

General Description

The CMH80R450P is fabricated using an advanced high voltage MOSFET process that is designed to provide excellent $R_{DS(on)}$. This advanced technology has been tailored to minimize conduction loss, provide superior switching performance, and withstand extreme dv/dt rate and higher avalanche energy. It is suitable for various AC/DC power conversion in switching mode operation for higher efficiency.

Features

- Multi-layer Epitaxial Chip Technology
- 100% avalanche tested
- RoHS Compliant

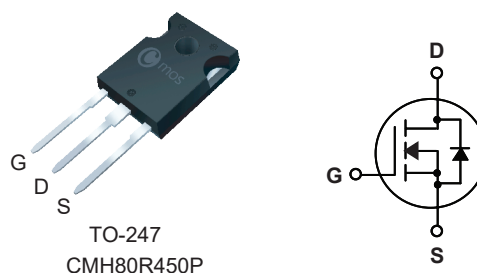
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
800V	0.4Ω	11A

Applications

- DC-AC converters
- SMPS Power
- UPS (Uninterruptible Power Supply)

TO247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	800	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	11	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	7	A
I_{DM}	Pulsed Drain Current	33	A
EAS	Single Pulse Avalanche Energy	260	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	100	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
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.25	°C/W

800V, 0.33Ω typ., 11A N-Channel Super Junction Power MOSFET

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	800	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=7A$	---	0.33	0.4	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=800V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
gfs	Forward Transconductance	$V_{DS}=15V$, $I_D=4A$	---	9	---	S
Q_g	Total Gate Charge	$I_D=11A$	---	38	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=640V$	---	7.5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=400V$	---	25	---	ns
T_r	Rise Time	$I_D=11A$	---	45	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=25\Omega$	---	120	---	
T_f	Fall Time	$V_{GS}=10V$	---	45	---	
C_{iss}	Input Capacitance	$V_{DS}=100V$, $V_{GS}=0V$, $f=1MHz$	---	1270	---	pF
C_{oss}	Output Capacitance		---	48	---	
C_{rss}	Reverse Transfer Capacitance		---	4	---	

Diode Characteristics

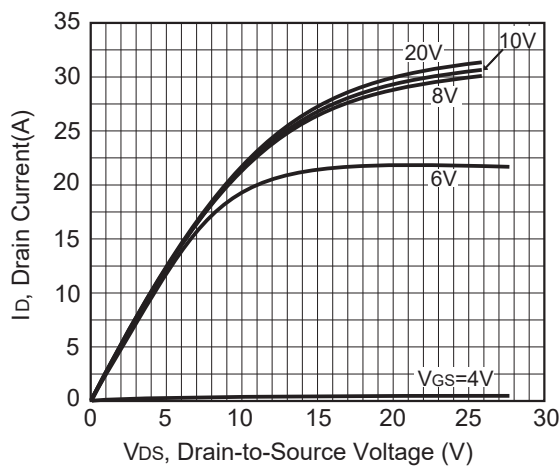
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	11	A
I_{SM}	Pulsed Source Current		---	---	33	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=11A$, $T_J=25^{\circ}\text{C}$	---	0.86	1.4	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	356	---	ns
Q_{rr}	Reverse Recovery Charge	$V_{DD}=100V$, $I_{SD}=11A$	---	4.7	---	μC

This product has been designed and qualified for the consumer market.

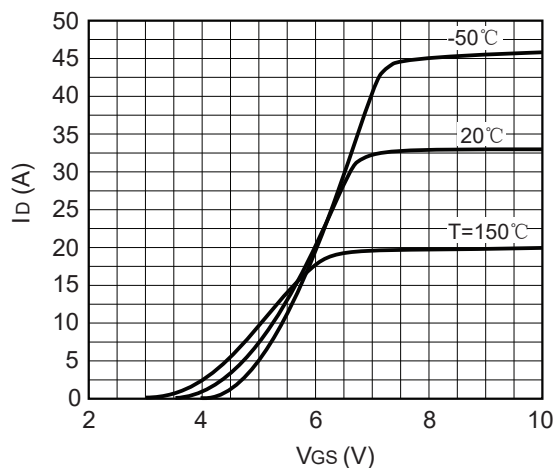
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Cmos reserves the right to improve product design ,functions and reliability without notice. Please refer to the latest version of specification.

