

General Description

The CMH18N65 is fabricated using an advanced high voltage MOSFET process that is designed to deliver high levels of performance and robustness in popular AC-DC applications. By providing low $R_{DS(on)}$, C_{iss} and C_{rss} along with guaranteed avalanche capability this part can be adopted quickly into new and existing offline power supply designs.

Features

- Fast switching
- 100% avalanche tested
- RoHS Compliant

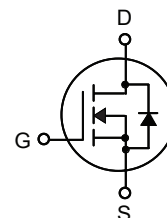
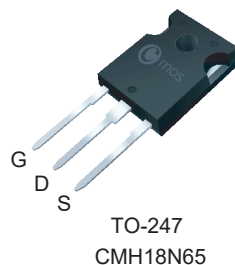
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
650V	0.55Ω	18A

Applications

- Switching applications

TO-247 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	18	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	10	A
I_{DM}	Pulsed Drain Current (Note 1)	72	A
EAS	Single Pulse Avalanche Energy (Note 2)	1620	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	230	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Note 3,4)	40	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	0.3	°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	$V_{GS}=0V$, $I_D=250\mu A$	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=9A$	---	0.46	0.55	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	$V_{DS}=650V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=520V$, $T_C=125^{\circ}\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	17	---	S
Q_g	Total Gate Charge	$I_D=18A$	---	50	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=520V$	---	20	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	10	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=325V$	---	175	---	ns
T_r	Rise Time	$I_D=18A$	---	121	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_L=25\Omega$	---	373	---	
T_f	Fall Time		---	64	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3300	---	pF
C_{oss}	Output Capacitance		---	220	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

