

General Description

The 90N08 uses advanced technology and design to provide excellent RDS(ON) .

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Low On-Resistance
- Improved dv/dt Capability
- 100% Avalanche Tested
- RoHS Compliant

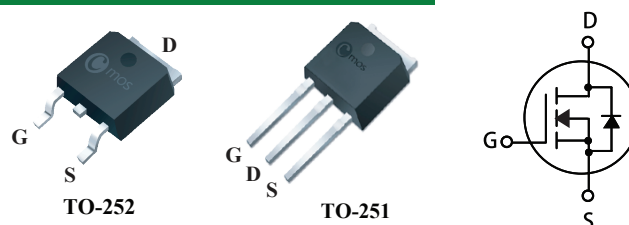
Product Summary

BVDSS	R _{DS(on)} max.	ID
80V	8.5mΩ	90A

Applications

- Inverters
- Power Supplies

TO-252/251 Pin Configuration



Type	Package	Marking
CMD90N08	TO-252	CMD90N08
CMU90N08	TO-251	CMU90N08

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	80	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	90	A
I _D @T _C =100°C		72	A
I _{DM}	Pulsed Drain Current ¹	360	A
E _{AS}	Drain-Source Avalanche Energy ²	540	mJ
P _D @T _C =25°C	Total Power Dissipation	115	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	---	1.09	°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	$V_{GS}=0V$, $I_D=250\mu A$	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	---	8.5	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=15A$	---	28	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.7	---	Ω
Q_g	Total Gate Charge	$I_D=30A$ $V_{DS}=64V$ $V_{GS}=10V$ (note 3,4)	---	110	---	nC
Q_{gs}	Gate-Source Charge		---	29	---	
Q_{gd}	Gate-Drain Charge		---	43	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=40V$ $I_D=30A$ $R_{GEN}=4.7\Omega$ $V_{GS}=10V$ (note 3,4)	---	29	---	ns
T_r	Rise Time		---	75	---	
$T_{d(off)}$	Turn-Off Delay Time		---	80	---	
T_f	Fall Time		---	32	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5000	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	250	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	90	A
I_{SM}	Pulsed Source Current		---	---	360	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=28A$	---	0.86	1.4	V
t_{rr}	Reverse Recovery Time	$I_S=30A$, $V_{GS}=0V$ $di/dt=100A/\mu s$ (note 3,4)	---	30	---	ns
Q_{rr}	Reverse Recovery Charge		---	56	---	nC

Note :

