

General Description

The 80N06 is N-ch MOSFET with extreme high cell density, which provide excellent RDS(on) and gate charge for most of the synchronous buck converter applications.

Features

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

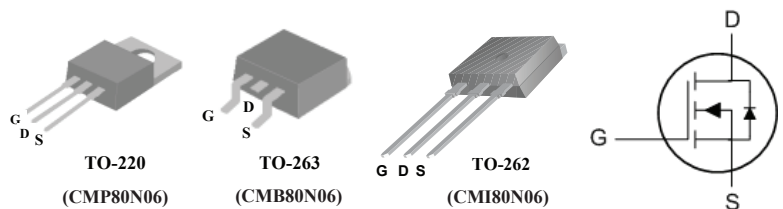
Product Summary

BVDSS	RDS(on)	ID
60V	7.8mΩ	80A

Applications

- Motor Control
- DC-DC converters
- General Purpose Power Amplifier

TO220/263/262 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current ¹	80	A
$I_D@T_C=100^\circ C$	Continuous Drain Current ¹	50	A
I_{DM}	Pulsed Drain Current ²	250	A
EAS	Single Pulse Avalanche Energy ³	405	mJ
I_{AS}	Avalanche Current	80	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	260	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	0.9	°C/W

N-Channel Enhancement Mode Field Effect Transistor

Electrical Characteristics (T_J=25 °C, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250uA	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V, I _D =80A	---	6.5	7.8	mΩ
		V _{GS} =4.5V, I _D =80A	---	8.2	14	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V, V _{GS} =0V	---	---	1	uA
		V _{DS} =60V, V _{GS} =0V, T _J =125 °C	---	---	100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V, I _D =40A	---	50	---	S
R _g	Gate Resistance	V _{DS} =0V, V _{GS} =0V, f=1MHz	---	1.5	---	Ω
Q _g	Total Gate Charge	I _D =80A V _{DS} =30V V _{GS} =0 to 10V	---	76	---	nC
Q _{gs}	Gate-Source Charge		---	24	---	
Q _{gd}	Gate-Drain Charge		---	35	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =30V	---	45	---	ns
T _r	Rise Time	I _D =80A	---	160	---	
T _{d(off)}	Turn-Off Delay Time	R _G =3.3 Ω	---	95	---	
T _f	Fall Time	V _{GS} =10V	---	68	---	
C _{iss}	Input Capacitance	V _{DS} =25V, V _{GS} =0V, f=1MHz	---	3800	---	pF
C _{oss}	Output Capacitance		---	815	---	
C _{rss}	Reverse Transfer Capacitance		---	300	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ¹	V _G =V _D =0V, Force Current	---	---	80	A
I _{SM}	Pulsed Source Current ²		---	---	250	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V, I _S =80 A, T _J =25°C	---	---	1.5	V

Note :

1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.

2.The data tested by pulsed, pulse width ≤ 300us, duty cycle ≤ 2%

3.The EAS data shows Max. rating. The test condition is V_{DD}=24V, V_{GS}=10V, L=0.13mH, I_{AS}=80A