

General Description

The 120N12 uses advanced trench technology and design to provide excellent RDS(ON) . This device is suitable for PWM, load switching and general purpose applications.

Features

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

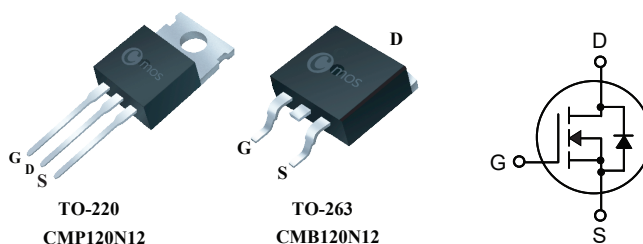
Product Summary

BVDSS	RDS(ON)	ID
120V	7mΩ	120A

Applications

- Synchronous Rectification
- Power Management in Inverter Systems
- Motor Driver

TO-220/ 263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	120	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	120	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	80	A
I_{DM}	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy ¹	2722	mJ
P_D	Total Power Dissipation	170	W
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(Steady State)	---	62.5	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case(Steady State)	---	0.74	$^{\circ}C/W$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	120	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	6	7	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	$V_{DS}=100V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=40A$	---	53	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.5	---	Ω
Q_g	Total Gate Charge	$I_D=25A$	---	167	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=60V$	---	37	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	51	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=60V$	---	46	---	ns
T_r	Rise Time	$R_{G_ext}=5\Omega$	---	55	---	
$T_{d(off)}$	Turn-Off Delay Time	$V_{GS}=10V$	---	152	---	
T_f	Fall Time	$R_L=2.4\Omega$	---	61	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7800	---	pF
C_{oss}	Output Capacitance		---	800	---	
C_{rss}	Reverse Transfer Capacitance		---	550	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	120	A
I_{SM}	Pulsed Source Current		---	---	480	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	0.77	1.2	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=5\text{mH}$, $I_{AS}=33A$.

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

120V N-Channel MOSFET

