

General Description

The 80N70 is N-Channel MOSFET, It has specifically been designed to minimize input capacitance and gate charge. The device is therefore suitable in advanced high-efficiency switching applications.

Features

- Low gate charge
- 100% avalanche rated
- Low On-Resistance

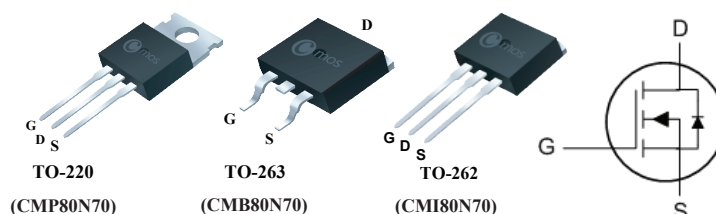
Product Summary

BVDSS	RDSON	ID
68V	8mΩ	80A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO-220/263/262 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	68	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	80	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	50	A
I_{DM}	Pulsed Drain Current ¹	250	A
EAS	Single Pulse Avalanche Energy ²	520	mJ
I_{AS}	Avalanche Current	80	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	1	$^\circ\text{C/W}$

N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	68	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=40A$	---	7	8	$m\Omega$
		$V_{GS}=4.5V$, $I_D=40A$	---	8.5	11	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=60V$, $V_{GS}=0V$, $T_J=125^\circ\text{C}$	---	---	100	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance ³	$V_{DS}=15V$, $I_D=40A$	---	60	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1.5	---	Ω
Q_g	Total Gate Charge	$I_D=80A$	---	75	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=37.5V$	---	19	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	25	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=37.5V$	---	25	---	ns
T_r	Rise Time	$I_D=39A$	---	65	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=4.7\Omega$	---	90	---	
T_f	Fall Time	$V_{GS}=10V$	---	45	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3500	---	pF
C_{oss}	Output Capacitance		---	650	---	
C_{rss}	Reverse Transfer Capacitance		---	210	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	80	A
I_{SM}	Pulsed Source Current ¹		---	---	250	A
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V$, $I_S=80A$, $T_J=25^\circ\text{C}$	---	---	1.5	V

Note :

1.Pulse width limited by safe operating area

2.Starting $T_J=25^\circ\text{C}$, $I_D=40A$, $V_{DD}=34V$

3.Pulsed: pulse duration=300 μs , duty cycle 1.5%

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