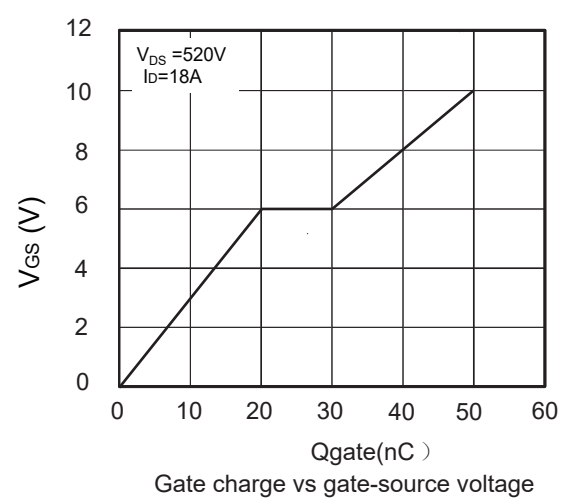
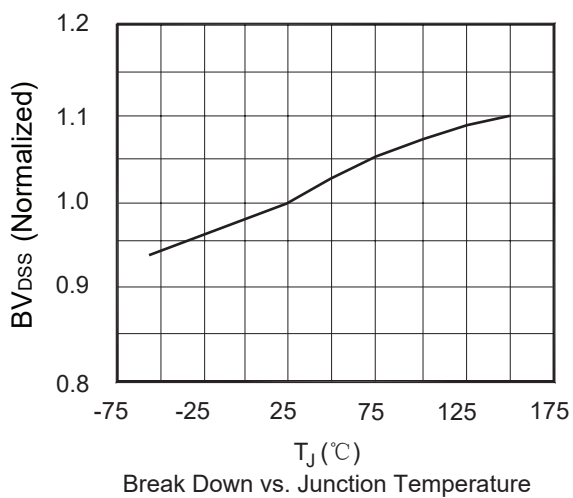
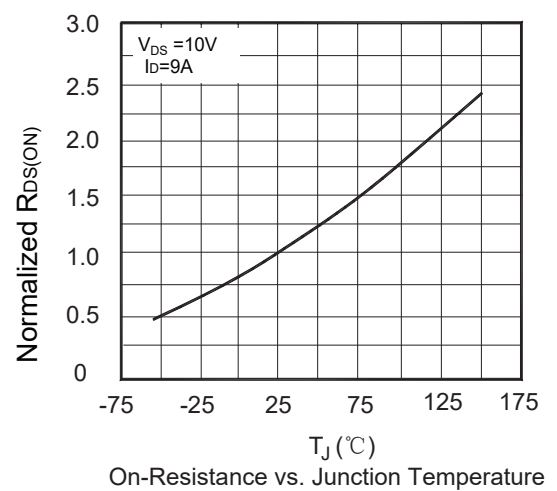
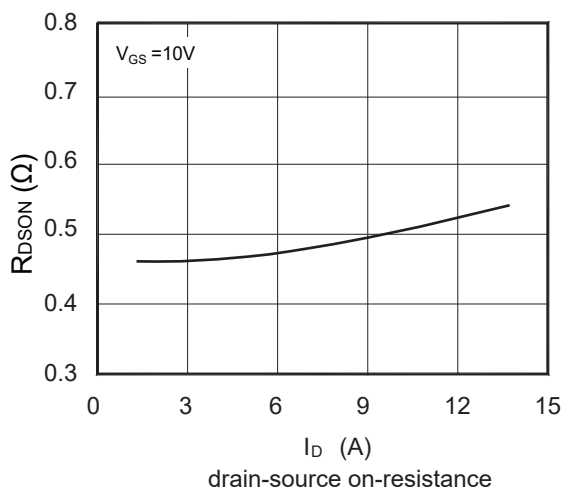
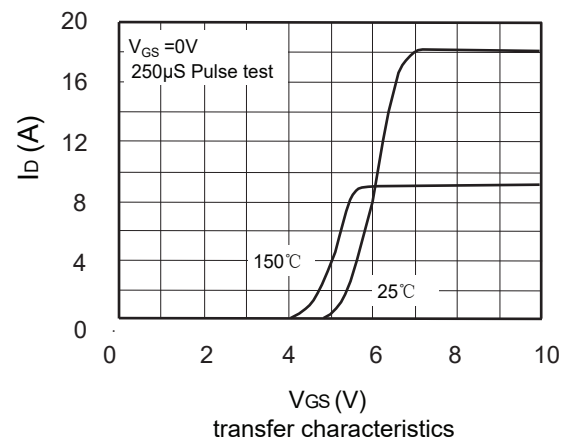
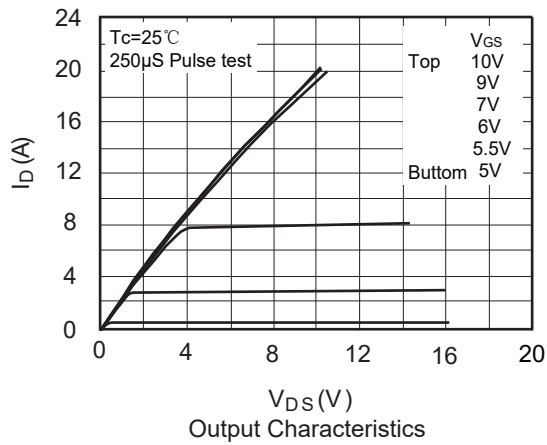
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	18	A
I_{SM}	Pulsed Source Current		---	---	72	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=18A$	---	---	1.4	V

Notes:

