

General Description

The 110N20 uses advanced process technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

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

Product Summary

BVDSS	RDS(ON)	ID
200V	0.11Ω	22A

Applications

- PWM Motor Controls
- DC-DC Converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	22	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	13.7	A
I_{DM}	Pulsed Drain Current	88	A
EAS	Single Pulse Avalanche Energy ¹	140	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	90	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	100	°C/W
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.39	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=10A$	---	95	110	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	$V_{DS}=200V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	12	---	S
Q_g	Total Gate Charge	$V_{DS}=100V$, $V_{GS}=10V$, $I_D=20A$	---	32	---	nC
Q_{gs}	Gate-Source Charge		---	6	---	
Q_{gd}	Gate-Drain Charge		---	25	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$, $R_G=4.7\Omega$, $I_D=11A$ $V_{GS}=10V$	---	40	---	ns
T_r	Rise Time		---	15	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	11	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	900	---	pF
C_{oss}	Output Capacitance		---	350	---	
C_{rss}	Reverse Transfer Capacitance		---	30	---	

Diode Characteristics

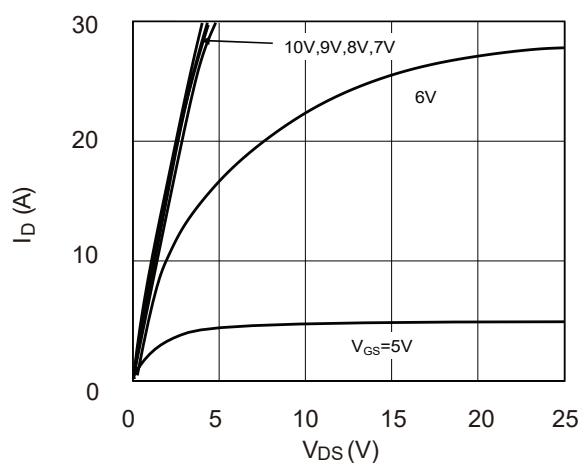
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	22	A
I_{SM}	Pulsed Source Current		---	---	88	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=10A$, $T_J=25^{\circ}\text{C}$	---	0.88	1.3	V

Note :

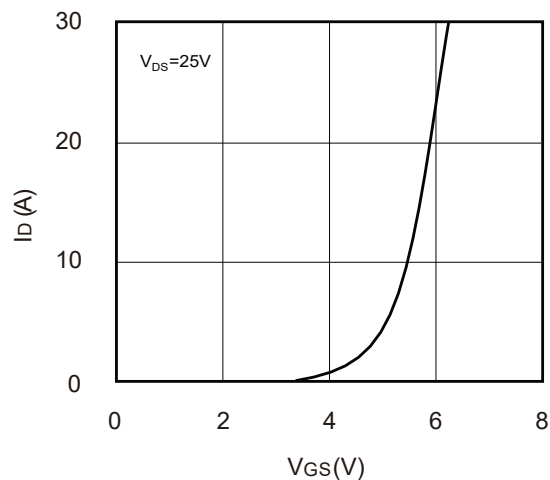
1. The EAS data shows Max. rating . The test condition is $V_{DD}=80V$, $V_{GS}=10V$, $L=5mH$, $I_D=7.5A$.

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.

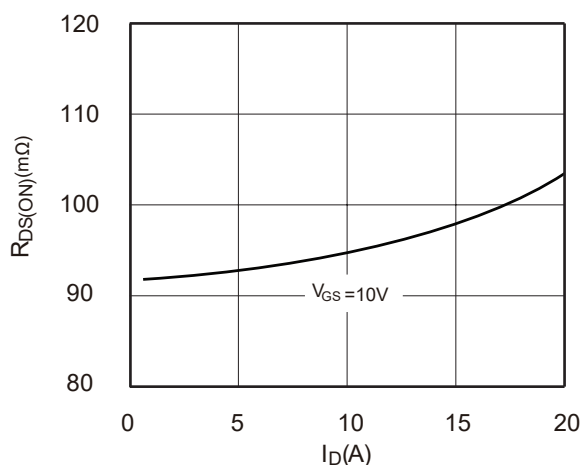
Typical Characteristics



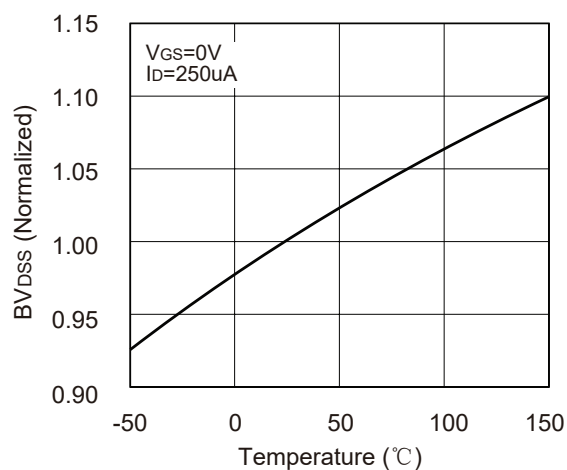
On-Region Characteristics



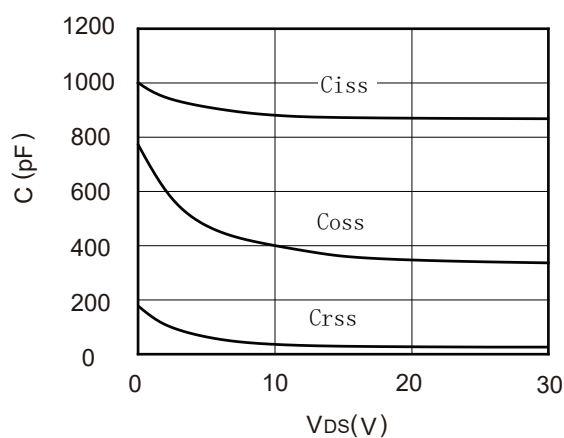
Transfer Characteristics



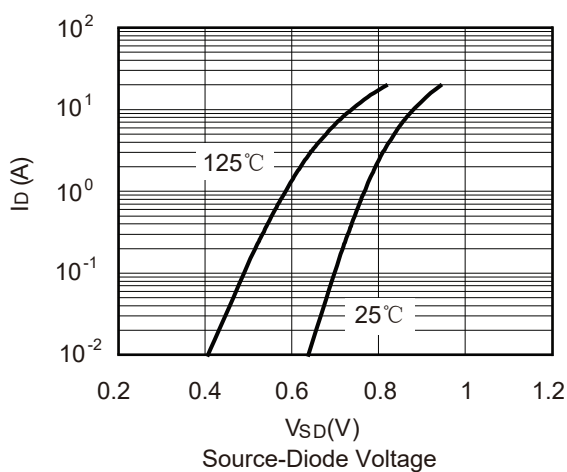
On-Resistance vs. Drain Current and Gate



On-Resistance vs. Junction Temperature



Capacitance Characteristics



Source-Diode Voltage