CMH10N80A/CMA10N80A

800V, 890mΩ typ., 10A N-Channel MOSFET

General Description

The 10N80A uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for high efficiency switch mode power supply.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
800V	1Ω	10A

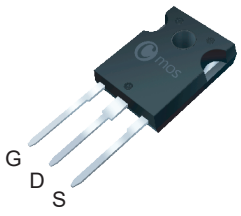
Applications

- Switch Mode Power Supply
- Uninterruptable Power Supply

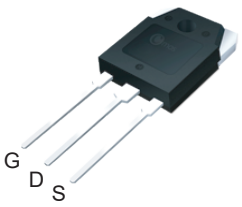
Features

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

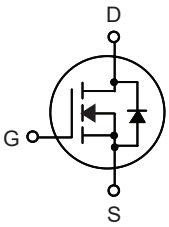
TO-247/TO-3P Pin Configuration



TO-247
CMH10N80A



TO-3P
CMA10N80A



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℃	Continuous Drain Current	10	A
I_D@T_C=100℃	Continuous Drain Current	6.3	A
I_{DM}	Pulsed Drain Current	40	A
EAS	Single Pulse Avalanche Energy (Note 1)	490	mJ
P_D@T_C=25℃	Total Power Dissipation	240	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	---	62.5	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.52	℃/W

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	800	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=5A	---	0.89	1	Ω
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=800V , V_{GS}=0V	---	---	10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V , I_D =5A	---	11	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.9	---	Ω
Q_g	Total Gate Charge	V_{DS} =640V , I_D=10A V_{GS}=10V	---	48	---	nC
Q_{gs}	Gate-Source Charge		---	12	---	
Q_{gd}	Gate-Drain Charge		---	18	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=400V , I_D =10A R_G=25Ω	---	50	---	ns
T_r	Rise Time		---	130	---	
$T_{d(off)}$	Turn-Off Delay Time		---	90	---	
T_f	Fall Time		---	80	---	
C_{iss}	Input Capacitance	V_{DS}=25V, V_{GS}=0V , f=1MHz	---	2200	---	pF
C_{oss}	Output Capacitance		---	170	---	
C_{rss}	Reverse Transfer Capacitance		---	15	---	

Diode Characteristics

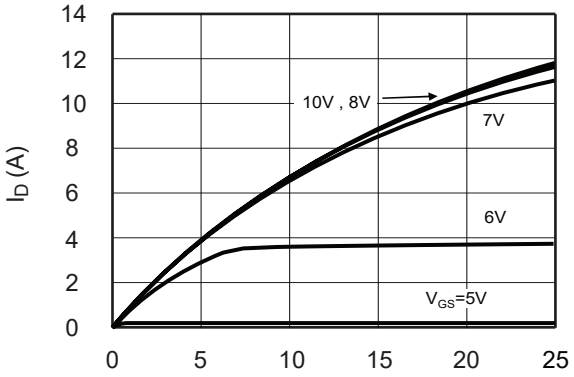
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	10	A
I_{SM}	Pulsed Source Current		---	---	40	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=10A	---	0.83	1.4	V

Note :

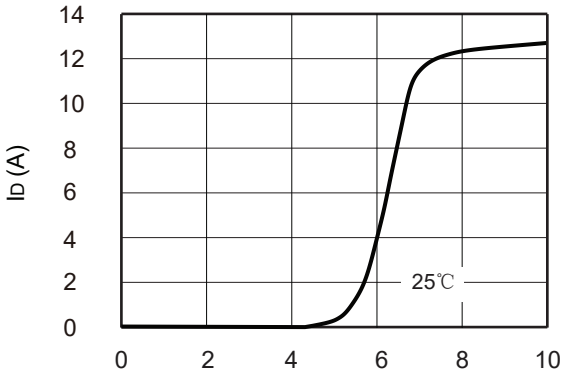
1.The EAS data shows Max. rating .The test condition is V_{DS}=100V , V_{GS}=10V , L=5mH , I_{AS}=14A.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

