

General Description

The 3N90A uses advanced planar stripe DMOS technology and design to provide excellent RDS(ON).

These devices are well suited for high efficiency switch mode power supply.

Features

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

Product Summary

BVDSS	R _{DS(on)} max.	ID
900V	5.5Ω	3A

Applications

- DC-DC Converters
- Power switching application

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	900	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	3	A
I _D @T _C =100°C	Continuous Drain Current	2	A
I _{DM}	Pulsed Drain Current	12	A
EAS	Single Pulse Avalanche Energy ¹	157	mJ
P _D	Total Power Dissipation	90	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
R _{θJA}	Thermal Resistance Junction-ambient	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	1.67	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	900	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=1.5A$	---	4.9	5.5	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=900V$, $V_{GS}=0V$	---	---	25	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=30V$, $I_D=1.5A$	---	3	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	4	---	Ω
Q_g	Total Gate Charge	$I_D=3A$	---	13	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=720V$	---	2.1	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	5.6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=450V$, $I_D=3A$ $R_G=25\Omega$, $V_{GS}=10V$	---	17	---	ns
T_r	Rise Time		---	40	---	
$T_{d(off)}$	Turn-Off Delay Time		---	30	---	
T_f	Fall Time		---	30	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	550	---	pF
C_{oss}	Output Capacitance		---	40	---	
C_{rss}	Reverse Transfer Capacitance		---	0.6	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	3	A
I_{SM}	Pulsed Source Current		---	---	12	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=3A$, $T_J=25^{\circ}\text{C}$	---	0.86	1.2	V

Notes:

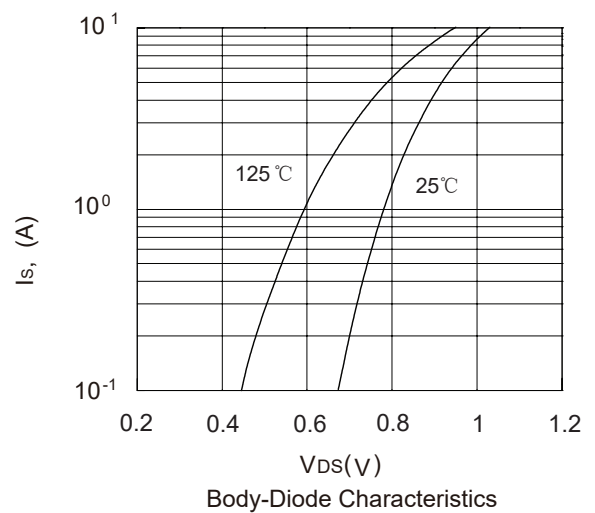
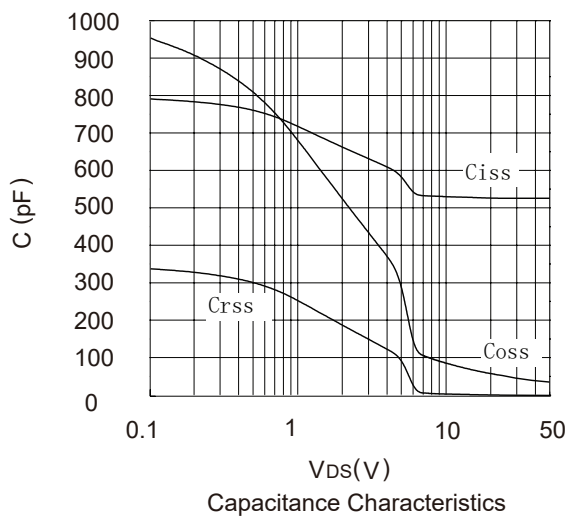
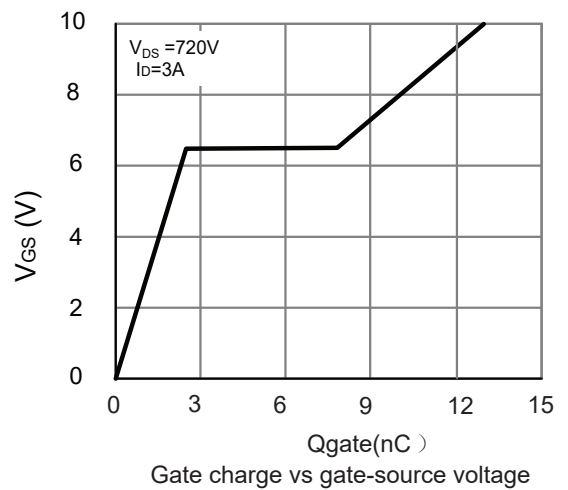
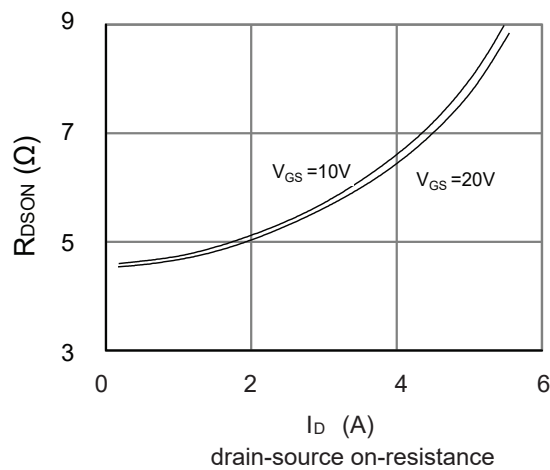
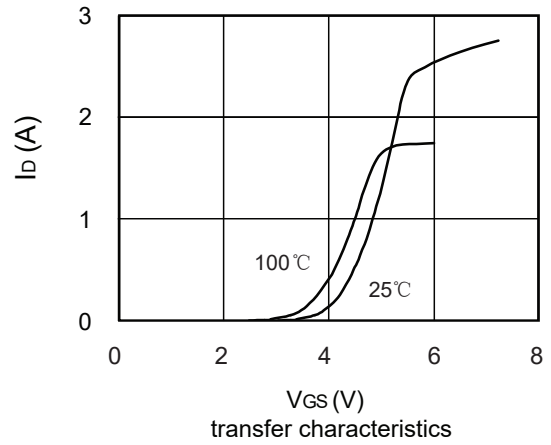
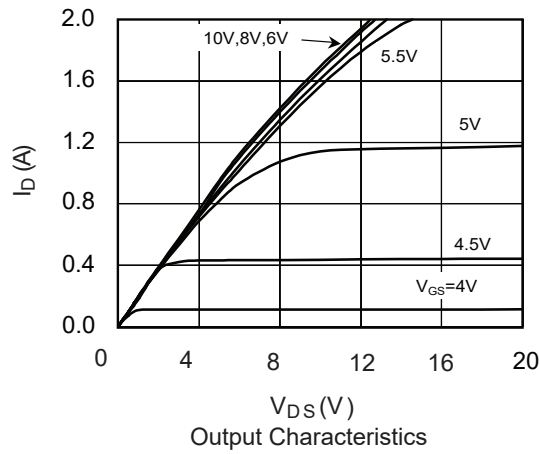
1.The EAS data shows Max. rating .The test condition is $V_{DS}=100V$, $V_{GS}=10V$, $L=35mH$, $I_{AS}=3A$.

