust body diode. This combination of extremely low switching, commutation and conduction losses together with highest robustness make especially resonant switching applications more reliable, more efficient and lighter.

Features

- Low On-Resistance
- Ultra-fast body diode
- Better efficiency due to very low FOM
- RoHS Compliant

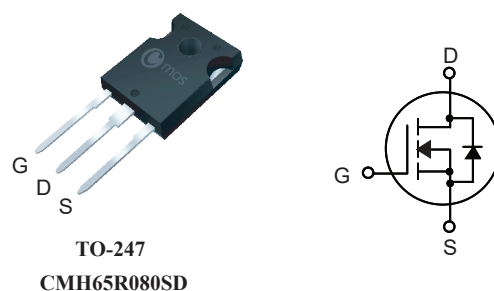
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	80mΩ	40A

Applications

- Charger
- Power Supply
- Solar/Renewable/UPS-Micro Inverter System

TO-247 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°C	Continuous Drain Current	40	A
I _D @T _C =100°C	Continuous Drain Current	29	A
I _{DM}	Pulsed Drain Current	160	A
EAS	Single Pulse Avalanche Energy (Note 1)	3840	mJ
P _D @T _C =25°C	Total Power Dissipation	470	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	41	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.27	°C/W

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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	$V_{GS}=10V$, $I_D=21.5A$	---	73	80	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3.2	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=650V$, $V_{GS}=0V$	---	---	5	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	24	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.4	---	Ω
Q_g	Total Gate Charge	$I_D=21.5A$	---	85	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	28	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	36	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=400V$	---	89	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	131	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=21.5A$	---	204	---	
T_f	Fall Time	$R_G=27\Omega$	---	69	---	
C_{iss}	Input Capacitance	$V_{DS}=40V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3650	---	pF
C_{oss}	Output Capacitance		---	200	---	
C_{rss}	Reverse Transfer Capacitance		---	7	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	40	A
I_{SM}	Pulsed Source Current		---	---	160	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=21.5A$	---	0.90	1.2	V

Note :