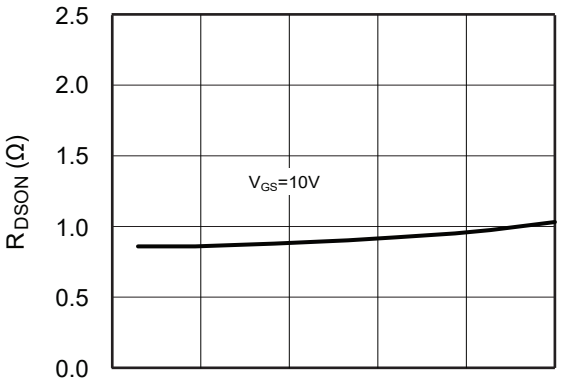
Typical Characteristics



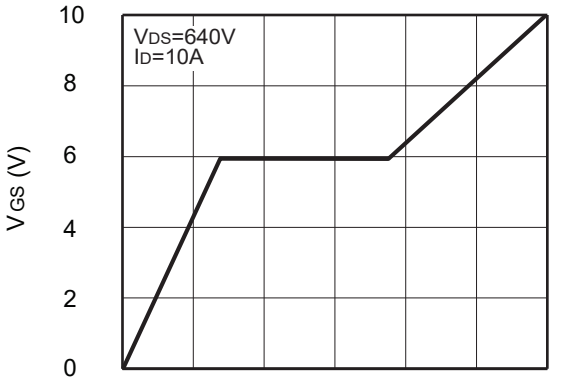
Output Characteristics



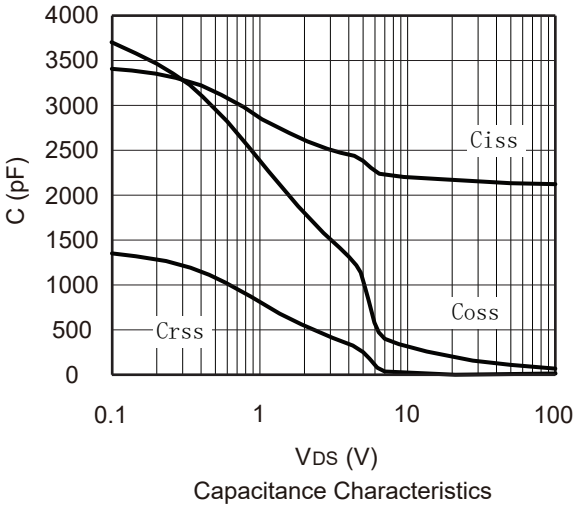
transfer characteristics



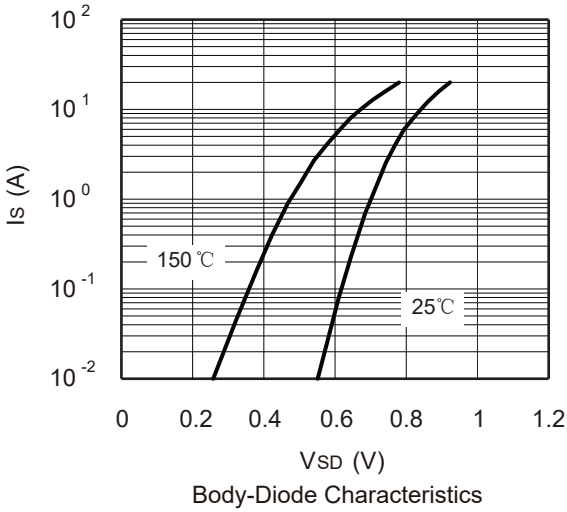
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



