

CMD11N40B/CMU11N40B

400V, 0.55Ω typ., 11A N-Channel MOSFET

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switched mode power supplies, active power factor correction based on half bridge topology.

Features

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

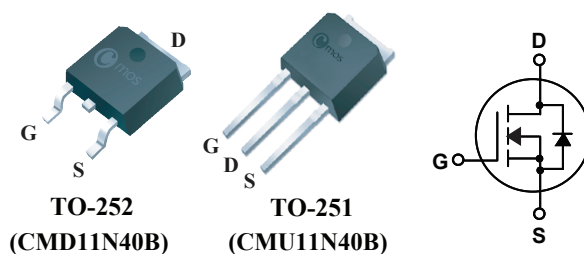
Product Summary

BVDSS	R _{DS(on)} max.	ID
400V	0.6Ω	11A

Applications

- Power Supply
- PFC

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	400	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	11	A
I _D @T _C =100°C	Continuous Drain Current	6.6	A
I _{DM}	Pulsed Drain Current	44	A
EAS	Single Pulse Avalanche Energy ¹	484	mJ
P _D @T _C =25°C	Total Power Dissipation	100	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 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	---	1.25	°C/W

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 =250μA	400	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =5.5A	---	550	600	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2.0	---	4.0	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =400V, V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±30V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V, I _D =5.5A	---	7.2	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	28	---	Ω
Q _g	Total Gate Charge	I _D =11A V _{DS} =320V V _{GS} =10V (Note 2,3)	---	15.7	---	nC
Q _{gs}	Gate-Source Charge		---	4.6	---	
Q _{gd}	Gate-Drain Charge		---	4.5	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =200V I _D =11A R _G =20Ω (Note 2,3)	---	33.5	---	ns
T _r	Rise Time		---	31.5	---	
T _{d(off)}	Turn-Off Delay Time		---	83	---	
T _f	Fall Time		---	56	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	1400	---	pF
C _{oss}	Output Capacitance		---	110	---	
C _{rss}	Reverse Transfer Capacitance		---	10	---	

