

General Description

The 100N03B uses advanced trench technology to provide excellent RDS(ON). This device is suitable for low voltage, high speed switching applications in power supplies.

Features

- Simple Drive Requirement
- Fast Switching
- Low On-Resistance

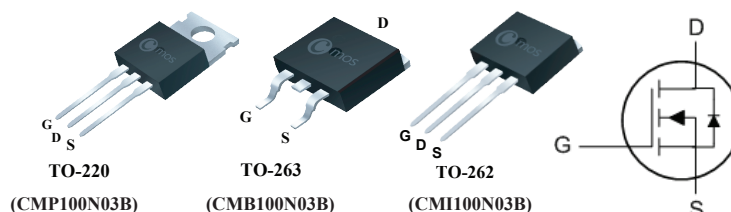
Product Summary

BVDSS	RDSON	ID
30V	4.5mΩ	100A

Applications

- High current, High speed switching
- DC-DC & DC-AC Converters
- Motor control Audio amplifiers
- Solenoid and relay drivers
- Automotive environment

TO-220/263/262 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	100	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	70	A
I_{DM}	Pulsed Drain Current	400	A
EAS	Single Pulse Avalanche Energy ¹	250	mJ
P_D	Total Power Dissipation	300	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.5	°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	$V_{GS}=0V$, $I_D=250\mu A$	30	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	4	4.5	$m\Omega$
		$V_{GS}=4.5V$, $I_D=20A$	---	5	6	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=30V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=30V$, $V_{GS}=0V$, $T_C=125^{\circ}\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$I_D=22A$, $V_{DS}=10V$	---	25	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7	---	Ω
Q_g	Total Gate Charge	$I_D=100A$	---	85	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=24V$	---	21	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	40	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=15V$	---	15	---	ns
T_r	Rise Time	$I_D=100A$	---	70	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1.1\Omega$	---	85	---	
T_f	Fall Time	$V_{GS}=10V$	---	65	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3100	---	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	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=25A$, $T_J=25^{\circ}\text{C}$	---	---	1.3	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=20V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=22.5A$

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Cmos reserves the right to improve product design ,functions and reliability without notice.

Typical Characteristics

