CMH60N50

500V, 88mΩ typ., 60A 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.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
500V	100mΩ	60A

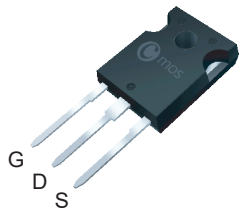
Applications

- Switch Mode Power Supply
- Uninterruptable Power Supply

Features

- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

TO-247 Pin Configuration



TO-247
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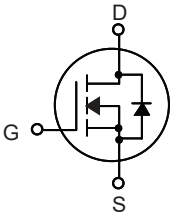

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage	±30	V
I_D@T_C=25℃	Continuous Drain Current	60	A
I_D@T_C=100℃	Continuous Drain Current	36	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy (Note 1)	6125	mJ
P_D@T_C=25℃	Total Power Dissipation	625	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	40	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.2	℃/W

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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	500	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=40A	---	88	100	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=500V , 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 =20A	---	51	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	0.9	---	Ω
Q_g	Total Gate Charge	V_{DD} =400V , I_D=60A V_{GS}=10V	---	193	---	nC
Q_{gs}	Gate-Source Charge		---	43	---	
Q_{gd}	Gate-Drain Charge		---	63	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=250V , I_D =23A R_G =25Ω	---	102	---	ns
T_r	Rise Time		---	56	---	
$T_{d(off)}$	Turn-Off Delay Time		---	476	---	
T_f	Fall Time		---	79	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	9900	---	pF
C_{oss}	Output Capacitance		---	750	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	240	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=80A	---	0.94	1.5	V
t_{rr}	Reverse Recovery Time	I_S =50A , V_{GS} =0V	---	602	---	ns
Q_{rr}	Reverse Recovery Charge	di/dt =100A/μs (note 2,3)	---	6.35	---	μC

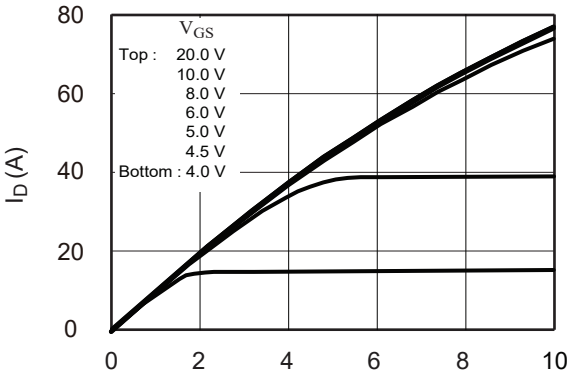
Note :

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

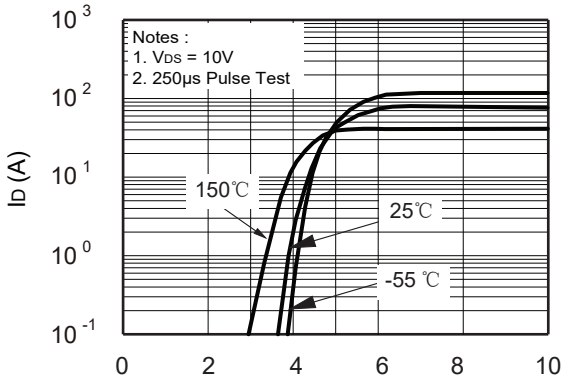
2. Pulse test: Pulse width≤300us, Duty cycle≤2%.