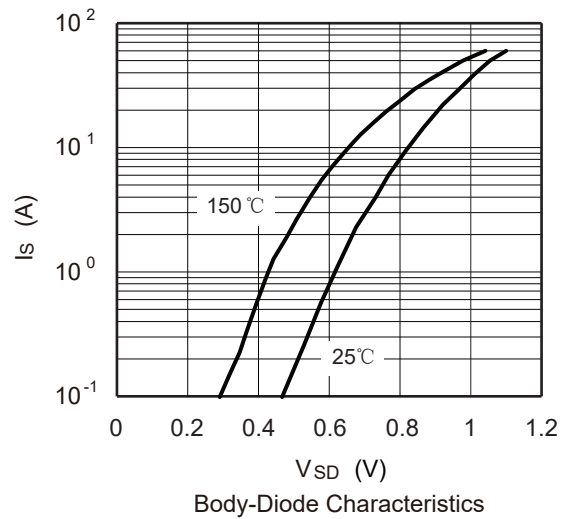
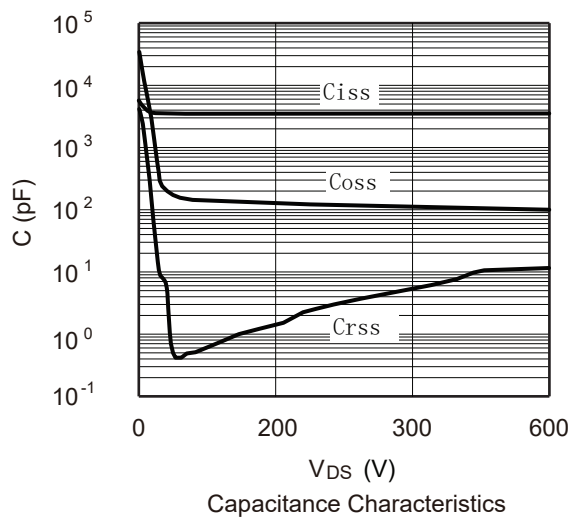
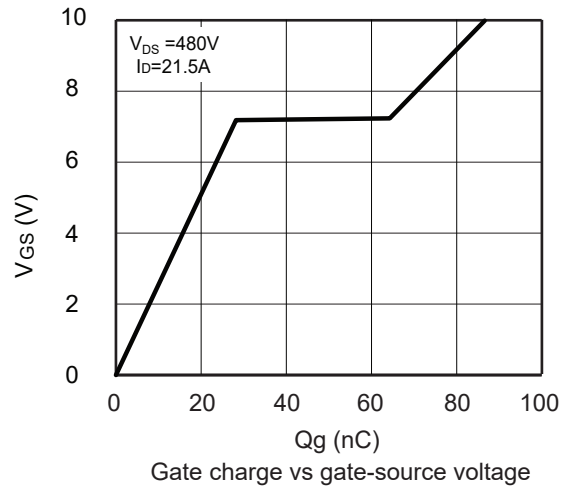
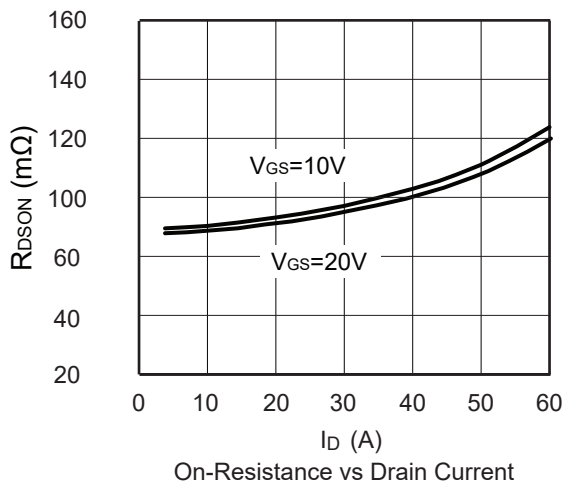
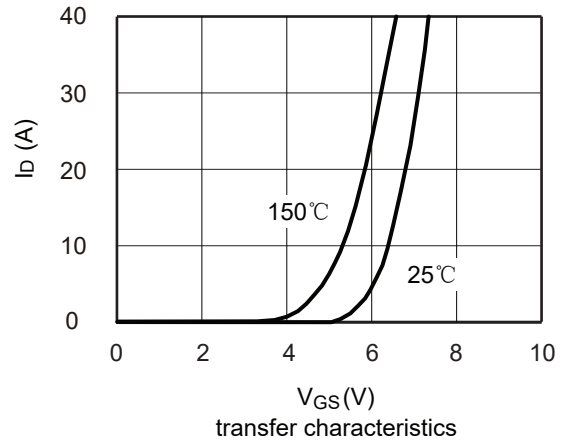
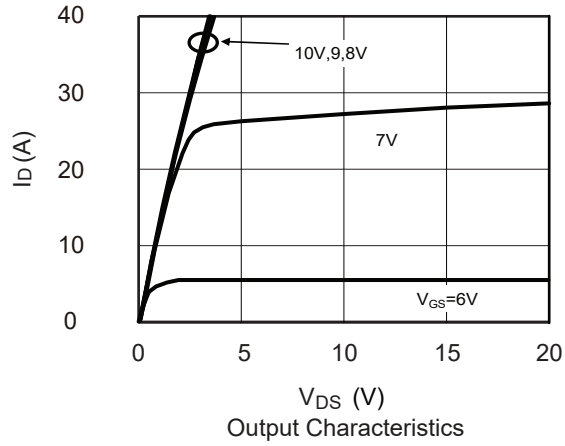
1. The EAS data shows Max. rating .The test condition is $V_{DS}=120V$, $V_{GS}=10V$, $L=30\text{mH}$, $I_{AS}=16A$.

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.

