

CMH1608A

80V, 3.1mΩ typ., 200A N-Channel MOSFET

General Description

This N-Channel MOSFET is produced by using Cmos's advanced trench technology process that has been tailored to minimize the on-state resistance while maintaining superior switching performance.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

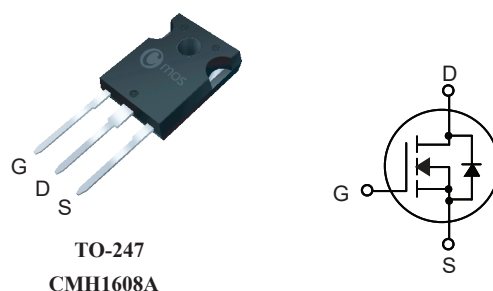
Product Summary

BVDSS	R _{DS(on)} max.	ID
80V	3.5mΩ	200A

Applications

- Battery management
- Uninterruptible Power Supply

TO-247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	80	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	200	A
I _D @T _C =100°C	Continuous Drain Current	140	A
I _{DM}	Pulsed Drain Current	800	A
EAS	Single Pulse Avalanche Energy (Note 1)	3240	mJ
P _D @T _C =25°C	Total Power Dissipation	350	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 Max.(min. footprint)	---	84	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.36	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=80A$	---	3.1	3.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	46	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=40V$, $I_D=50A$ $V_{GS}=10V$	---	172	---	nC
Q_{gs}	Gate-Source Charge		---	39	---	
Q_{gd}	Gate-Drain Charge		---	68	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=40V$, $V_{GS}=10V$ $R_{G_ext}=2.7\Omega$	---	30	---	ns
T_r	Rise Time		---	113	---	
$T_{d(off)}$	Turn-Off Delay Time		---	81	---	
T_f	Fall Time		---	116	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	8200	---	pF
C_{oss}	Output Capacitance		---	1050	---	
C_{rss}	Reverse Transfer Capacitance		---	800	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	200	A
I_{SM}	Pulsed Source Current		---	---	800	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	0.77	1.4	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	57	---	ns
Q_{rr}	Reverse Recovery Charge	$I_S=50A$ (Note 2,3)	---	129	---	nC

Note :

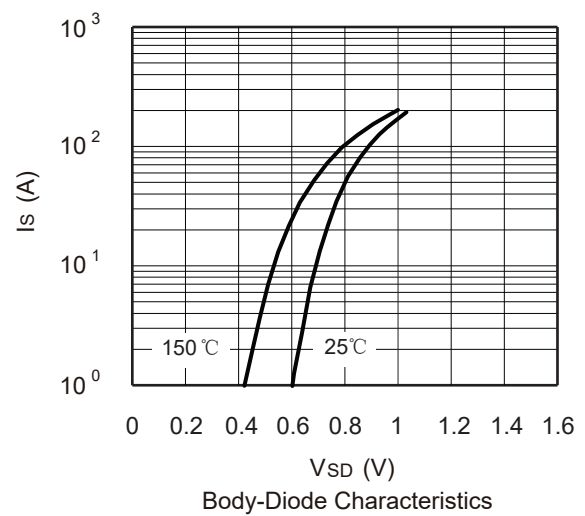
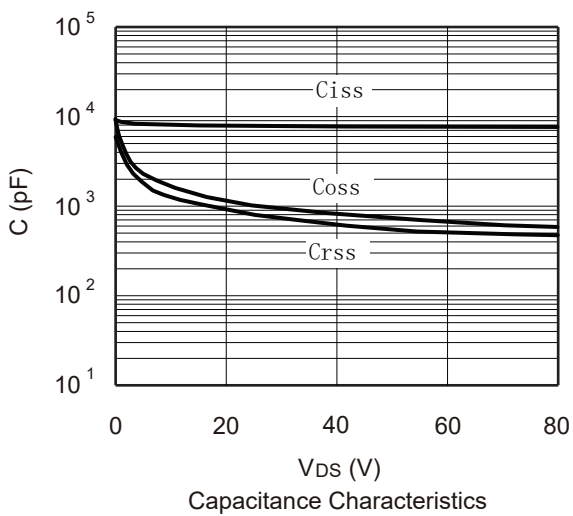
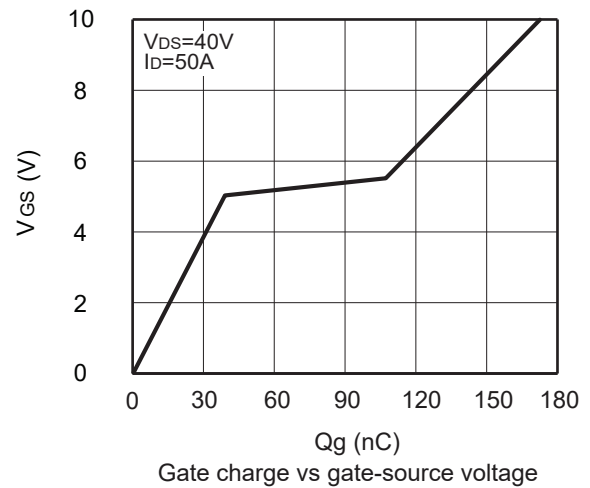
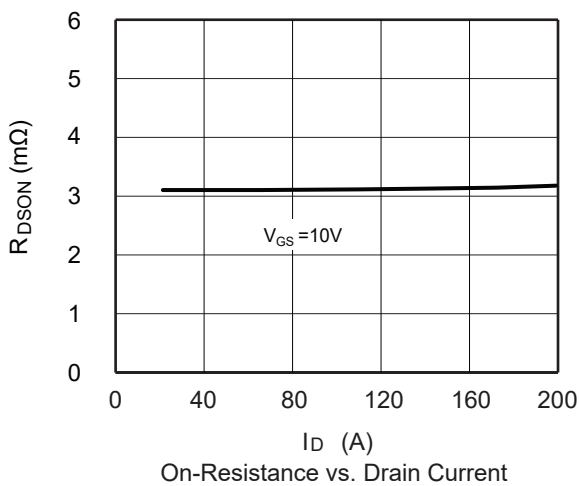
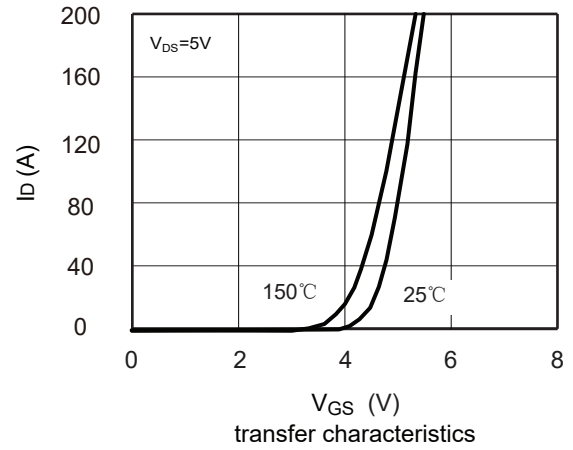
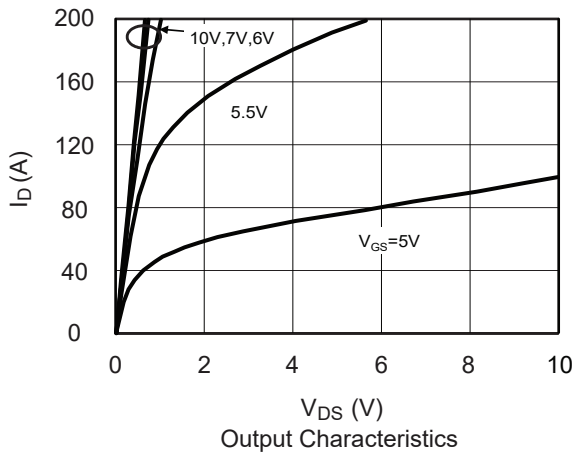
1. The EAS data shows Max. rating .The test condition is $V_{DS}=50V$, $V_{GS}=10V$, $L=5mH$, $I_{AS}=36A$.
2. Pulse test: Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
3. Essentially independent of operating temperature typical characteristics.

