

General Description

The 13N50B have been fabricated using an advanced high voltage MOSFET process that is designed to deliver high levels of performance and robustness in popular AC-DC applications. these parts can be adopted quickly into new and existing offline power supply designs.

Features

- 100% avalanche tested
- Low On-Resistance
- RoHS Compliant

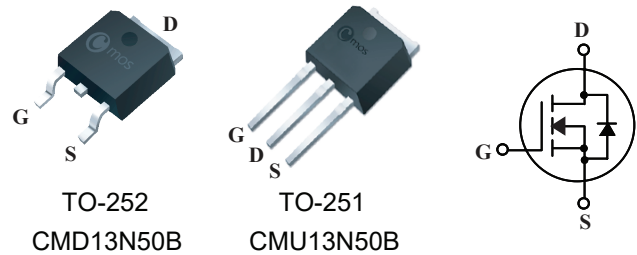
Product Summary

BVDSS	RDSON	ID
500V	420mΩ	13A

Applications

- Switching regulators
- UPS (Uninterruptible Power Supply)
- DC-DC converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	500	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	13	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	8	A
I_{DM}	Pulsed Drain Current	52	A
EAS	Single Pulse Avalanche Energy ¹	405	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	80	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1.57	°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	$V_{GS}=0V, I_D=250\mu A$	500	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=7.5A$	---	372	420	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	$V_{DS}=500V, V_{GS}=0V$	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	± 100	nA
gfs	Forward Transconductance	$V_{DS}=10V, I_D=7.5A$	---	8.5	---	S
Q_g	Total Gate Charge	$I_D=11A$	---	24	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	11	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$ $I_D=11A$ $R_G=25\Omega$	---	27	---	ns
T_r	Rise Time		---	22	---	
$T_{d(off)}$	Turn-Off Delay Time		---	90	---	
T_f	Fall Time		---	20	---	
C_{iss}	Input Capacitance	$V_{DS}=25V, V_{GS}=0V, f=1MHz$	---	900	---	pF
C_{oss}	Output Capacitance		---	280	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	13	A
I_{SM}	Pulsed Source Current		---	---	52	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=13A, T_J=25^{\circ}\text{C}$	---	0.92	1.5	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=80V, V_{GS}=10V, L=10mH, I_{AS}=9A$.

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.

Typical Characteristics