Typical Characteristics



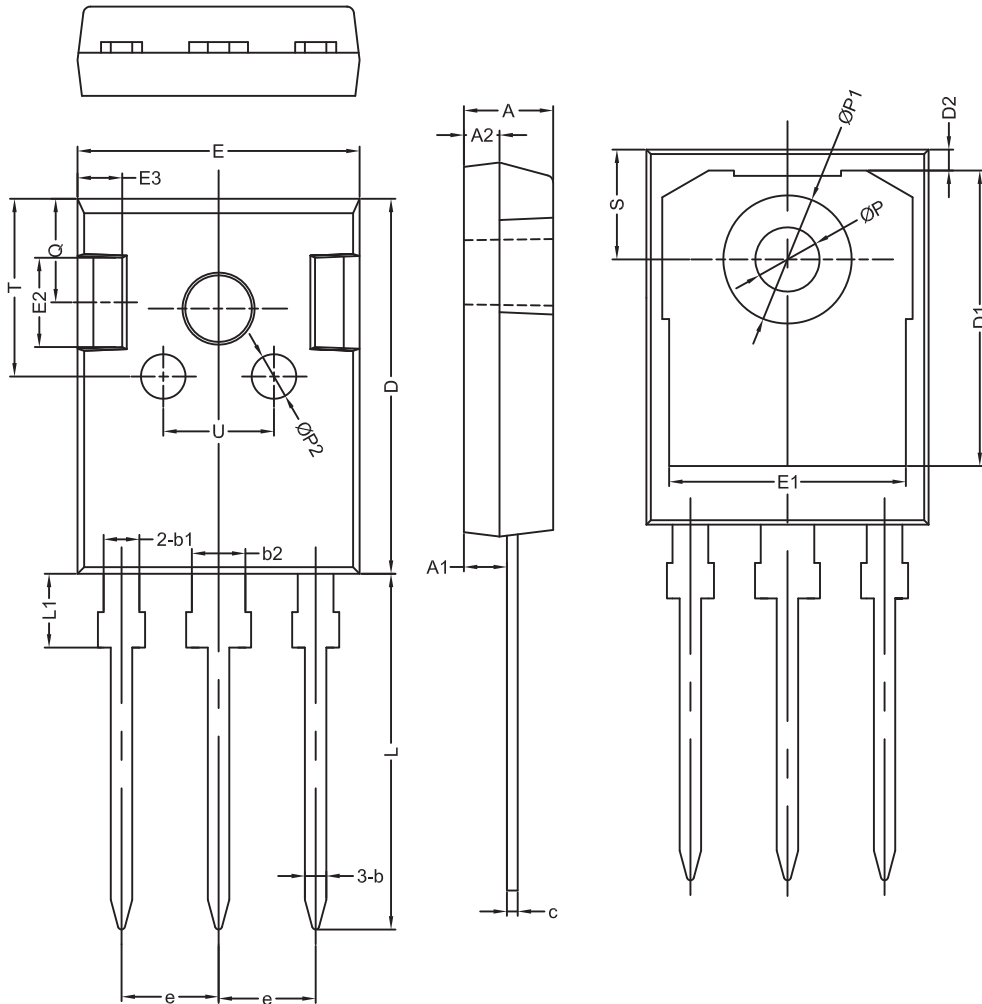
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Package Dimension

TO-247

Unit :mm



符号	机械尺寸/mm			符号	机械尺寸/mm		
	最小值	典型值	最大值		最小值	典型值	最大值
A	4.80	5.00	5.20	E2		5.00	
A1	2.21	2.41	2.61	E3		2.50	
A2	1.90	2.00	2.10	e		5.44	
b	1.10	1.20	1.35	L	19.42	19.92	20.42
b1		2.00		L1		4.13	
b2		3.00		P	3.50	3.60	3.70
c	0.55	0.60	0.75	P1		7.19	
D	20.80	21.00	21.20	P2		2.50	
D1		16.55		Q		5.80	
D2		1.20		S	6.05	6.15	6.25
E	15.60	15.80	16.0	T		10.00	
E1		13.30		U		6.20	