

General Description

The 11N40 have been fabricated using an advanced high voltage MOSFET process. These devices are well suited for high efficiency switched mode power supplies, active power factor correction, electronic lamp ballasts based on half bridge topology.

Features

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

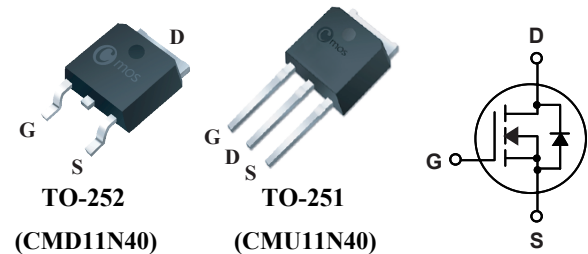
Product Summary

BVDSS	R _{DS(on)} max.	ID
400V	0.53Ω	11A

Applications

- Power Supply
- PFC

TO-252 / 251 Pin Configuration



Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V _{DSS}	Drain-Source Voltage	400	V
I _D	Drain Current - Continuous (T _C = 25°C)	11	A
	- Continuous (T _C = 100°C)	6.6	A
I _{DM}	Drain Current - Pulsed (Note 1)	44	A
V _{GSS}	Gate-Source Voltage	±30	V
E _{AS}	Single Pulsed Avalanche Energy (Note 2)	484	mJ
P _D	Power Dissipation (T _C = 25°C)	100	W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +150	°C

Thermal Characteristics

Symbol	Parameter	Rating	Units
R _{θJC}	Thermal Resistance, Junction-to-Case Max. (Note 3,4)	1.25	°C/W
R _{θJA}	Thermal Resistance, Junction-to-Ambient Max. (Note 5,6)	62.5	°C/W

Electrical Characteristic (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0 V, I _D = 250 μA	400	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 400 V, V _{GS} = 0 V	--	--	1	μA
I _{GSSF}	Gate-Body Leakage Current, Forward	V _{GS} = +30V, V _{DS} = 0 V	--	--	100	nA
I _{GSSR}	Gate-Body Leakage Current, Reverse	V _{GS} = -30 V, V _{DS} = 0 V	--	--	-100	nA

On Characteristics

V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250 μA	2	--	4	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} = 10 V, I _D = 4.5A	--	--	0.53	Ω
g _{FS}	Forward Transconductance	V _{DS} = 10 V, I _D = 3 A	--	7	--	S

Dynamic Characteristics

C _{iss}	Input Capacitance	V _{DS} = 25 V, V _{GS} = 0 V, f = 1.0 MHz	--	1400	--	pF
C _{oss}	Output Capacitance		--	110	--	pF
C _{rss}	Reverse Transfer Capacitance		--	10	--	pF

Switching Characteristics

t _{d(on)}	Turn-On Delay Time	V _{DD} = 200 V, I _D = 11A, R _G = 20 Ω	--	33.5	--	ns
t _r	Turn-On Rise Time		--	31.5	--	ns
t _{d(off)}	Turn-Off Delay Time		--	83	--	ns
t _f	Turn-Off Fall Time		--	56	--	ns
Q _g	Total Gate Charge	V _{DS} = 320 V, I _D = 11A, V _{GS} = 10 V	--	15.7	--	nC
Q _{gs}	Gate-Source Charge		--	4.6	--	nC
Q _{gd}	Gate-Drain Charge		--	4.5	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-Source Diode Forward Current		--	--	11	A
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	44	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 11A	--	--	1.4	V
t _{rr}	Reverse Recovery Time	V _{GS} = 0 V, I _S = 11A	--	430	--	ns
Q _{rr}	Reverse Recovery Charge		dI _F /d _t = 100A/us	--	3.8	--

Notes:

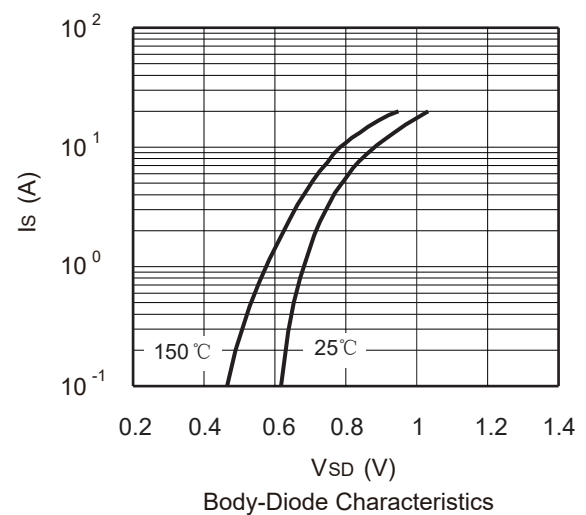
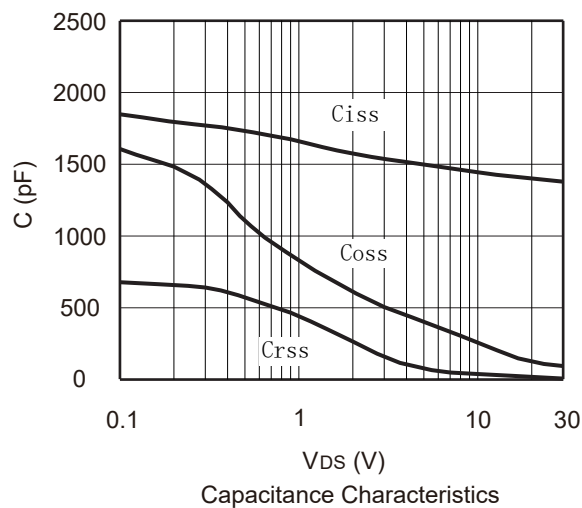
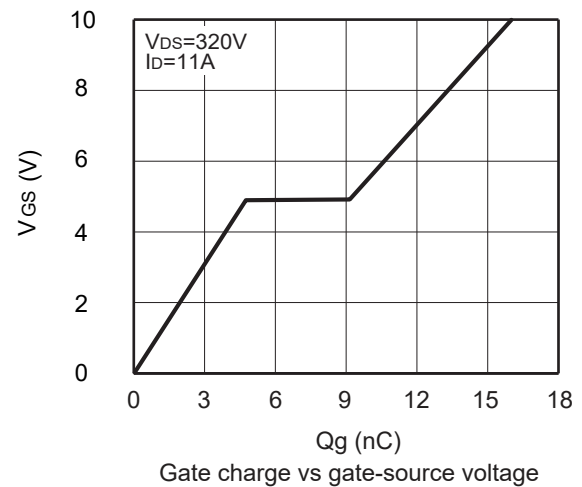
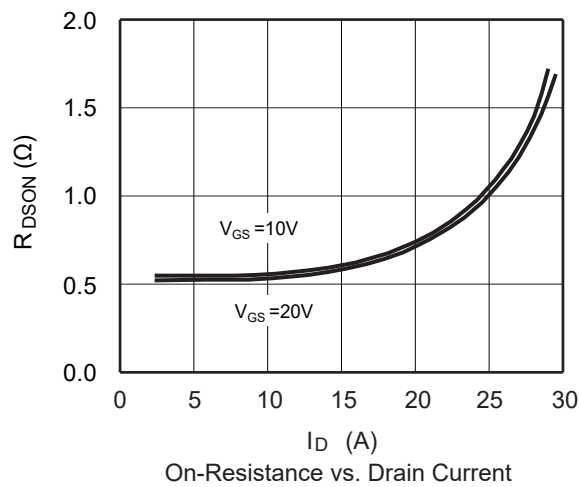
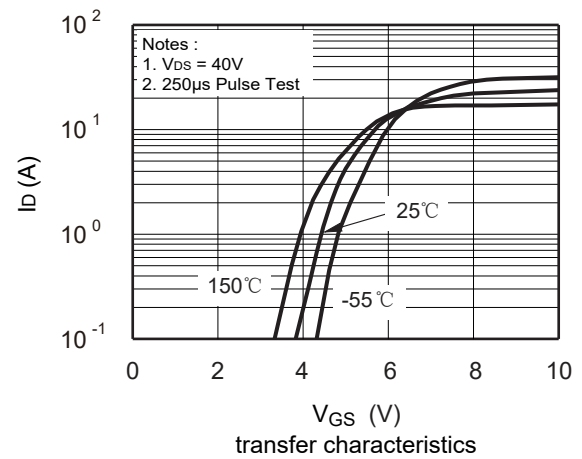
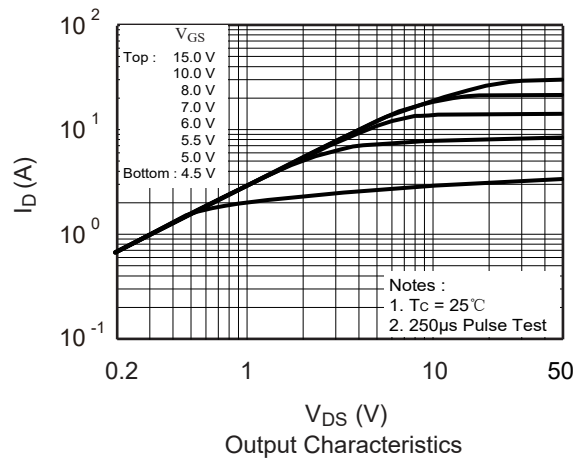
1. Repetitive Rating : Pulse width limited by maximum junction temperature
2. L=8mH , I_{AS}=11A , V_{DD}=50V , Starting T_J=25 °C
3. The R_{θJA} is the sum of the thermal impedance from junction to case R_{θJC} and case to ambient.
4. These curves are based on the junction-to-case thermal impedance which is measured with the device mounted to a large heatsink, assuming a maximum junction temperature of T_{J(MAX)}=150 °C.
5. The value of R_{θJA} is measured with the device in a still air environment with T_A=25 °C.
6. These tests are performed with the device mounted on 1 in² FR-4 board with 2oz. Copper, in a still air environment with T_A=25°C.