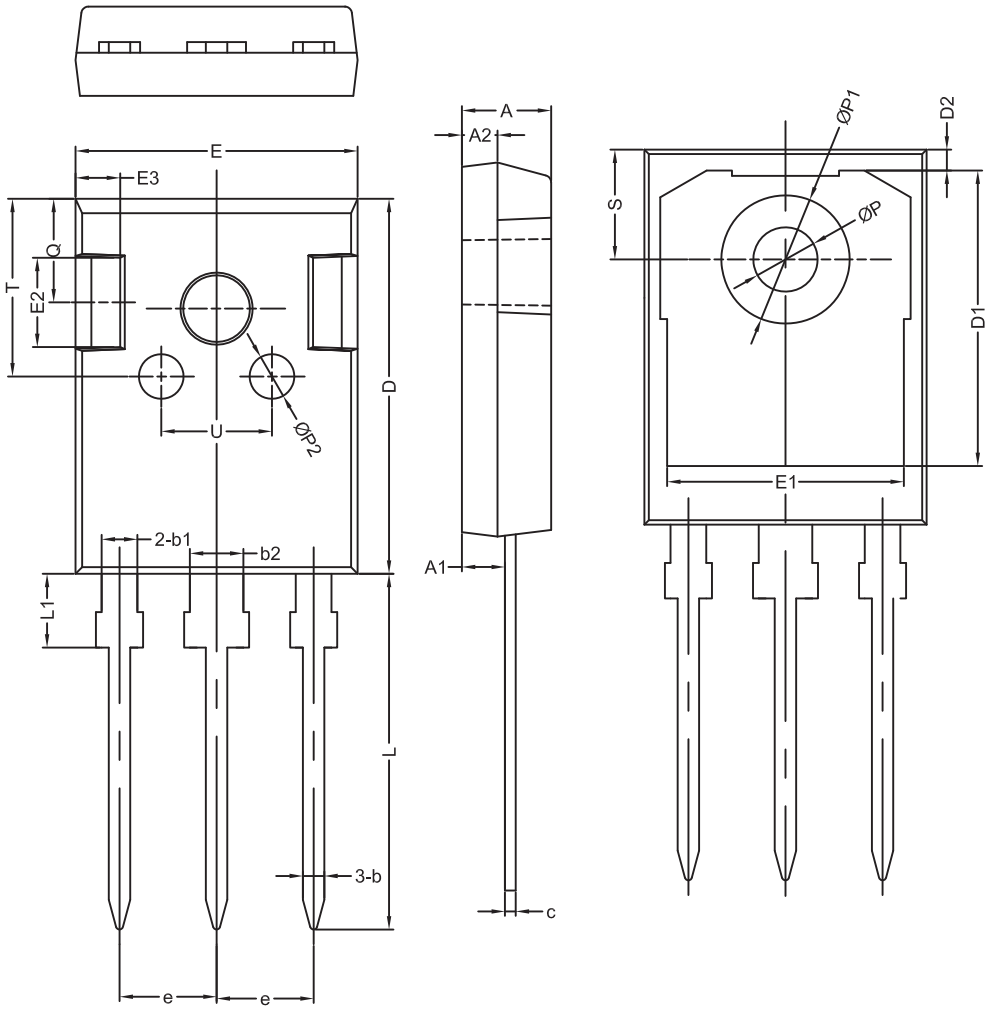
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

