

CMH80N50FSD

500V, 105mΩ typ., 80A N-Channel MOSFET

General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology. These devices are well suited for high efficient switched mode power supplies and active power factor correction.

Features

- Ultra-fast body diode
- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

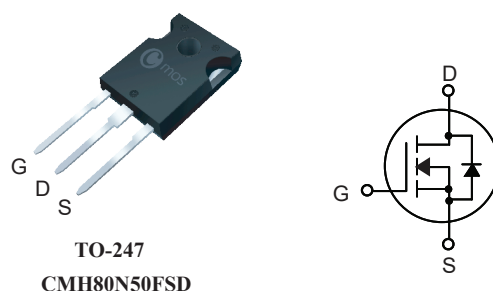
Product Summary

BVDSS	R _{DS(on)} max.	ID
500V	120mΩ	80A

Applications

- Switch Mode Power Supply
- Uninterruptable Power Supply

TO-247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	500	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	80	A
I _D @T _C =100°C	Continuous Drain Current	50	A
I _{DM}	Pulsed Drain Current	320	A
EAS	Single Pulse Avalanche Energy (Note 1)	6125	mJ
P _D @T _C =25°C	Total Power Dissipation	625	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.2	°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 =250μA	500	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =30A	---	105	120	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	3	---	5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =500V , V _{GS} =0V	---	---	25	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =20A	---	41	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	0.8	---	Ω
Q _g	Total Gate Charge	V _{DD} =400V , I _D =80A V _{GS} =10V	---	164	---	nC
Q _{gs}	Gate-Source Charge		---	53	---	
Q _{gd}	Gate-Drain Charge		---	60	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =250V , I _D =80A R _G =25Ω	---	146	---	ns
T _r	Rise Time		---	62	---	
T _{d(off)}	Turn-Off Delay Time		---	272	---	
T _f	Fall Time		---	64	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	10400	---	pF
C _{oss}	Output Capacitance		---	720	---	
C _{rss}	Reverse Transfer Capacitance		---	60	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	80	A
I _{SM}	Pulsed Source Current		---	---	320	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =60A , T _J =25°C	---	0.99	1.5	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	142	---	ns
Q _{rr}	Reverse Recovery Charge	I _F =80A , V _{GS} =0V	---	0.43	---	μC

Note :

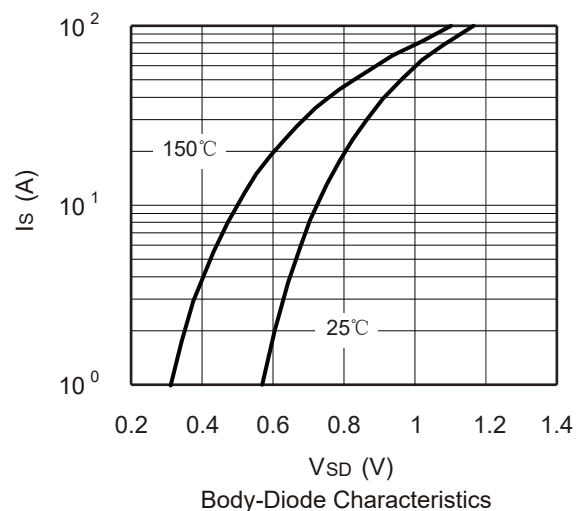
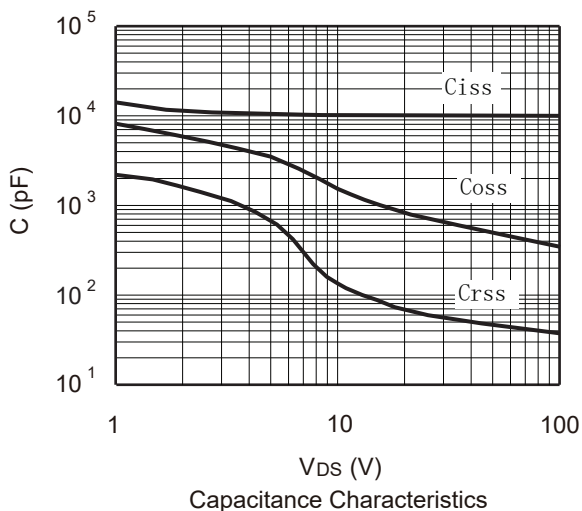
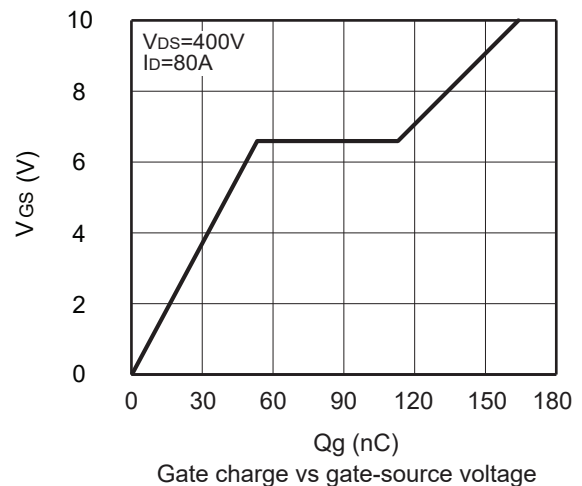
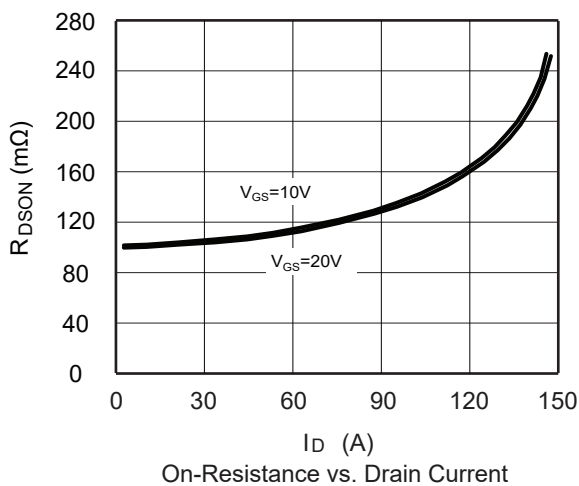
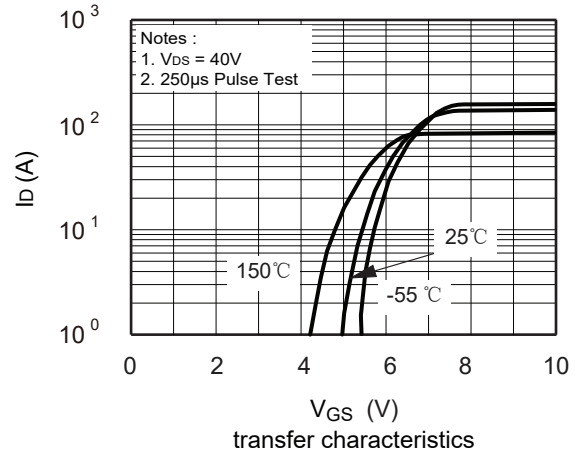
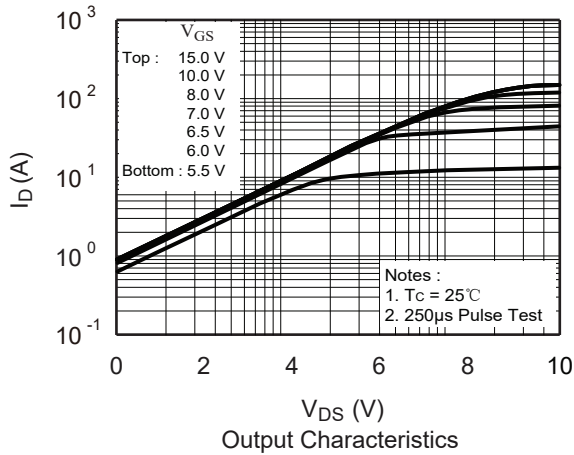
1. The EAS data shows Max. rating .The test condition is V_{DS}=150V , V_{GS}=10V , L=10mH , I_{AS}=35A.

