

CMH110N25/CMA110N25

250V, 23mΩ typ., 110A N-Channel MOSFET

General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology. Designed for high voltage, high speed switching applications in power supplies, converters, PWM motor controls, and other inductive loads.

Product Summary

BVDSS	R _{DS(on)} max.	ID
250V	27mΩ	110A

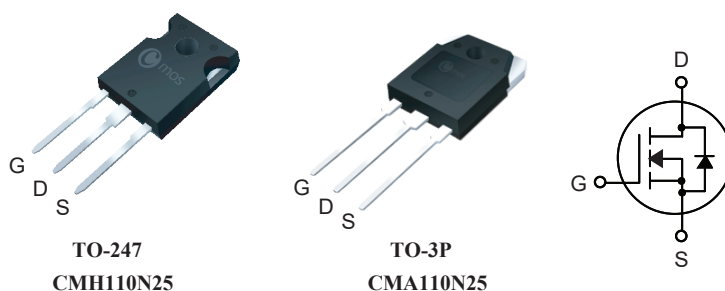
Applications

- DC-DC Converters
- Switched Mode Power Supplies
- Uninterruptible Power Supplies

Features

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

TO-247/TO-3P Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	250	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	110	A
I _D @T _C =100°C	Continuous Drain Current	77	A
I _{DM}	Pulsed Drain Current	440	A
EAS	Single Pulse Avalanche Energy (Note 1)	10125	mJ
P _D @T _C =25°C	Total Power Dissipation	700	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	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.18	°C/W

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Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	250	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =55A	---	23	27	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =250V , V _{GS} =0V	---	---	1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V , I _D =20A	---	47	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	0.8	---	Ω
Q _g	Total Gate Charge	I _D =55A	---	202	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =200V	---	45	---	
Q _{gd}	Gate-Drain Charge	V _{GS} = 10V	---	65	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} = 125V I _D = 55A R _G = 25Ω	---	104	---	ns
T _r	Rise Time		---	49	---	
T _{d(off)}	Turn-Off Delay Time		---	552	---	
T _f	Fall Time		---	71	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	10350	---	pF
C _{oss}	Output Capacitance		---	1100	---	
C _{rss}	Reverse Transfer Capacitance		---	120	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	110	A
I _{SM}	Pulsed Source Current		---	---	440	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =110A	---	0.96	1.5	V
t _{rr}	Reverse Recovery Time	I _S =55A , V _{GS} =0V	---	279	---	ns
Q _{rr}	Reverse Recovery Charge	di/dt =-100A/μs	---	3.17	---	nC

Note :