Diode Characteristics

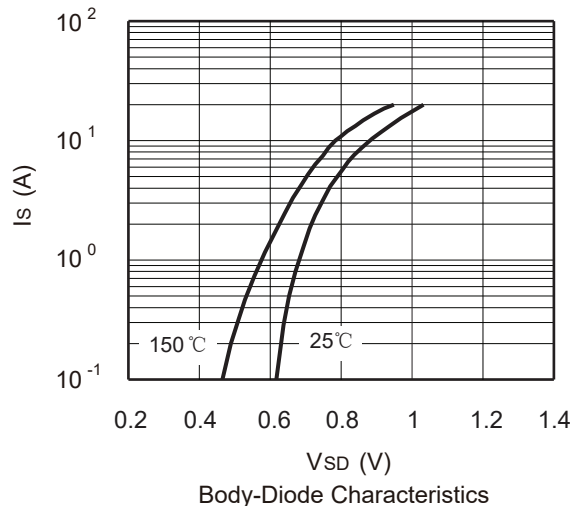
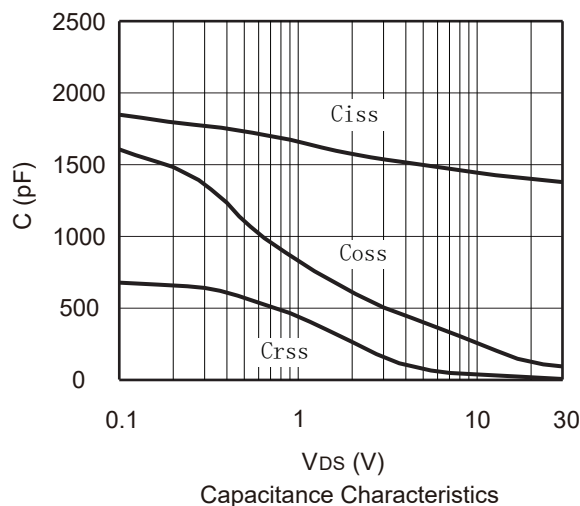
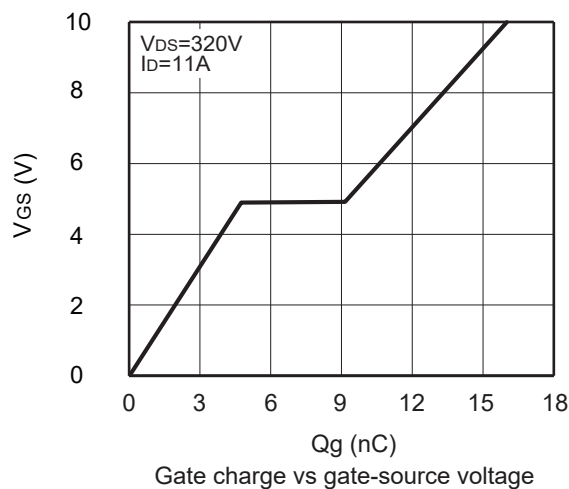
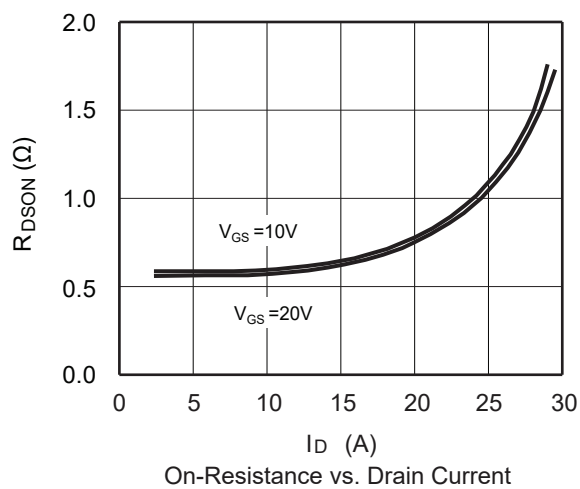
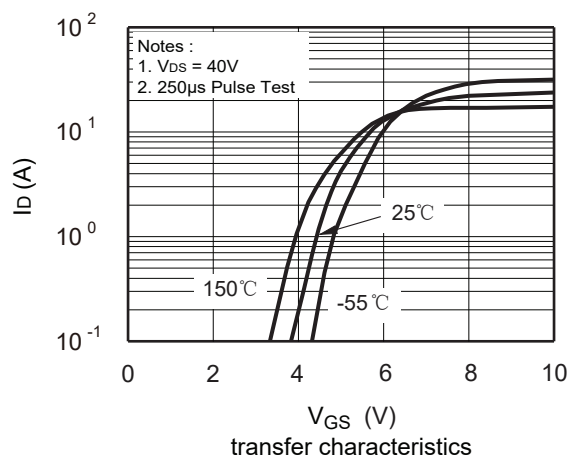
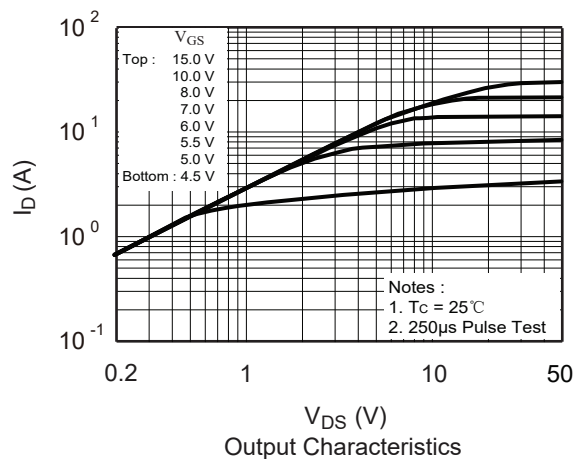
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	11	A
I _{SM}	Pulsed Source Current		---	---	44	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =11A, T _J =25°C	---	0.87	1.4	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	430	---	ns
Q _{rr}	Reverse Recovery Charge	I _F =11A, V _{GS} =0V	---	3.8	---	μC

Note :

- 1.The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=8mH, I_{AS}=11A.
2. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%.
3. Essentially independent of operating temperature.