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.

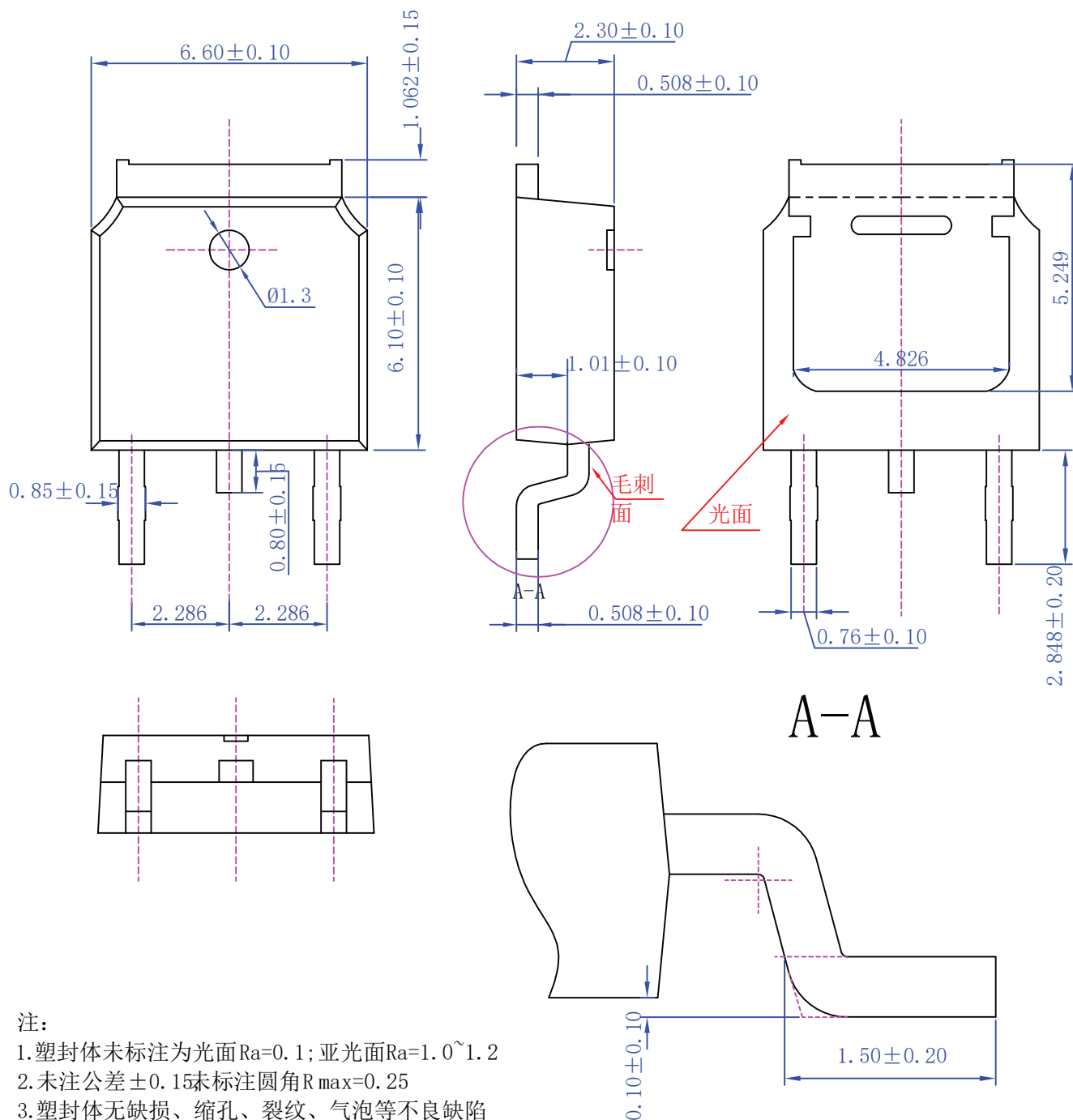
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A Unit :mm

