CMH80R290R

800V, 0.21Ω typ., 19A N-Channel Super Junction Power MOSFET

General Description

The CMH80R290R is power MOSFET using Cmos's advanced super junction technology that can realize very low on resistance and gate charge.It will provide much high efficiency by using optimized charge coupling technology. These user friendly devices give an advantage of low EMI to designers as well as low switching loss.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
800V	250mΩ	19A

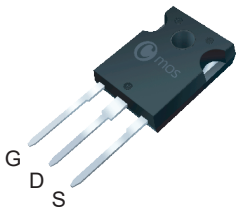
Applications

- Charger
- Adaptor
- Power Supply

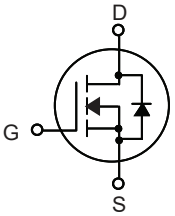
Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% avalanche tested
- RoHS Complian

TO-247 Pin Configuration



TO-247
CMH80R290R



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	800	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	19	A
I_D@T_C=100℃	Continuous Drain Current	12	A
I_{DM}	Pulsed Drain Current	76	A
EAS	Single Pulse Avalanche Energy (Note 1)	33.7	mJ
P_D@T_C=25℃	Total Power Dissipation	220	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	63.6	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.57	℃/W

800V, 0.21Ω typ., 19A N-Channel Super Junction Power MOSFET

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	800	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=10A	---	0.21	0.25	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=800V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V, I_D =10A	---	15	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	3	---	Ω
Q_g	Total Gate Charge	I_D=17A V_{DS}=640V V_{GS}=10V	---	39	---	nC
Q_{gs}	Gate-Source Charge		---	7.3	---	
Q_{gd}	Gate-Drain Charge		---	19.2	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=400V V_{GS}=10V I_D=17A R_G=25Ω	---	28	---	ns
T_r	Rise Time		---	50	---	
$T_{d(off)}$	Turn-Off Delay Time		---	129	---	
T_f	Fall Time		---	44	---	
C_{iss}	Input Capacitance	V_{DS}=400V , V_{GS}=0V , f=1MHz	---	1400	---	pF
C_{oss}	Output Capacitance		---	29.7	---	
C_{rss}	Reverse Transfer Capacitance		---	3.8	---	

Diode Characteristics

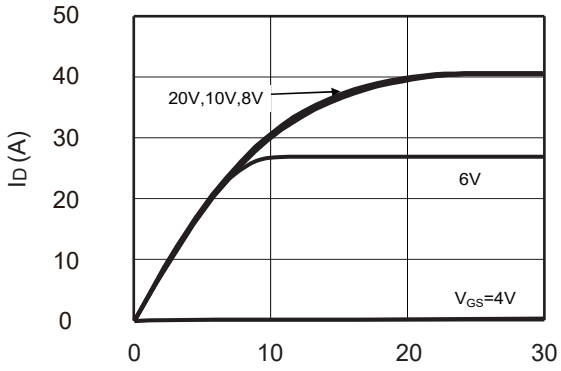
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	19	A
I_{SM}	Pulsed Source Current		---	---	76	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=10A	---	0.85	1.4	V

Note :

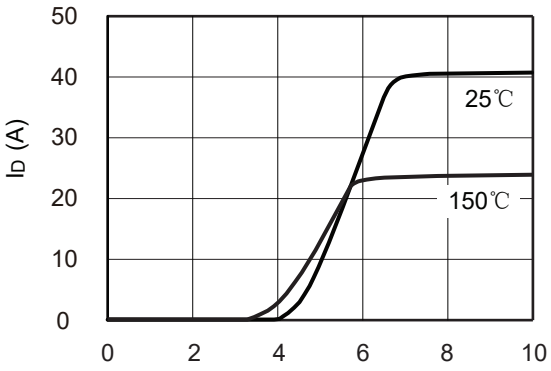
1.The EAS data shows Max. rating .The test condition is V_{DS}=100V , V_{GS}=10V , L=30mH , I_{AS}=1.5A.

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Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

