

General Description

The 5N20A uses advanced trench technology to provide excellent RDS(ON). These devices are well suited for SMPS, HID and general purpose applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

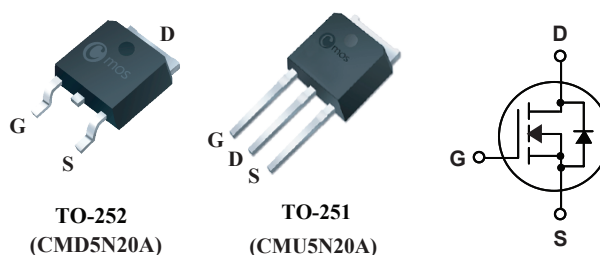
Product Summary

BVDSS	R _{DS(on)} max.	ID
200V	530mΩ	6A

Applications

- LED TV
- Switch mode power supplies (SMPS)
- DC-DC Converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	200	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	6	A
I _D @T _C =100°C	Continuous Drain Current	4	A
I _{DM}	Pulsed Drain Current ¹	24	A
EAS	Single Pulse Avalanche Energy ²	10	mJ
P _D @T _C =25°C	Total Power Dissipation	45	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	---	3.12	°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 =250uA	200	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V, I _D =2.5A	---	450	530	mΩ
		V _{GS} =4.5V, I _D =2.5A	---	460	540	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =200V, V _{GS} =0V	---	---	25	uA
		V _{DS} =160V, V _{GS} =0V, T _J =125°C	---	---	250	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V, I _D =2.5A	---	3	---	S
Q _g	Total Gate Charge	V _{DS} =160V, V _{GS} =10V, I _D =1A	---	15	---	nC
Q _{gs}	Gate-Source Charge		---	3	---	
Q _{gd}	Gate-Drain Charge		---	5.2	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =100V, I _D =1A V _{GS} =10V, R _G =3Ω	---	22	---	ns
T _r	Rise Time		---	35	---	
T _{d(off)}	Turn-Off Delay Time		---	45	---	
T _f	Fall Time		---	11	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	700	---	pF
C _{oss}	Output Capacitance		---	25	---	
C _{rss}	Reverse Transfer Capacitance		---	12	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	6	A
I _{SM}	Pulsed Source Current		---	---	24	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V, I _S =5A, T _J =25°C	---	0.85	1.2	V

Note :

