

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

- Max $r_{DS(on)}$ = 8.5m Ω at V_{GS} = 10V
- Fast Switching
- RoHS Compliant

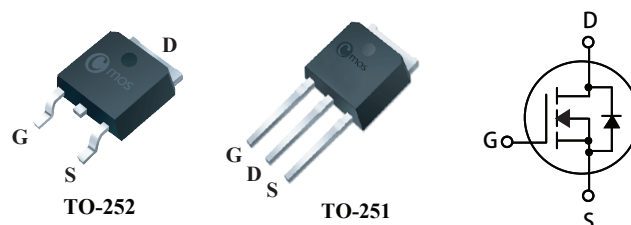
Product Summary

BVDSS	RDSON	ID
80V	8.5m Ω	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
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	90	A
$I_D@T_C=100^\circ\text{C}$		72	A
I_{DM}	Pulsed Drain Current	270	A
E_{AS}	Drain-Source Avalanche Energy ¹	540	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	115	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.08	$^\circ\text{C}/\text{W}$

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	$V_{DS}=80V$, $V_{GS}=0V$	---	---	100	nA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 80	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	$I_D=30A$	---	60	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=64V$	---	14	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	37	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=40V$	---	29	---	ns
T_r	Rise Time	$I_D=30A$	---	80	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GEN}=25\Omega$	---	115	---	
T_f	Fall Time	$V_{GS}=10V$	---	70	---	
C_{iss}	Input Capacitance	$V_{DS}=40V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5000	---	pF
C_{oss}	Output Capacitance		---	454	---	
C_{rss}	Reverse Transfer Capacitance		---	351	---	

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		---	---	270	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=28A$	---	---	1.2	V

Notes:

1.Starting $T_J = 25^{\circ}\text{C}$, $L=1.0\text{mH}$, $I_{AS}=33A$, $V_{DD}=40V$, $V_{GS}=10V$.

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