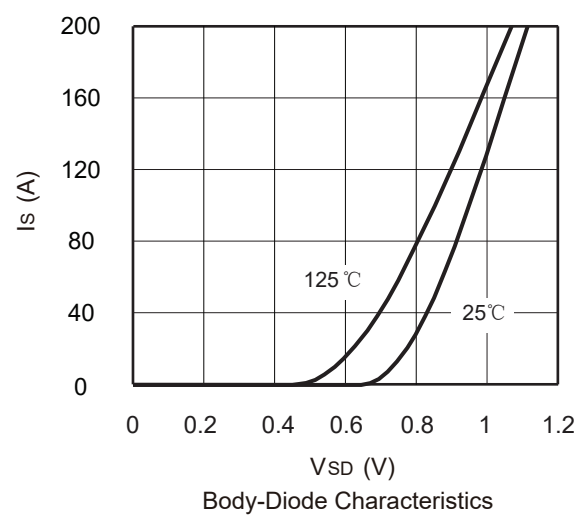
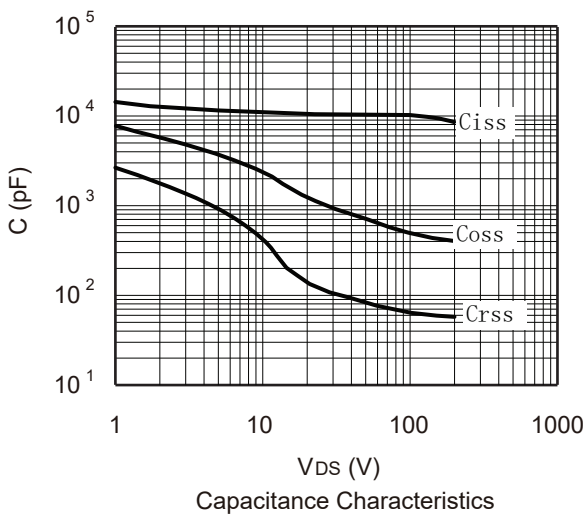
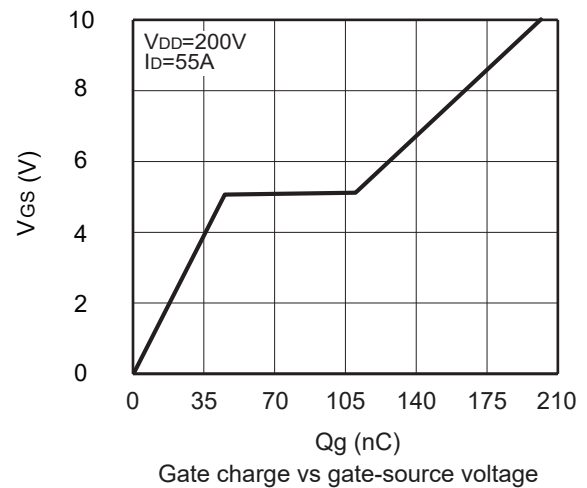
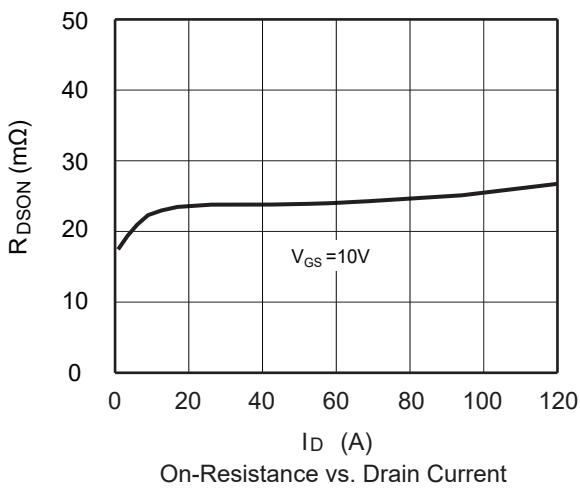
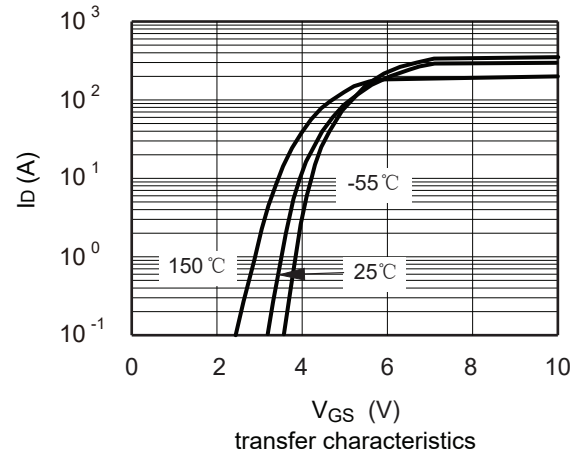
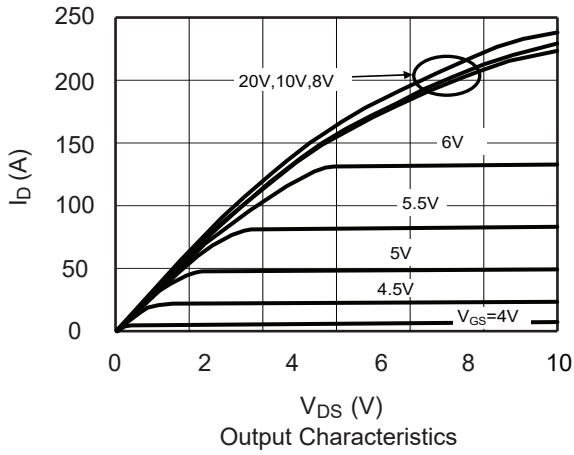
1. The EAS data shows Max. rating .The test condition is V_{DS} =200V , V_{GS} =10V , L=10mH , I_{AS} =45A.
2. Pulse test: Pulse width≤300us, Duty cycle≤2%.
3. Essentially independent of operating temperature typical characteristics.