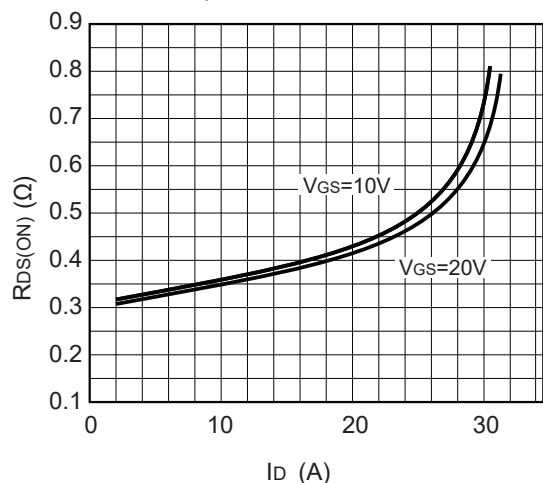
Typical Characteristics



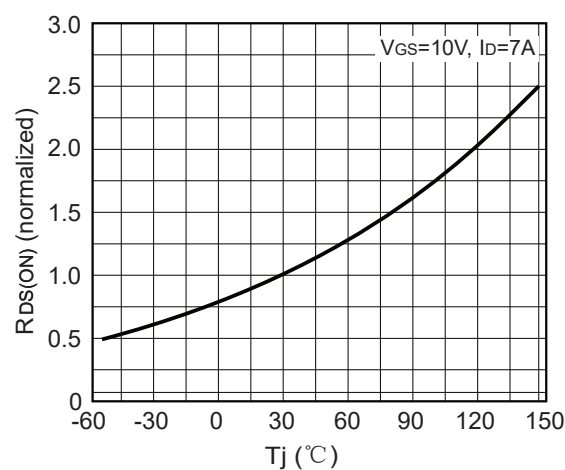
Output Characteristics



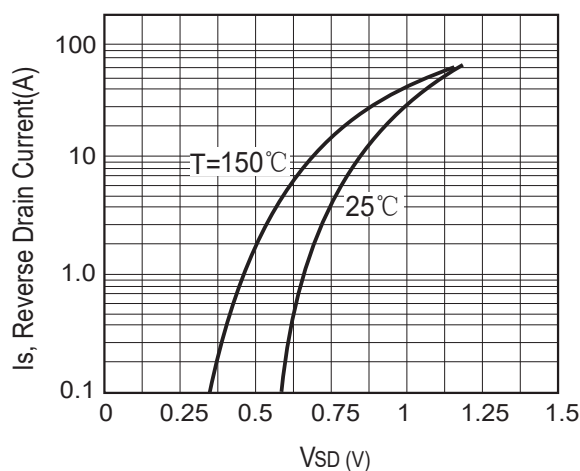
Transfer Characteristics



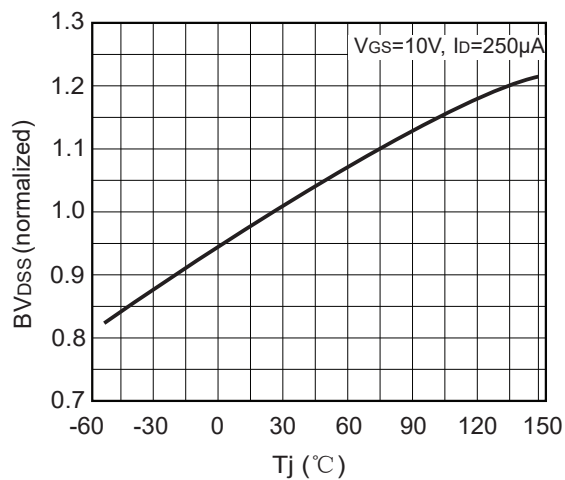
On-Resistance Variation with Drain Current and Gate Voltage