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. Please refer to the latest version of specification.

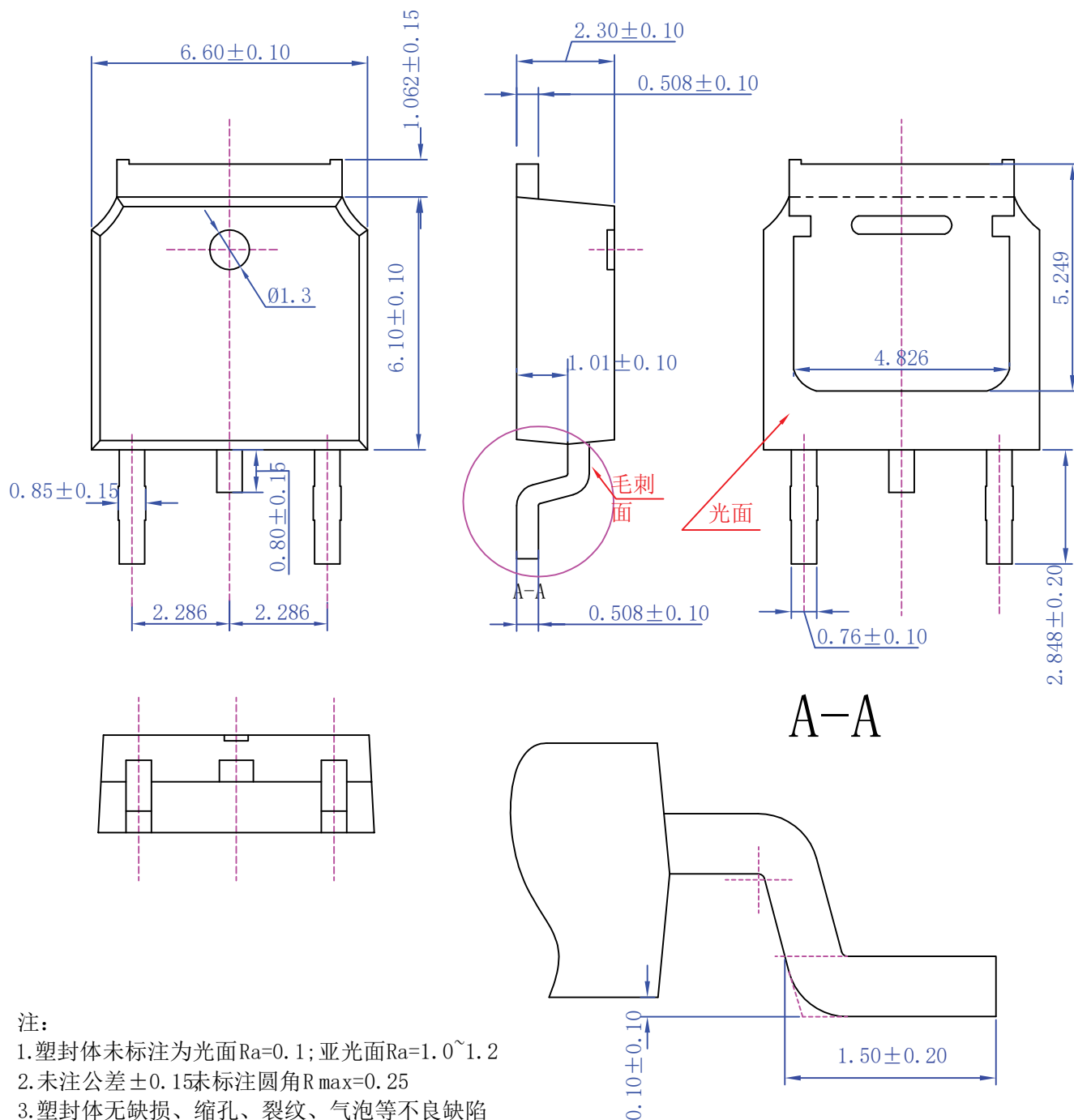
Typical Characteristics



Package Dimension

TO-252

Unit :mm



注:

1. 塑封体未标注为光面 $Ra=0.1$; 亚光面 $Ra=1.0 \sim 1.2$
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

