

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

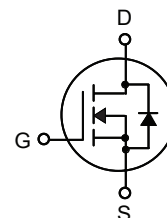
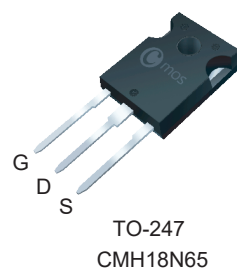
Product Summary

BVDSS	RDSON	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)	578	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	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3	---	5	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

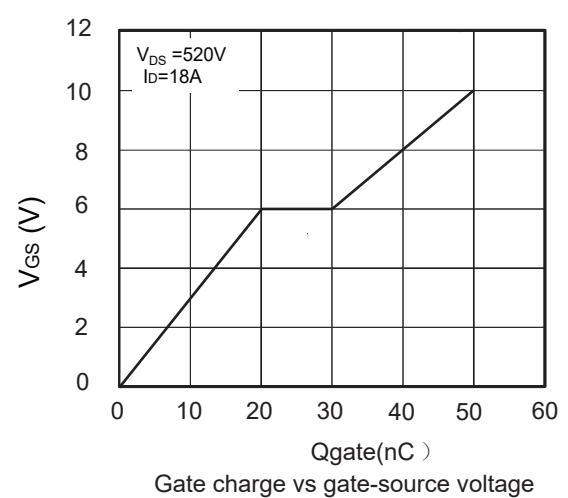
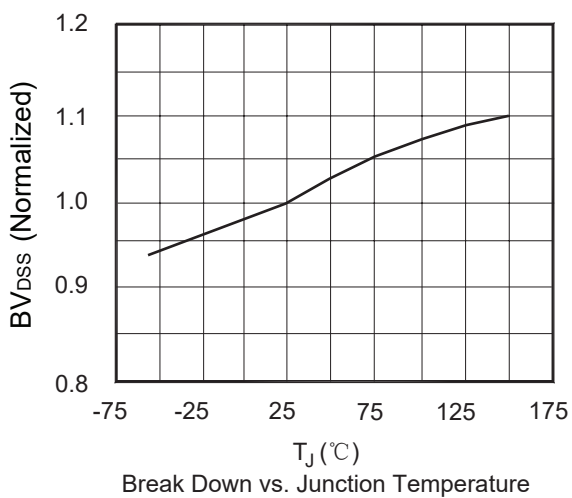
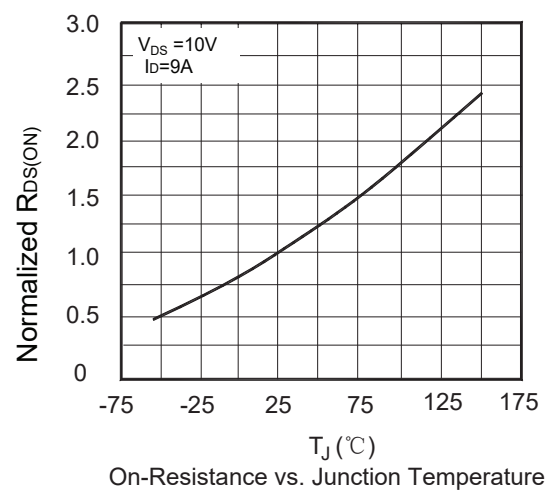
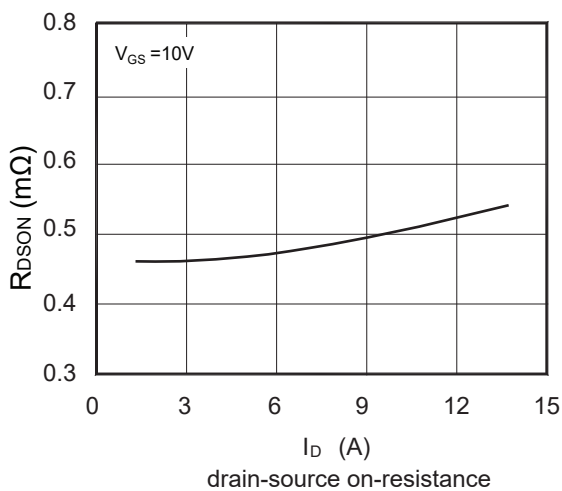
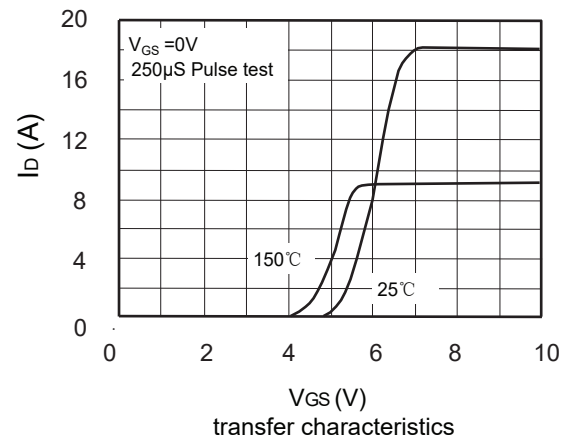
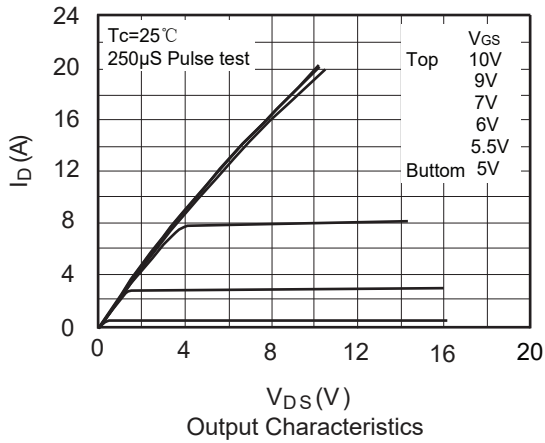
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	18	A
I_{SM}	Pulsed Source Current		---	---	72	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=18A$	---	---	1.4	V

