

CMH65R040SD

650V, 36mΩ typ., 78A N-Channel Super Junction Power MOSFET

General Description

The CMH65R040SD 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

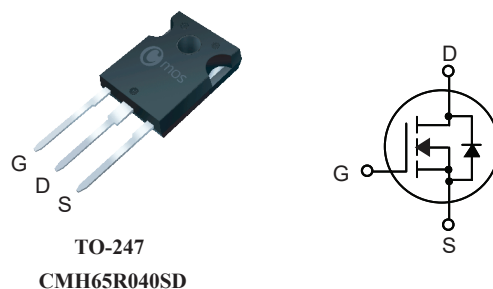
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	40mΩ	78A

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	78	A
I _D @T _C =100°C	Continuous Drain Current	50	A
I _{DM}	Pulsed Drain Current	312	A
EAS	Single Pulse Avalanche Energy (Note 1)	3380	mJ
P _D @T _C =25°C	Total Power Dissipation	520	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	---	48	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.24	°C/W

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Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	650	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =35A	---	36	40	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	3.2	---	4.6	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =650V , V _{GS} =0V	---	---	5	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V , I _D =20A	---	24	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1.0	---	Ω
Q _g	Total Gate Charge	I _D =35A	---	125	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	---	43	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	68	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =400V	---	128	---	ns
T _r	Rise Time	V _{GS} =10V	---	117	---	
T _{d(off)}	Turn-Off Delay Time	I _D =35A	---	262	---	
T _f	Fall Time	R _G =27Ω	---	78	---	
C _{iss}	Input Capacitance	V _{DS} =40V , V _{GS} =0V , f=1MHz	---	5000	---	pF
C _{oss}	Output Capacitance		---	2750	---	
C _{rss}	Reverse Transfer Capacitance		---	135	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	78	A
I _{SM}	Pulsed Source Current		---	---	312	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =35A	---	0.9	1.2	V
t _{rr}	Reverse Recovery Time	V _{GS} =0V , I _S =35A	---	170	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt =100A/μs	---	1.25	---	μC

Note :

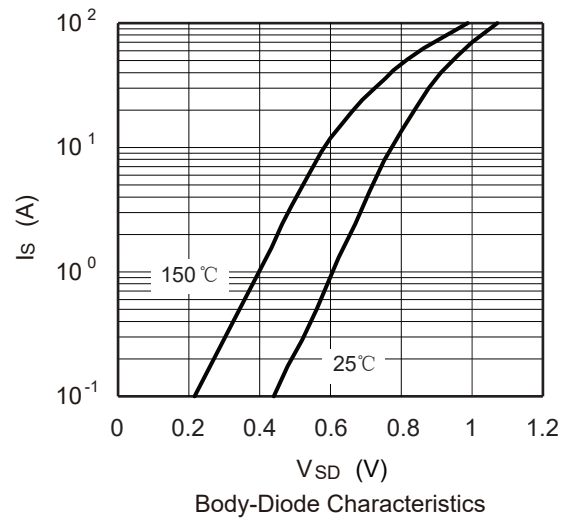
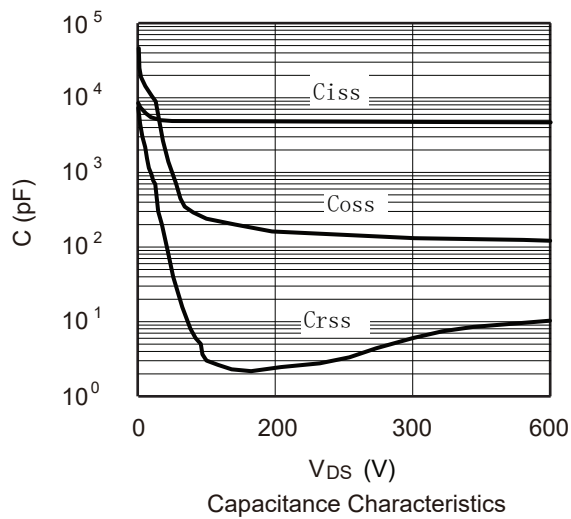
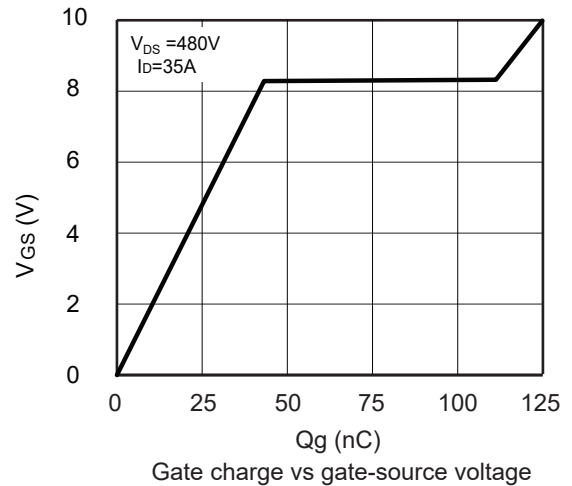
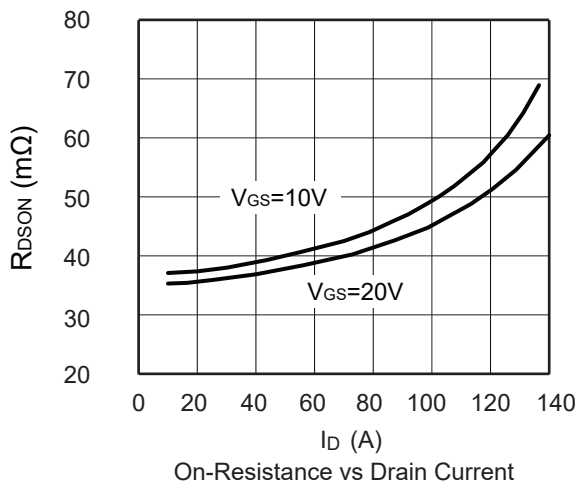
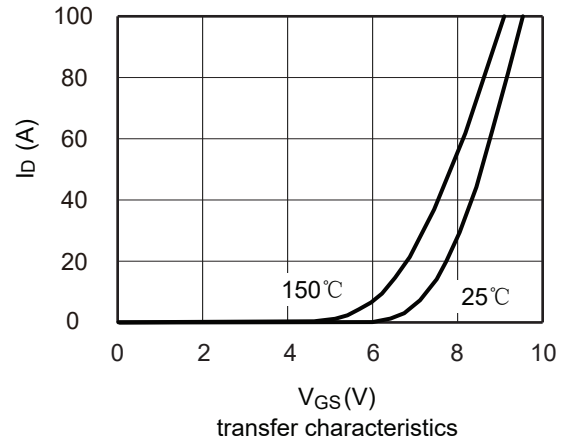
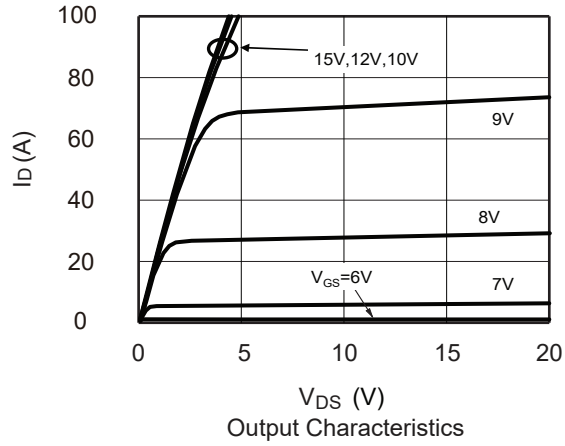
1.The EAS data shows Max. rating .The test condition is V_{DS}=100V , V_{GS}=10V , L=10mH , I_{AS}=26A.

