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.

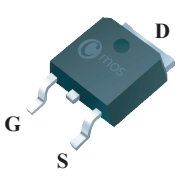
Product Summary

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

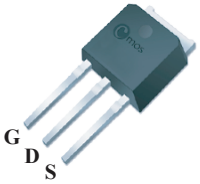
Applications

- Power Supply
- PFC

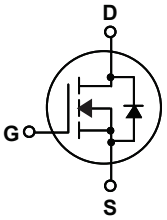
TO-252/251 Pin Configuration



TO-252
(CMD11N40B)



TO-251
(CMU11N40B)



Features

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

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℃	Continuous Drain Current	11	A
I_D@T_C=100℃	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℃	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 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	---	1.25	℃/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	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 =250uA	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
gfs	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	---	15.7	---	nC
Q_{gs}	Gate-Source Charge	V_{DS}=320V	---	4.6	---	
Q_{gd}	Gate-Drain Charge	V_{GS}=10V (Note 2,3)	---	4.5	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=200V	---	33.5	---	ns
T_r	Rise Time	I_D=11A	---	31.5	---	
$T_{d(off)}$	Turn-Off Delay Time	R_G =20Ω	---	83	---	
T_f	Fall Time	(Note 2,3)	---	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℃	---	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 :

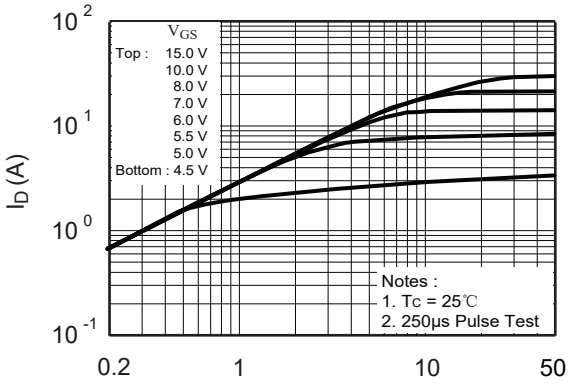
1.The EAS data shows Max. rating . The test condition is V_{DD}=50V , V_{GS}=10V , L=8mH , I_{AS}=11A.

2. Pulse Test : Pulse width ≤ 300us, Duty cycle ≤ 2%.

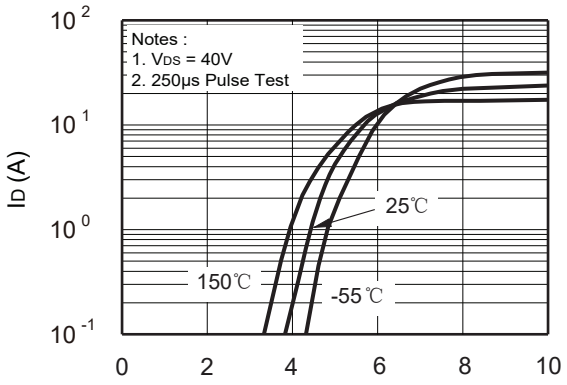
3. Essentially independent of operating temperature.

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.