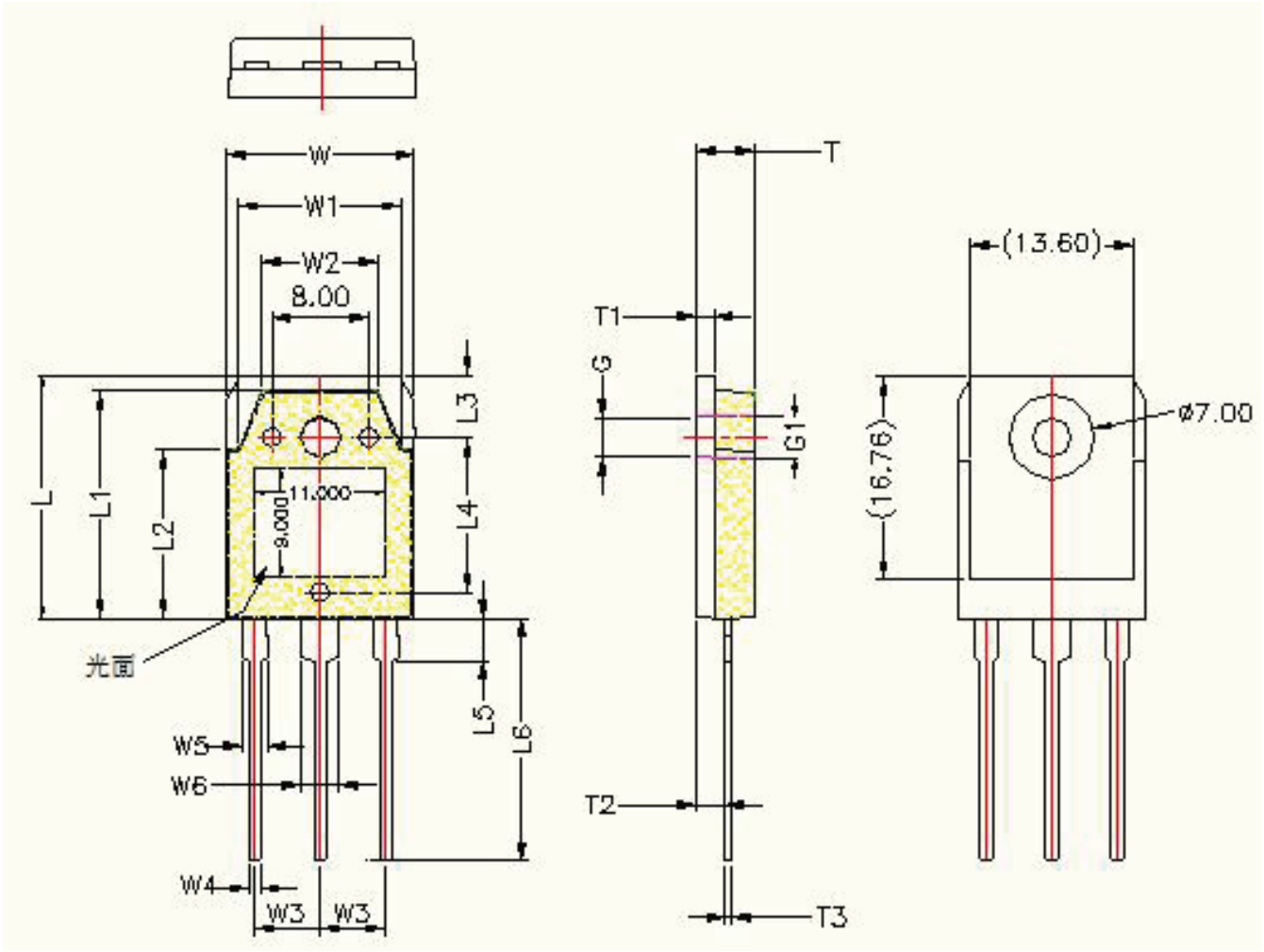
TO-247 Unit :mm



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	

Package Dimension

TO-3P Unit :mm



Symbol	Dimensions	Symbol	Dimensions	Symbol	Dimensions
W	15.60±0.3	L	19.90±0.3	T	4.80±0.3
W1	13.60±0.3	L1	18.70±0.3	T1	1.50±0.3
W2	9.60±0.3	L2	13.90±0.3	T2	2.40±0.3
W3	5.45(TYP)	L3	5.00±0.3	T3	0.60±0.3
W4	1.00±0.3	L4	12.76±0.3	G	Ø3.25±0.3
W5	2.10±0.2	L5	3.50±0.3	G1	Ø3.58±0.3
W6	3.10±0.2	L6	20.00±0.3		