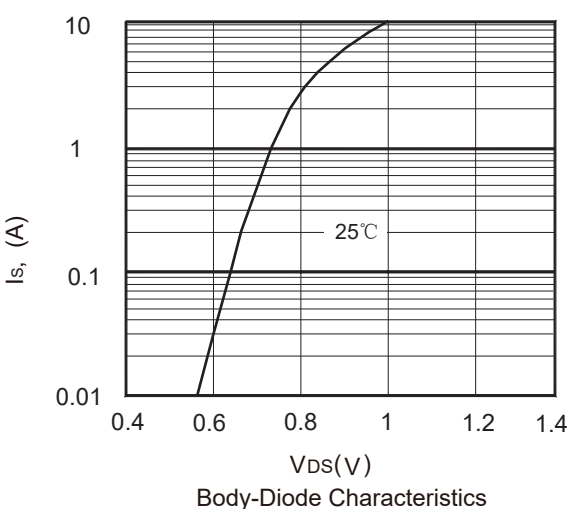
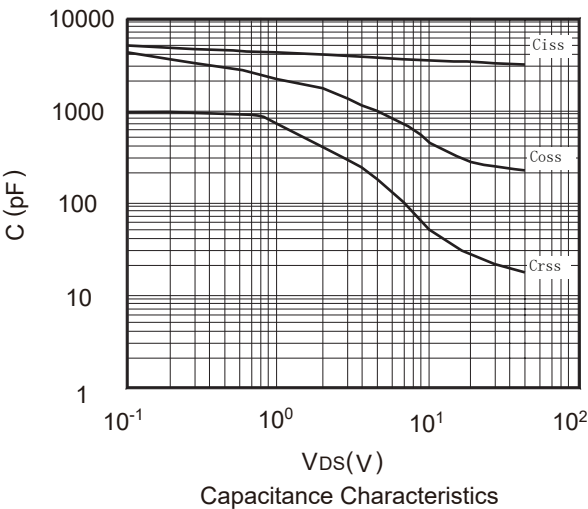
1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. The EAS data shows Max. rating .The test condition is $V_{DS}=80V$, $V_{GS}=10V$, $L=10\text{mH}$, $I_{AS}=18A$.
3. The value of $R_{\theta JA}$ is measured with the device in a still air environment with $T_A=25^{\circ}\text{C}$.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.

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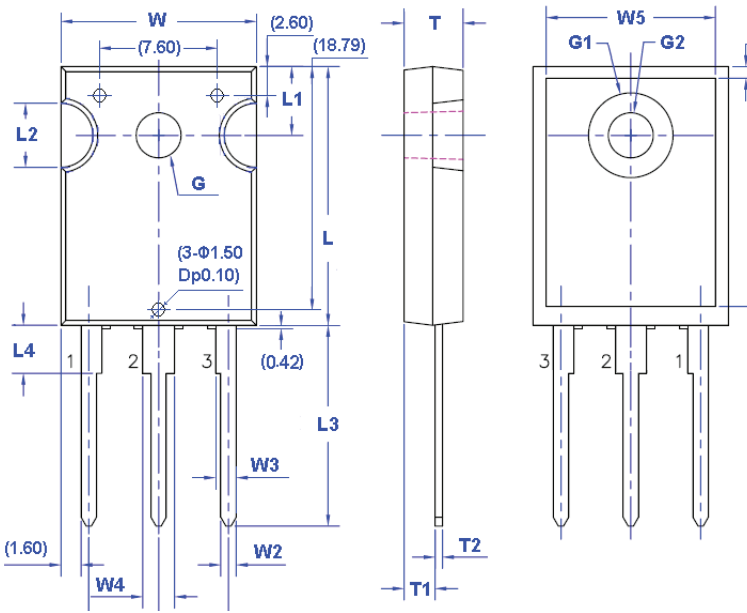
Typical Characteristics



Typical Characteristics



Package Dimension



(单位: mm)

符号	尺寸		符号	尺寸		符号	尺寸		符号	尺寸	
	Min	Max		Min	Max		Min	Max		Min	Max
W	15.37	15.87	W5	12.70	13.00	L4	3.69	3.93	T2	0.51	0.71
W1	5.56 (TYP)		L	20.32	20.82	L5	16.00	17.00	G(Φ)	3.51	3.65
W2	1.17	1.35	L1	5.34	5.58	L6	0.51	1.35	G1(Φ)	6.61	6.85
W3	1.53	1.77	L2	4.96	5.20	T	4.58	4.82	G2(Φ)	3.51	3.65
W4	2.42	2.66	L3	15.75	16.25	T1	2.29	2.66			

注：() 内数值为参考值。尺寸不包含毛刺及模具溢料。