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



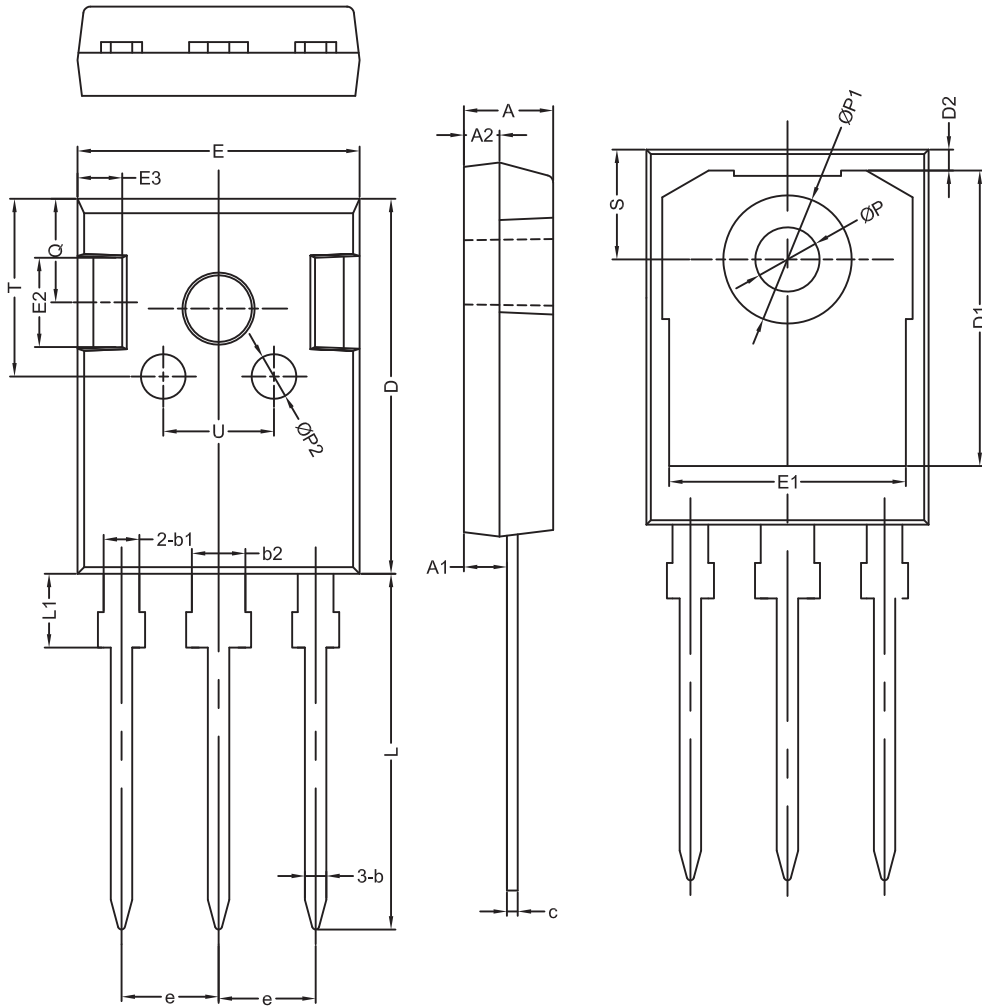
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Package Dimension