On-Resistance Variation with Temperature

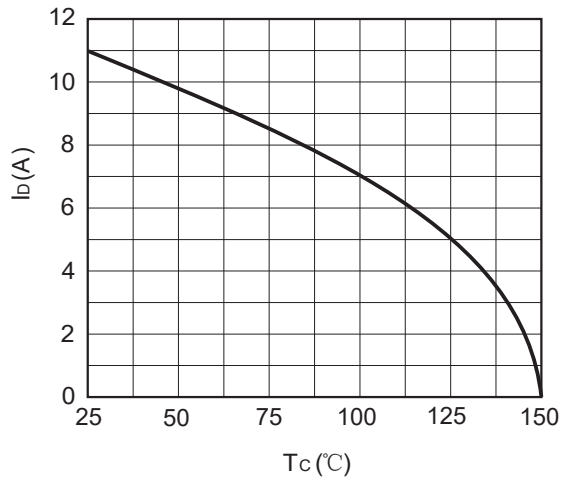


Body Diode Forward Voltage Variation with Source Current and Temperature

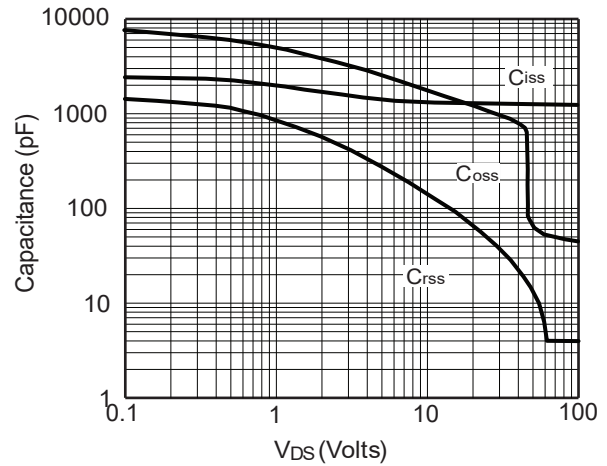


Breakdown Voltage Variation vs Temperature

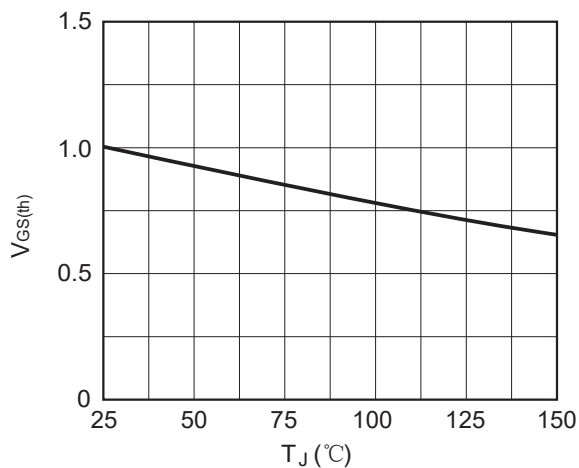
Typical Characteristics



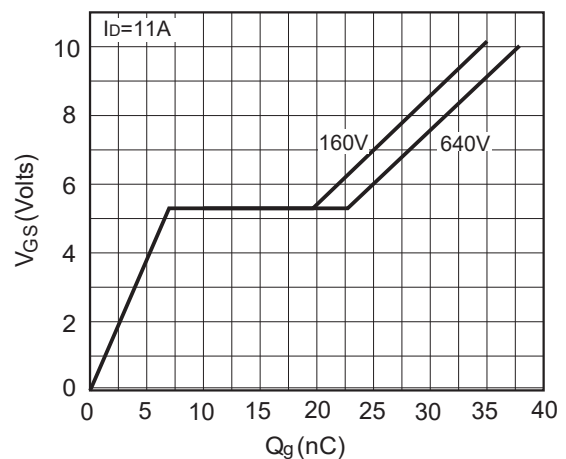
Maximum Drain Current vs. Case Temperature