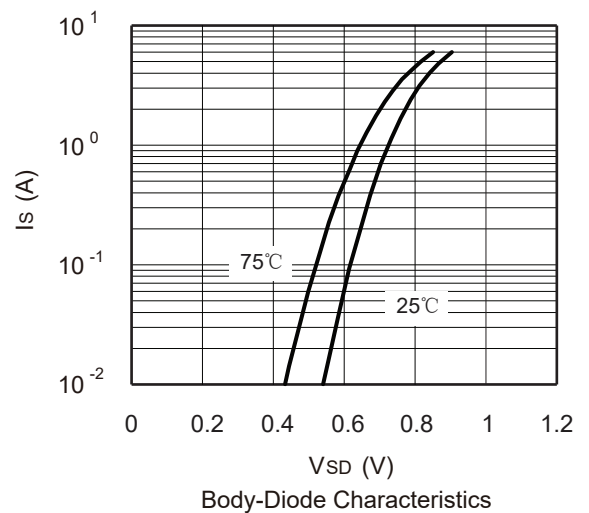
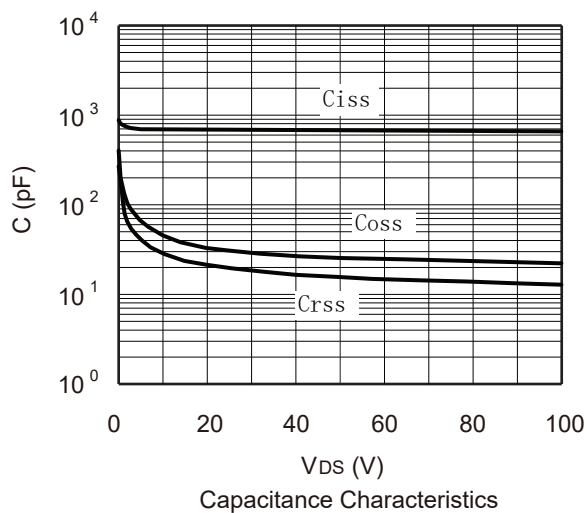
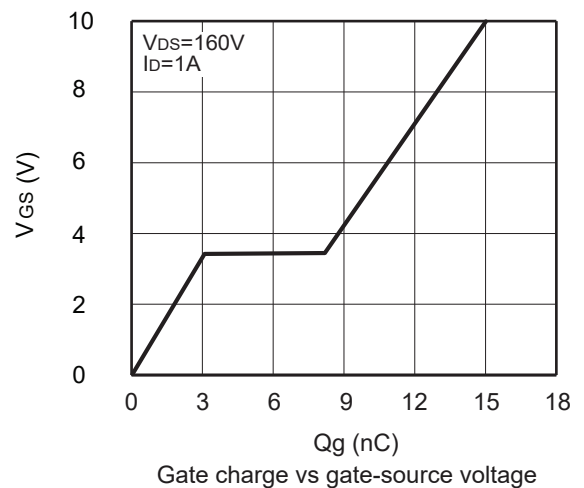
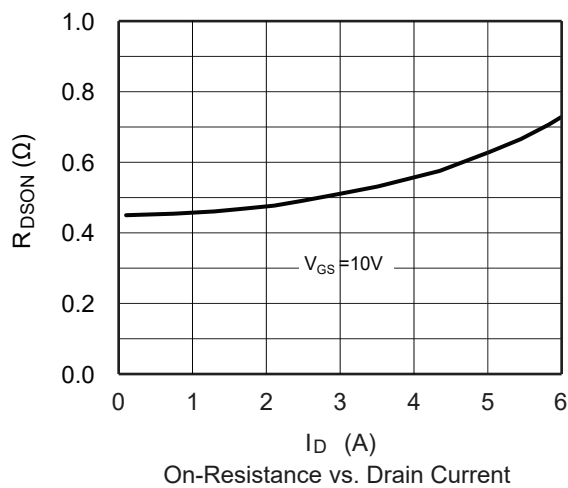
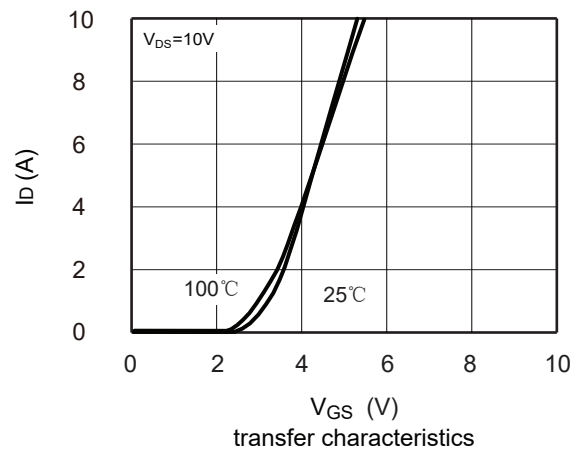
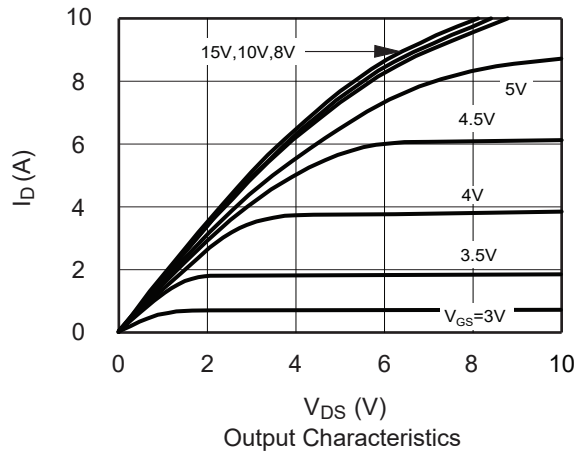
1. Repetitive rating: pulse width limited by maximum junction temperature.
2. The EAS data shows Max. rating . The test condition is V_{DD}=50V, V_{GS}=10V, L=8mH, I_D=1.6A

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.