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.Please refer to the latest version of specification.

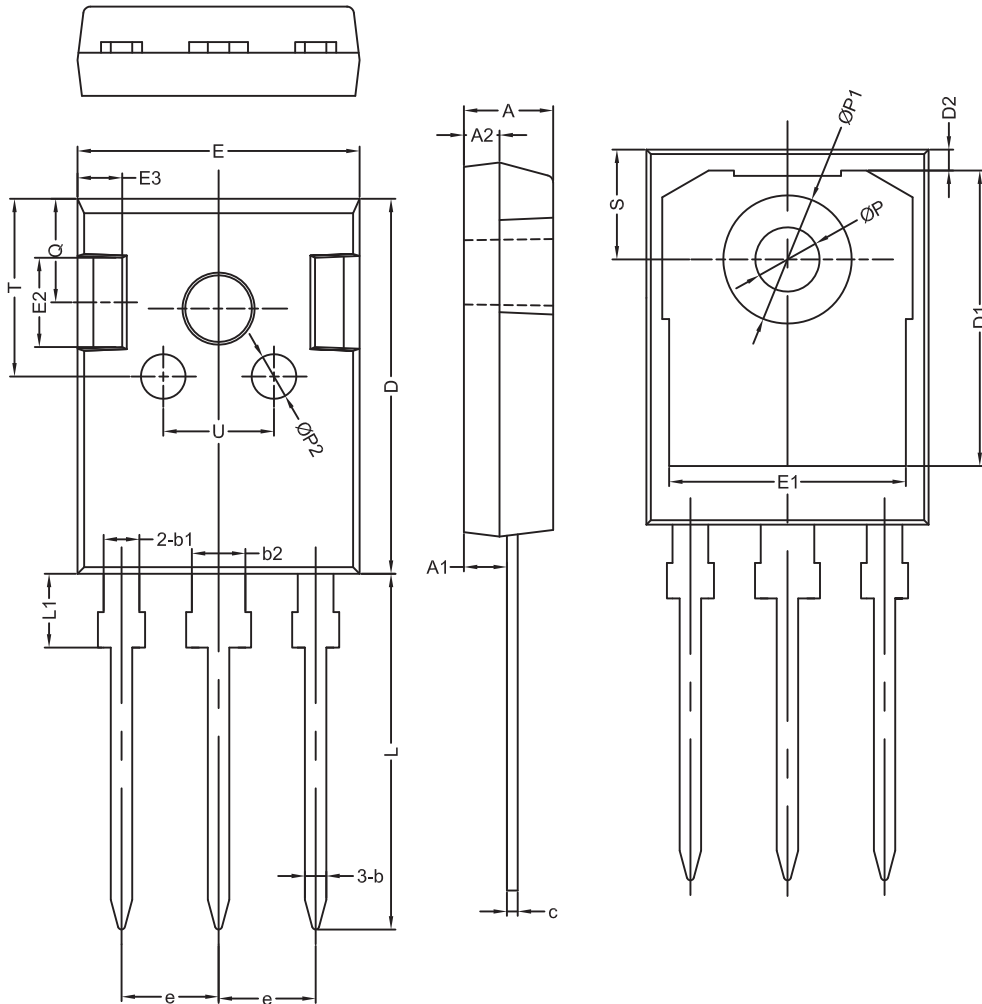
Typical Characteristics



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	