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



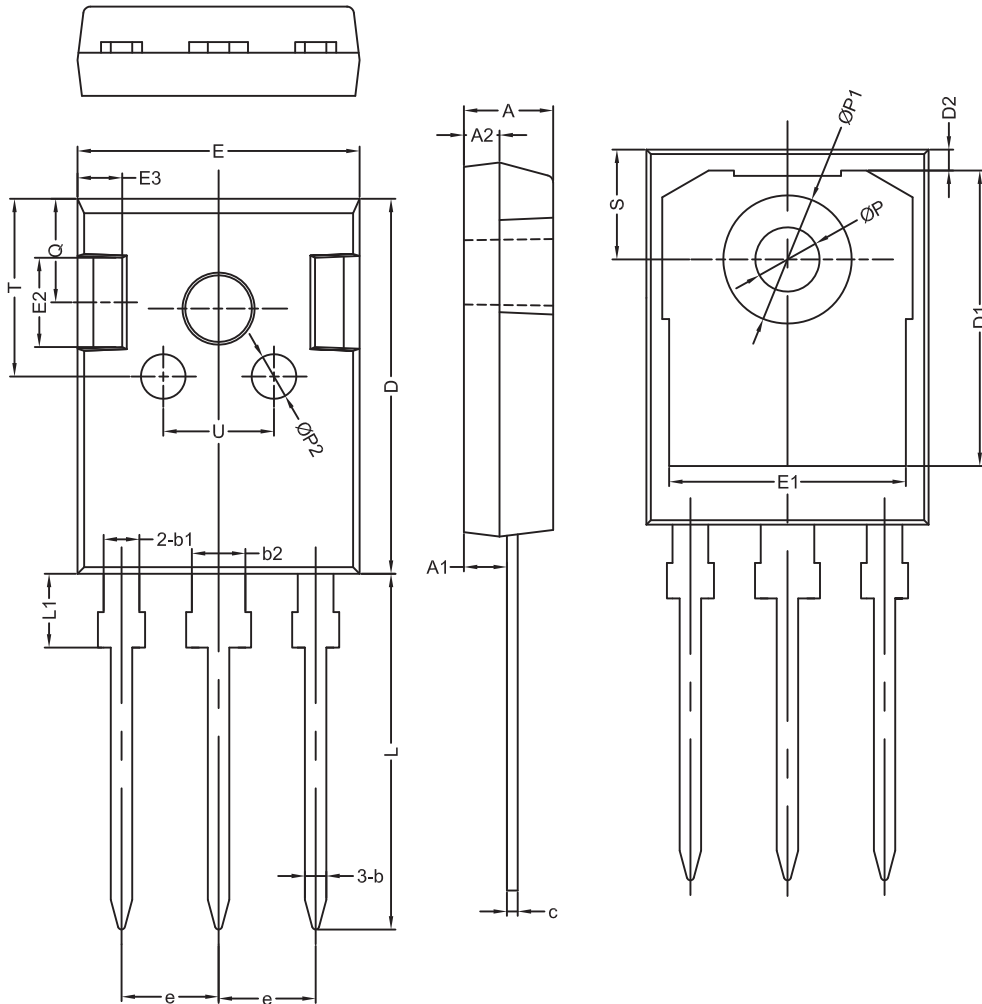
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Package Dimension

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	