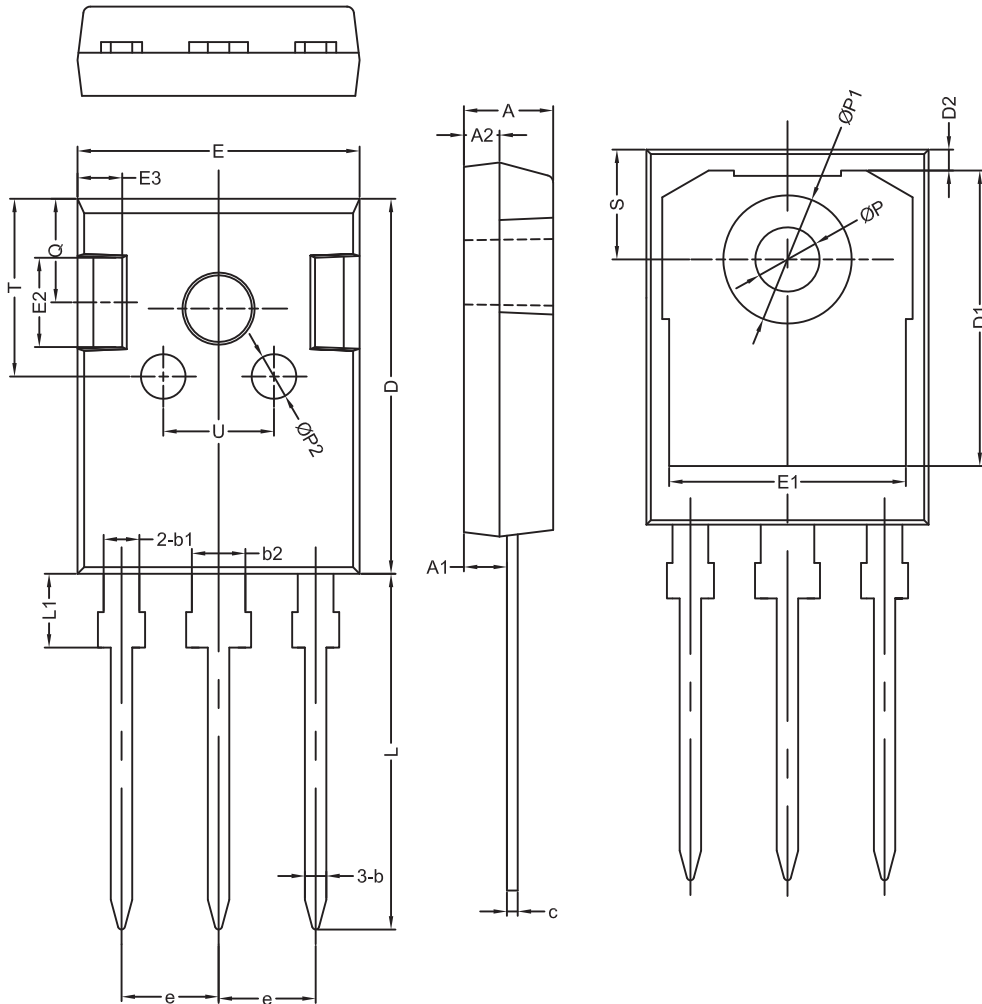
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CMOS reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



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	