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	

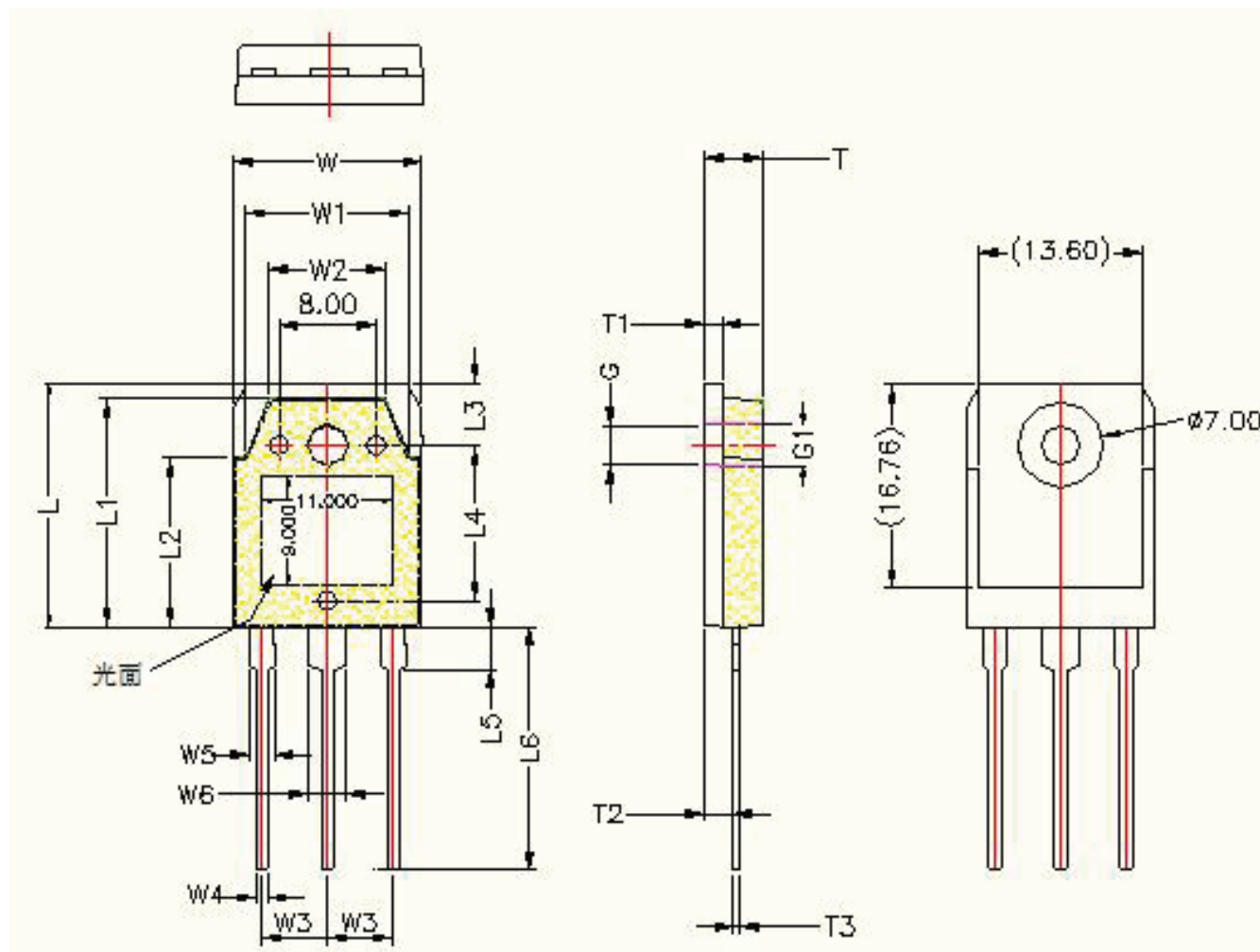
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Package Dimension

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		