3. Essentially independent of operating temperature typical characteristics.

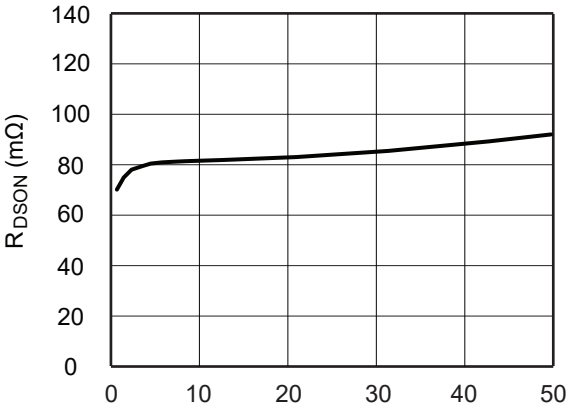
Typical Characteristics



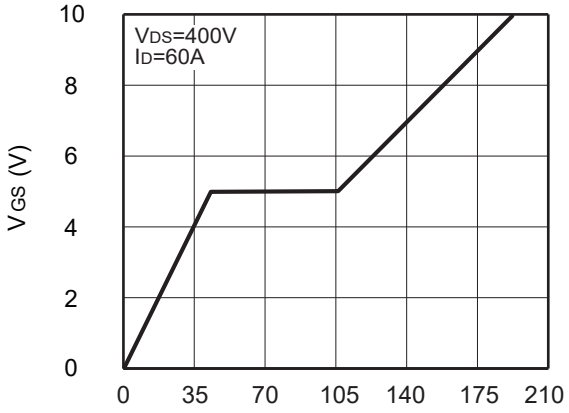
Output Characteristics



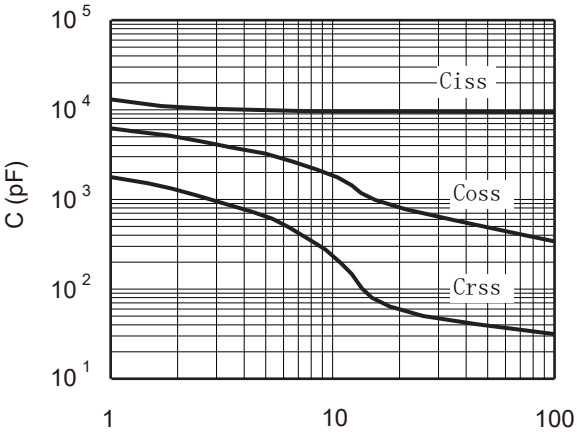
transfer characteristics



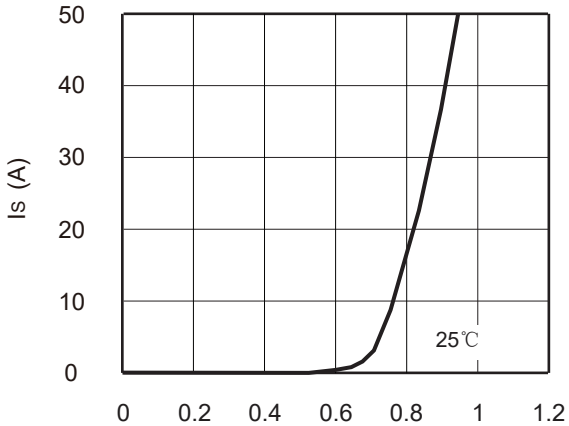
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



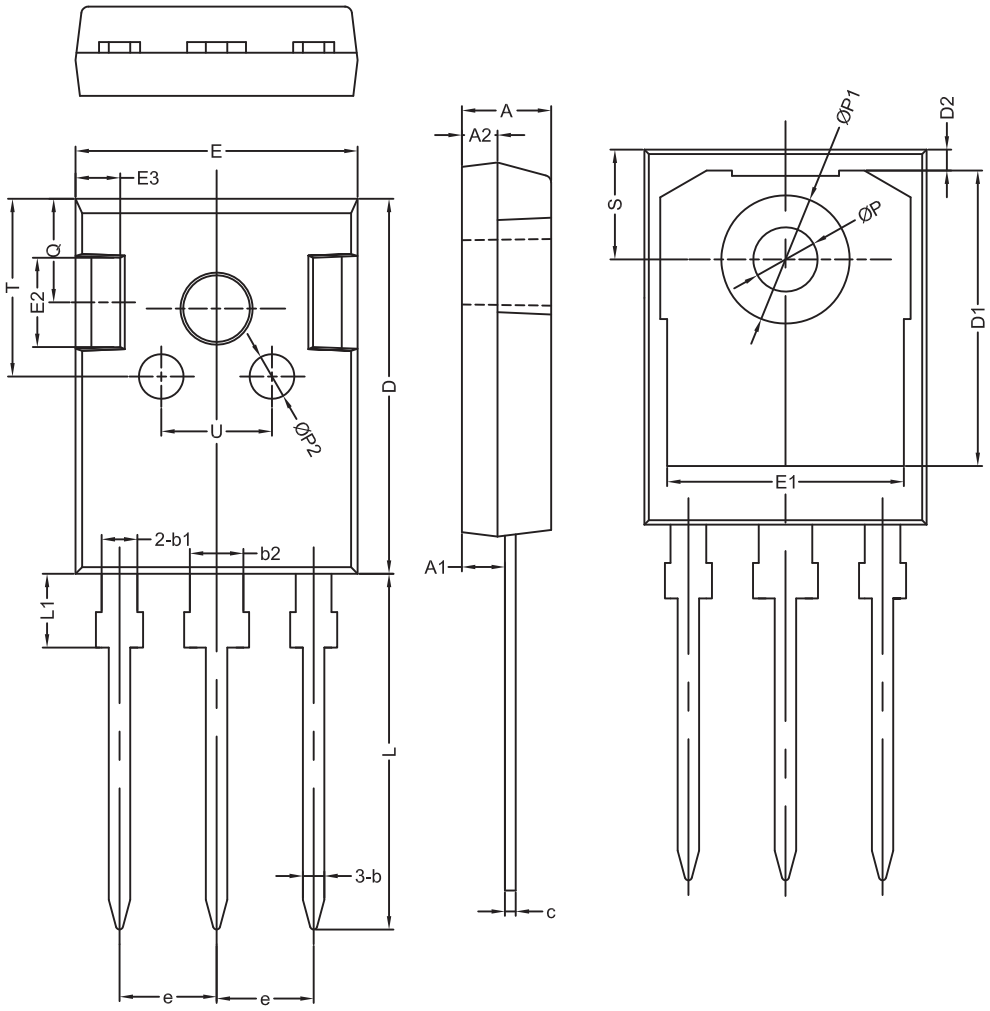
Capacitance Characteristics



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	