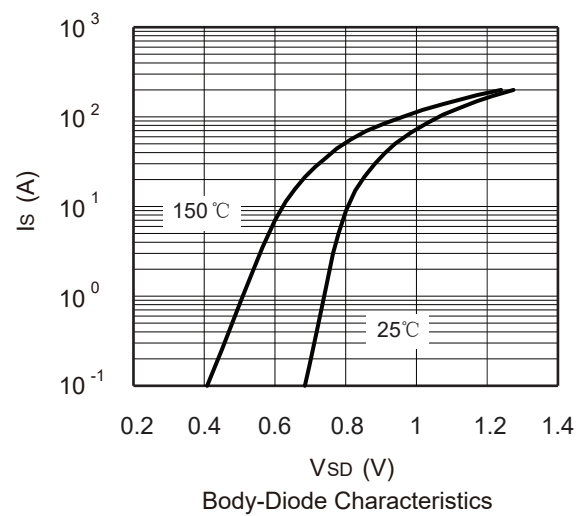
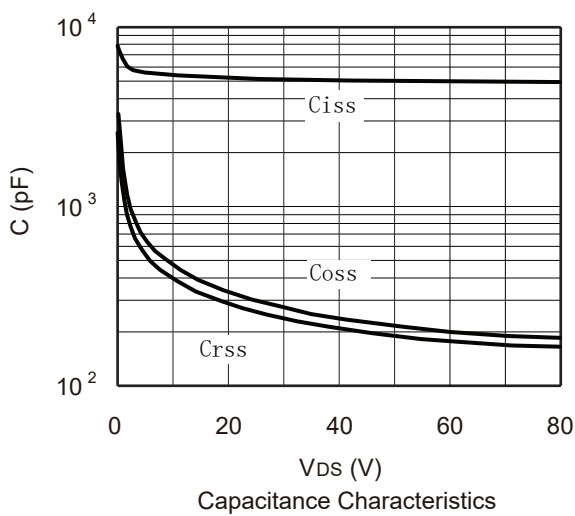
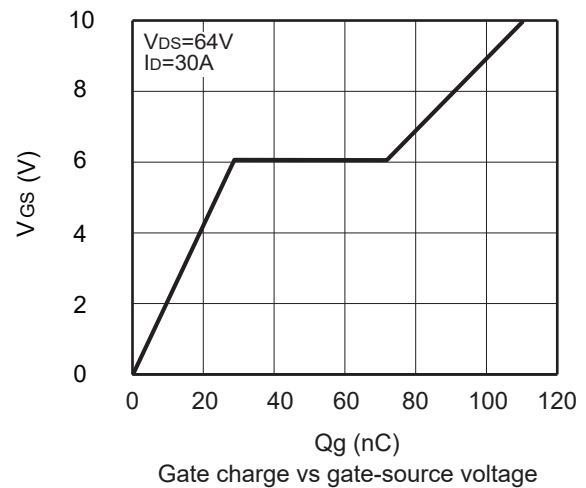
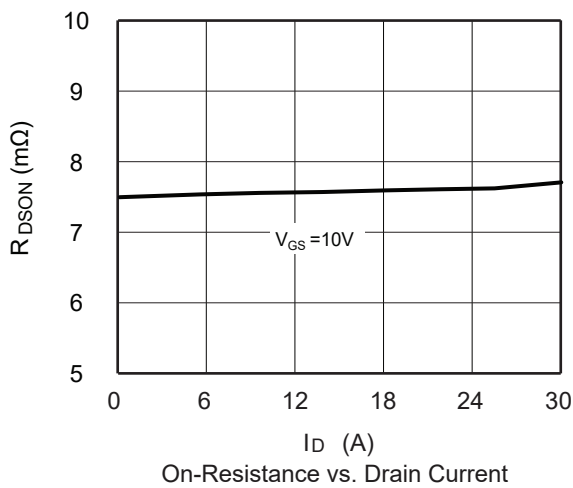
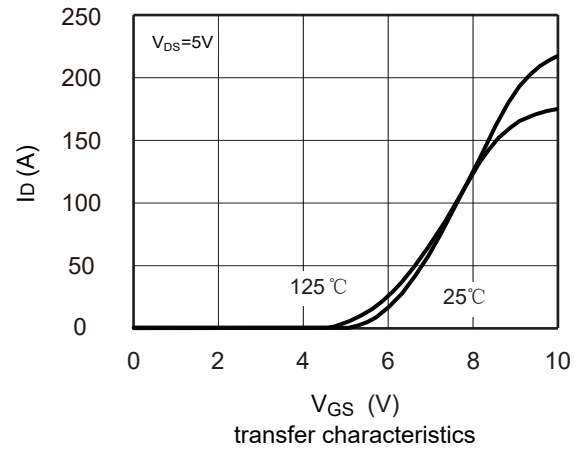
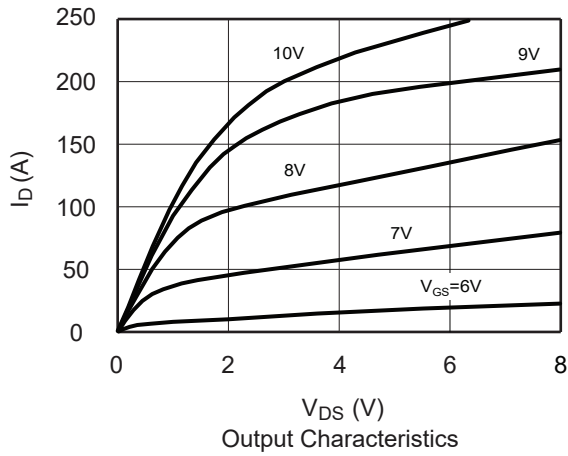
1. Repetitive rating : pulse width limited by junction temperature.
2. The EAS data shows Max. rating . The test condition is $V_{DD}=40V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=33A$
3. Pulse Test : Pulse Width $\leq 300\mu s$, duty cycle $\leq 2\%$.
4. Essentially independent of operating temperature.