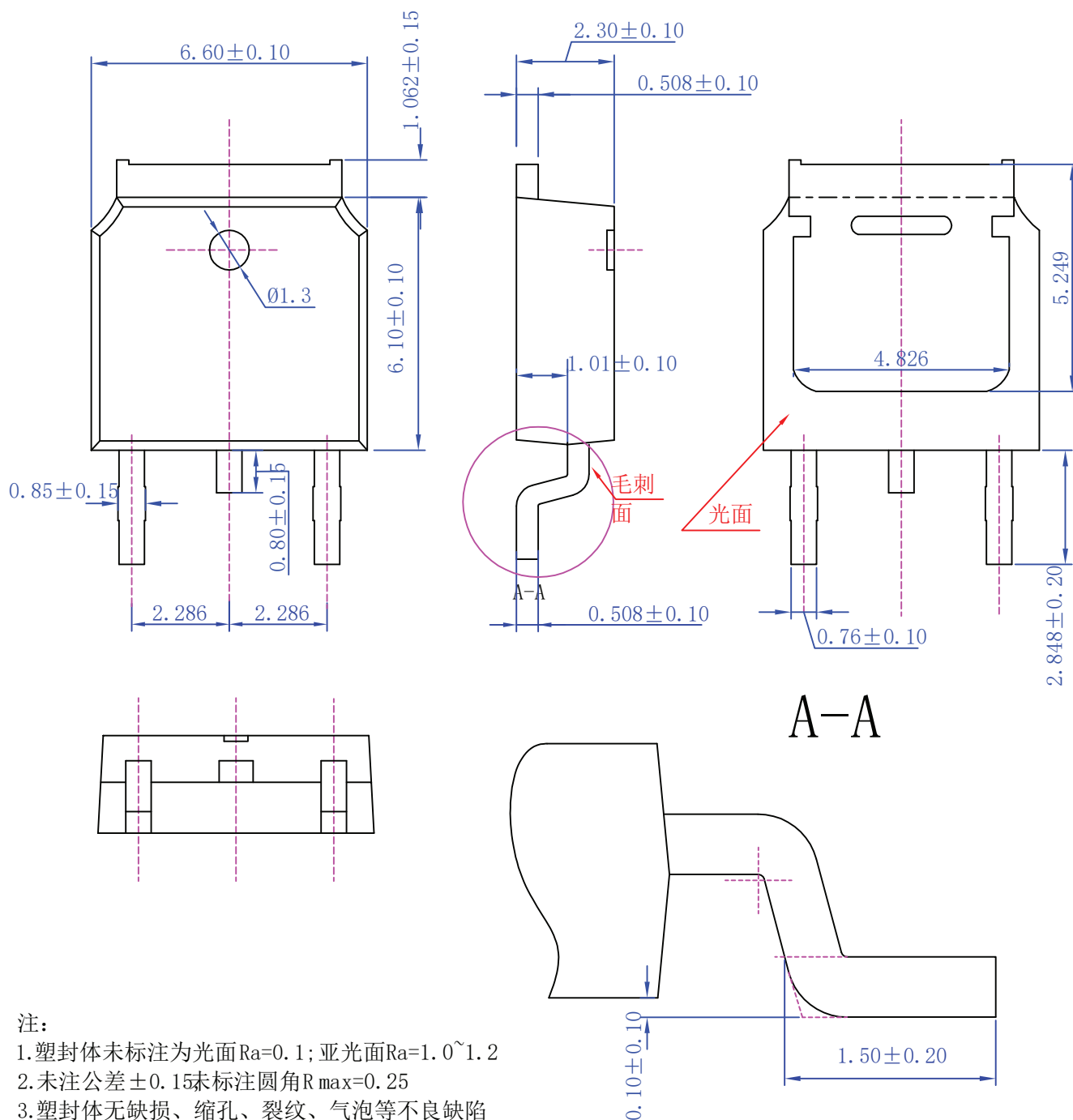
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Unit :mm