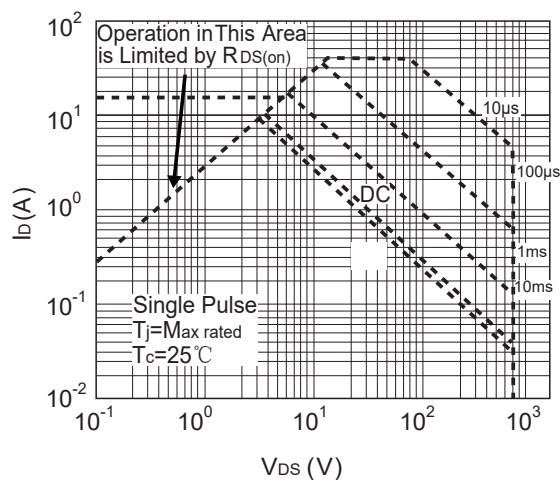
Capacitance Characteristics



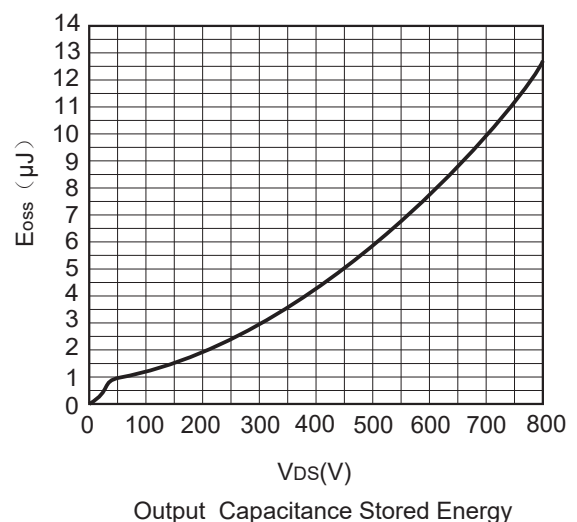
$V_{GS(th)}$ Variation with Temperature



Gate-Charge Characteristics



Maximum Safe Operating Area

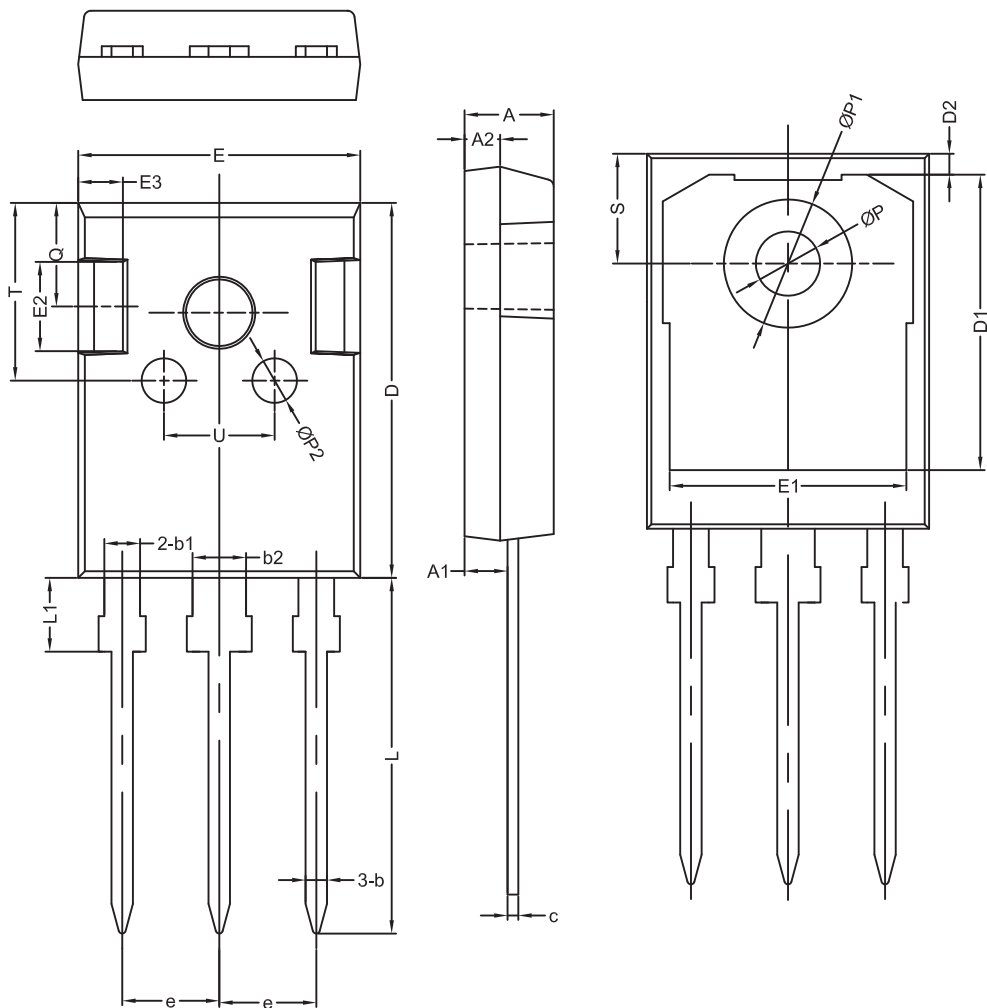


Output Capacitance Stored Energy

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	