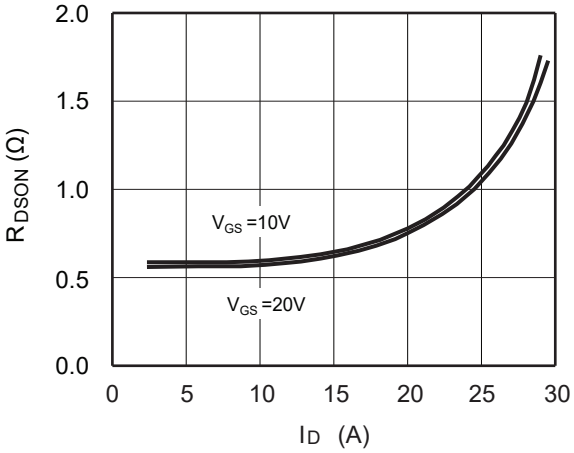
Typical Characteristics



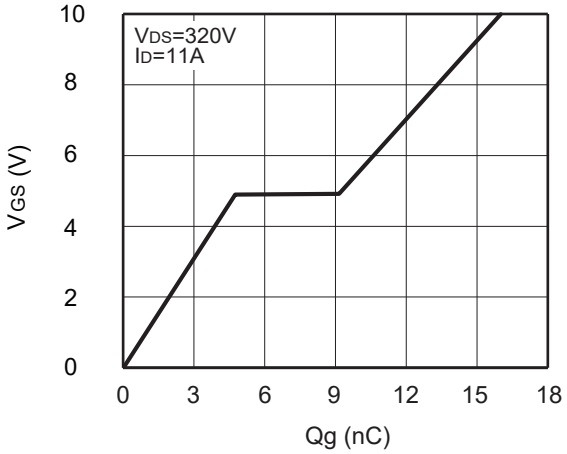
Output Characteristics



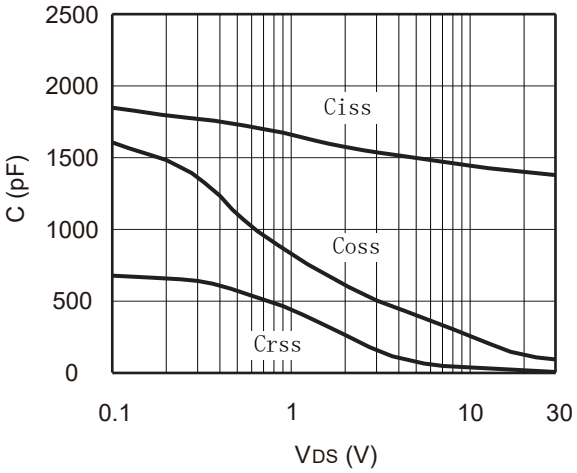
transfer characteristics



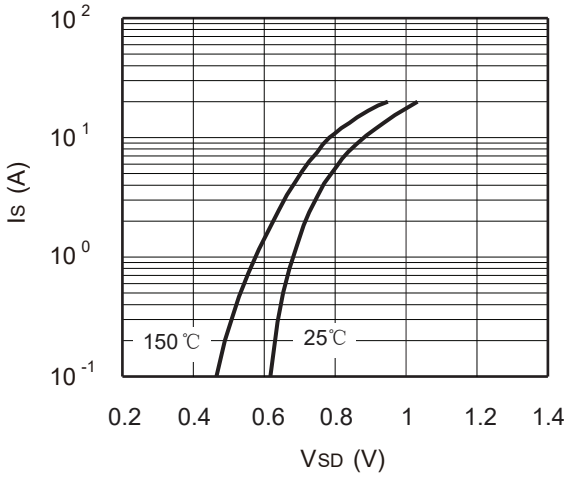
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



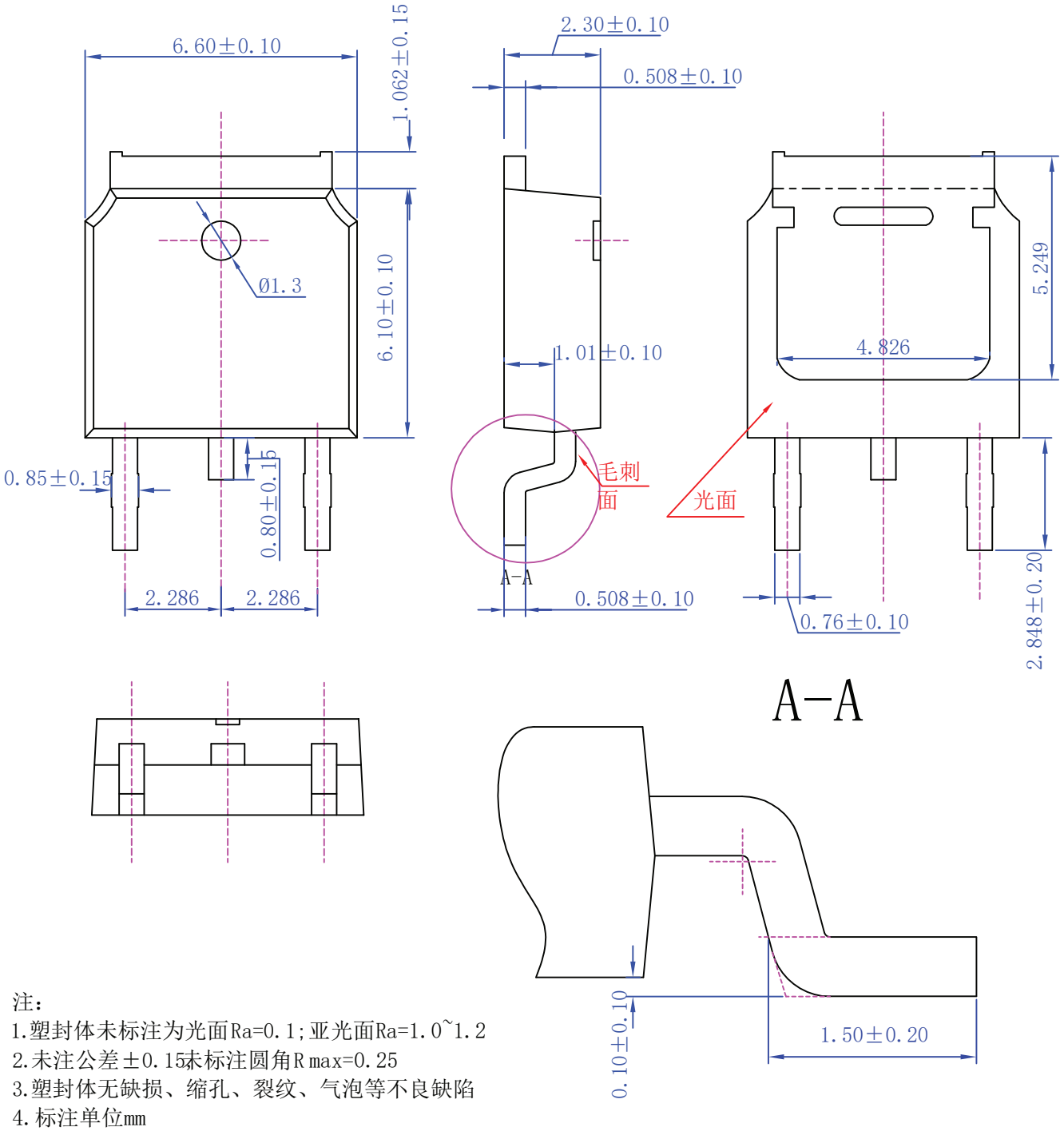
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

TO-252 Unit :mm



注：
1.塑封体未标注为光面Ra=0.1;亚光面Ra=1.0~1.2
2.未注公差±0.15未标注圆角R max=0.25
3.塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
4.标注单位mm
5.顶针孔不允许凸出塑封体表面

Package Dimension

TO-251A Unit :mm

