

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 80N06P uses advanced power innovated design and silicon process technology to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

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

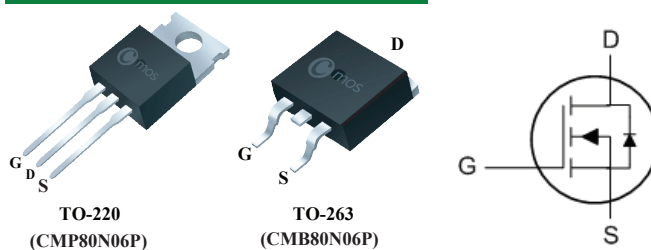
Product Summary

BVDSS	RDSON	ID
60V	22mΩ	80 A

Applications

- DC-DC converters
- LED power controller
- High current, high speed switching
- Motor control, Audio amplifiers

TO-220/263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	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	320	A
EAS	Single Pulse Avalanche Energy ²	450	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	145	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.8	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=25A$	---	---	22	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	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
		$V_{DS}=48V$, $V_{GS}=0V@150^{\circ}\text{C}$	---	---	10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=22A$	---	24	---	S
Q_g	Total Gate Charge	$I_D=40A$	---	70	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=30V$	---	22	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	34	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=30V$ $I_D=40A$ $R_G=25\Omega$	---	28	---	ns
T_r	Rise Time		---	120	---	
$T_{d(off)}$	Turn-Off Delay Time		---	70	---	
T_f	Fall Time		---	55	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2800	---	pF
C_{oss}	Output Capacitance		---	550	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

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		---	---	320	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=1A$, $T_J=25^{\circ}\text{C}$	---	---	1.5	V

Note :

1.Repetitive rating; pulse width limited by max. junction temperature.

2.The test condition is $V_{DD}=40V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=30A$

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