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.

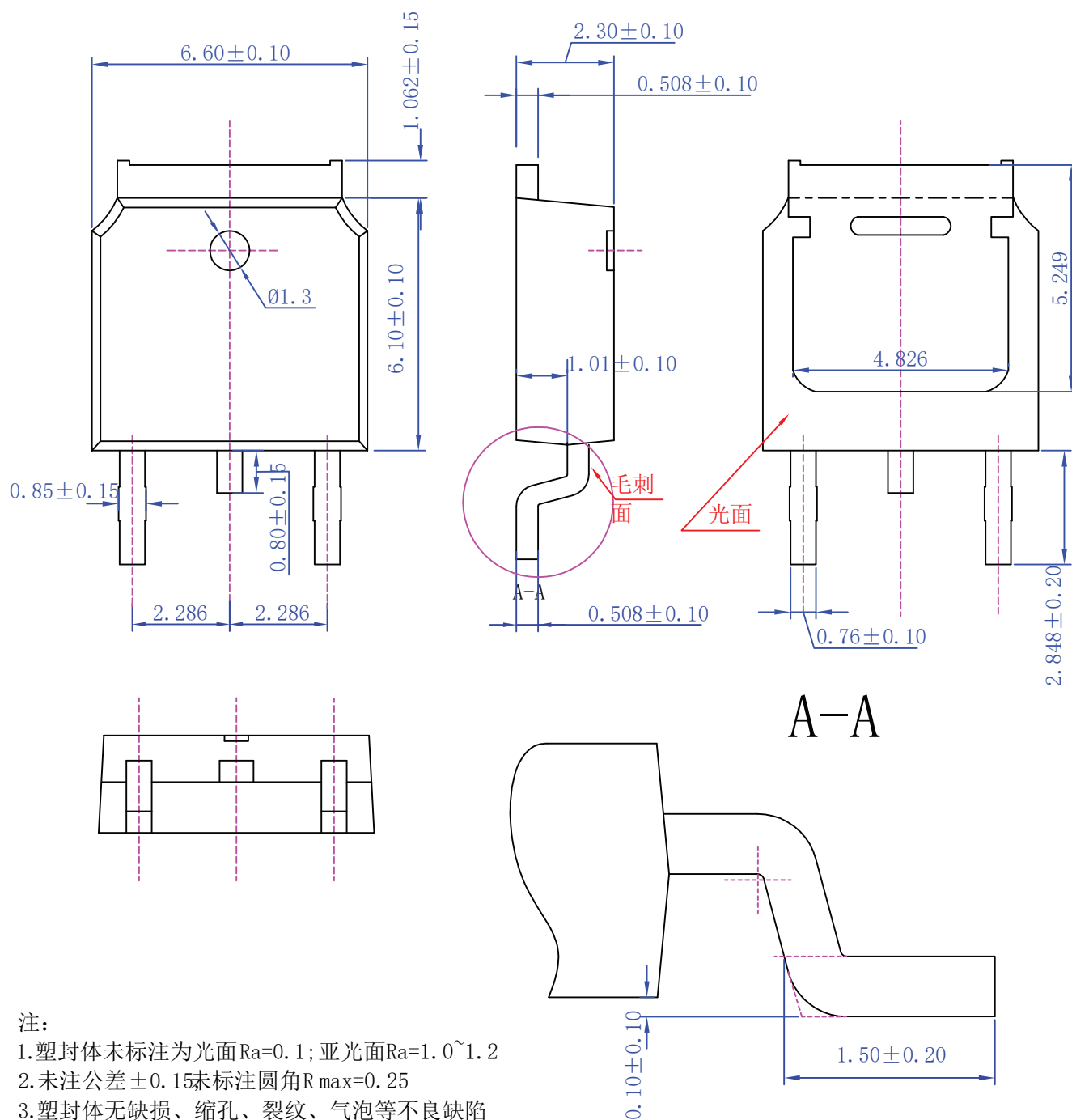
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A Unit :mm