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.

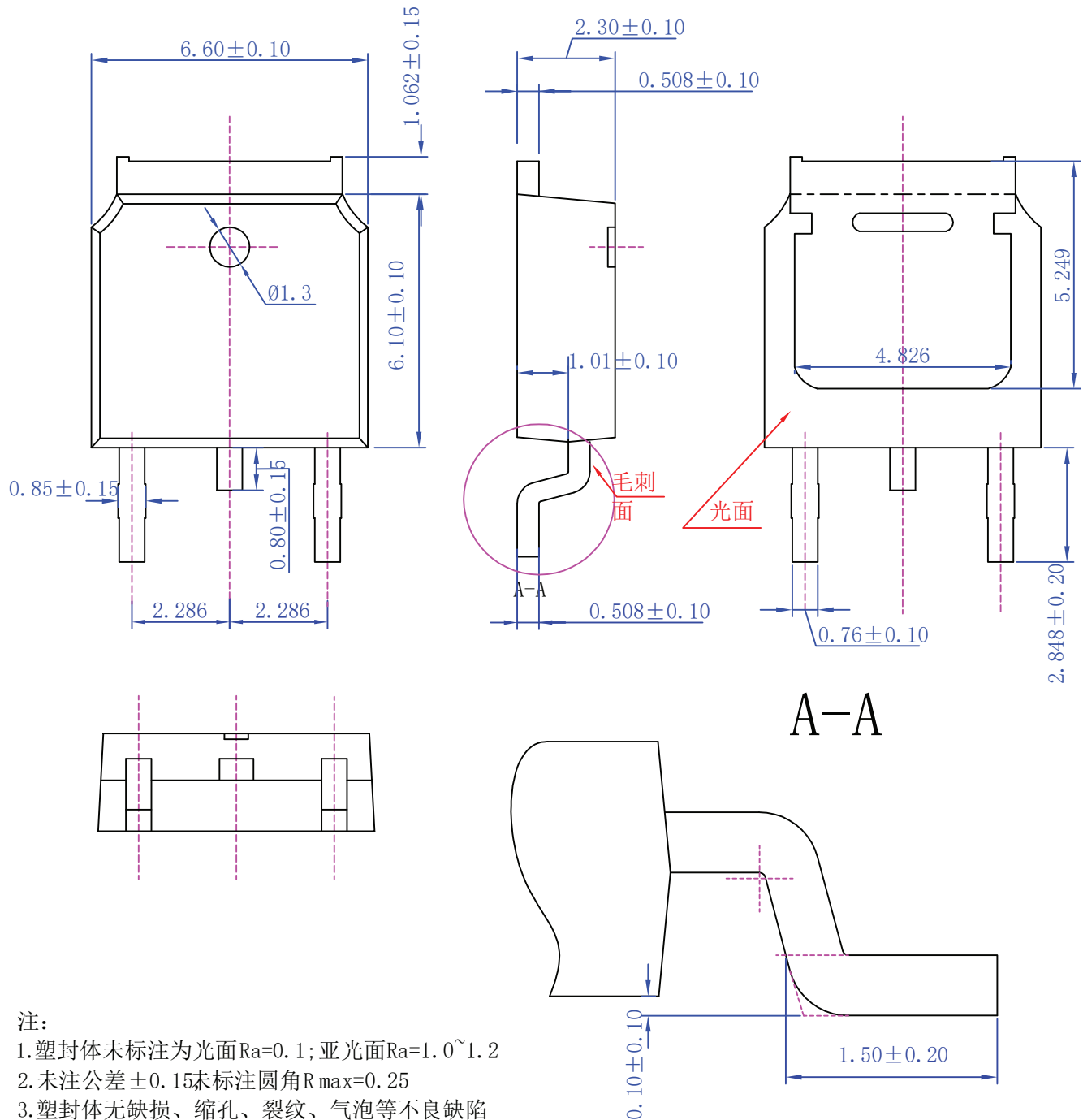
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