Notes:

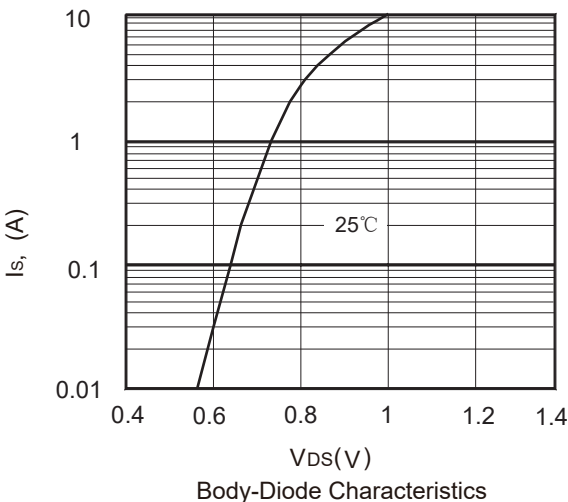
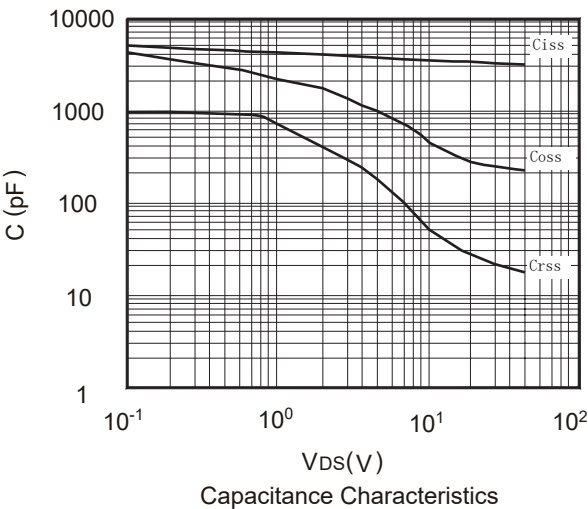
1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. $L=1\text{mH}$, $I_{AS}=34A$, $V_{DD}=50V$, Starting $T_J=25^{\circ}\text{C}$.
3. The value of $R_{\theta JA}$ is measured with the device in a still air environment with $T_A=25^{\circ}\text{C}$.
4. The $R_{\theta JA}$ is 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.
 Cmos assumes no liability for customers' product design or applications.
 Cmos reserves the right to improve product design ,functions and reliability without notice.

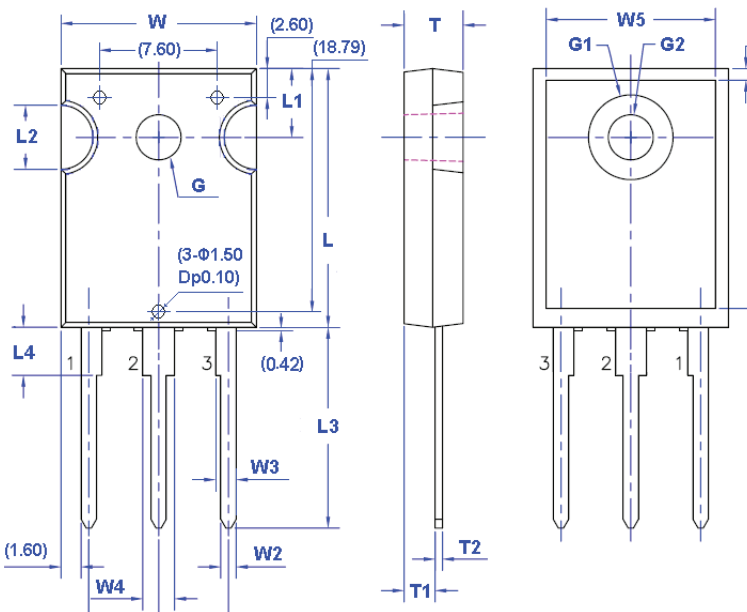
Typical Characteristics



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。