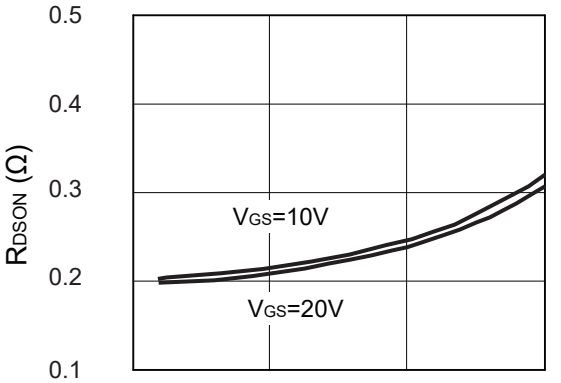
Typical Characteristics



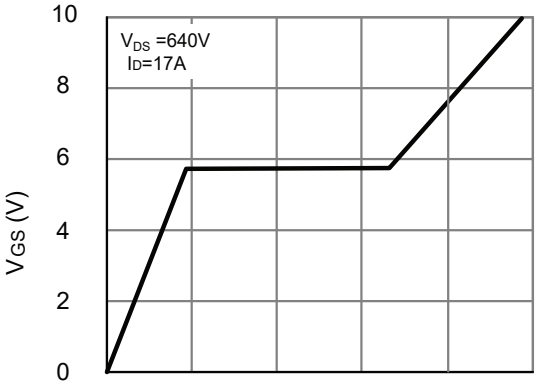
Output Characteristics



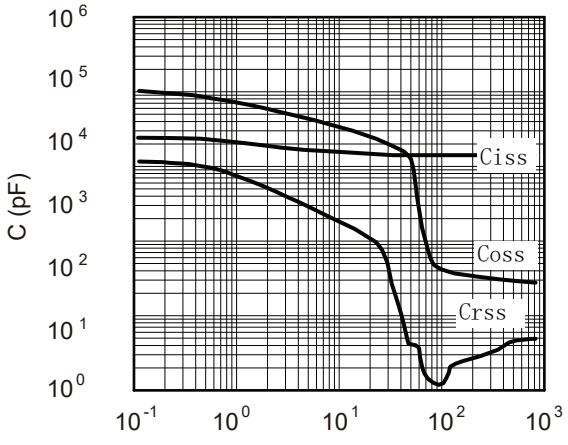
transfer characteristics



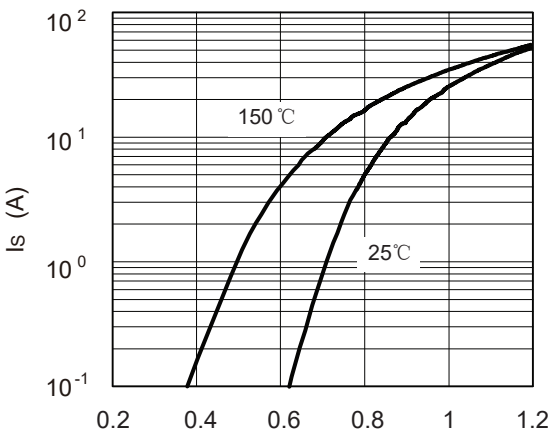
On-Resistance vs Drain Current



Gate charge vs gate-source voltage



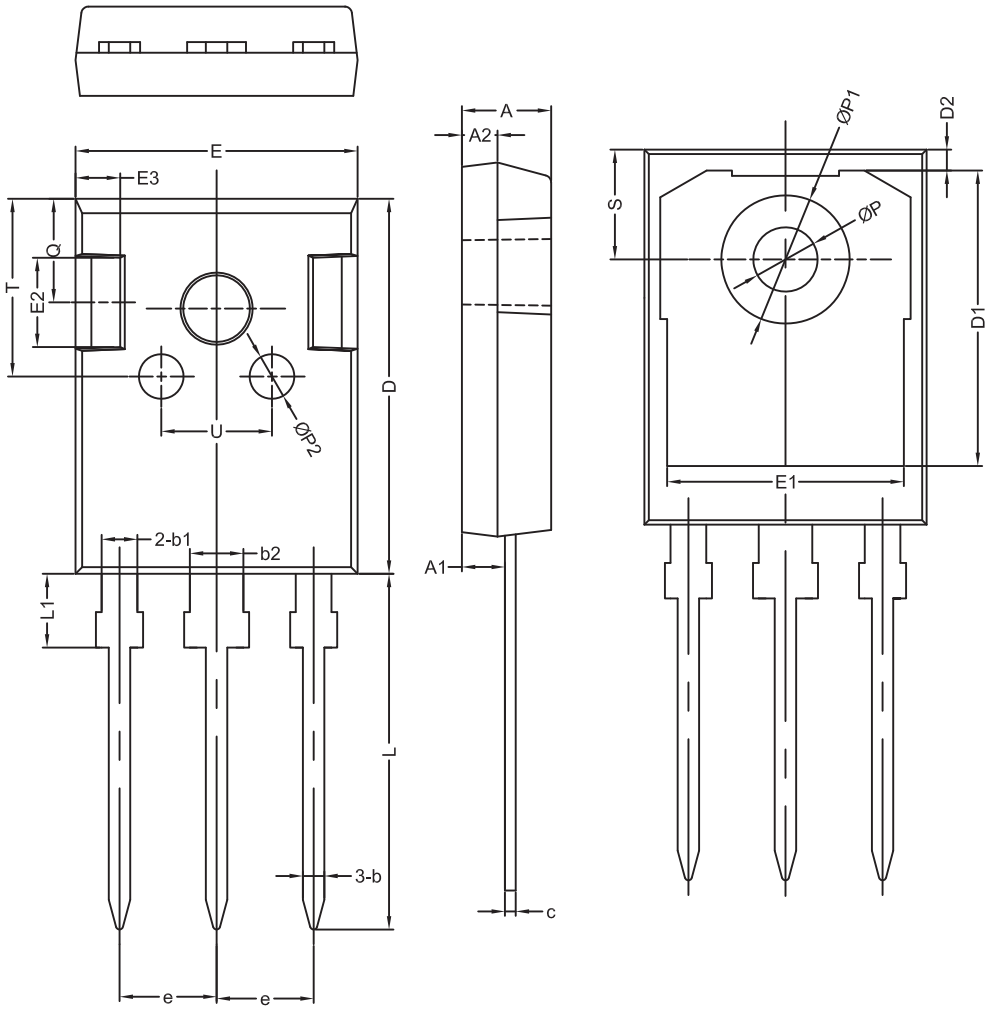
Capacitance Characteristics



Body-Diode Characteristics

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	