

General Description

The 75N80 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

- Minimize input capacitance and gate charge
- 100% avalanche rated
- Low On-Resistance

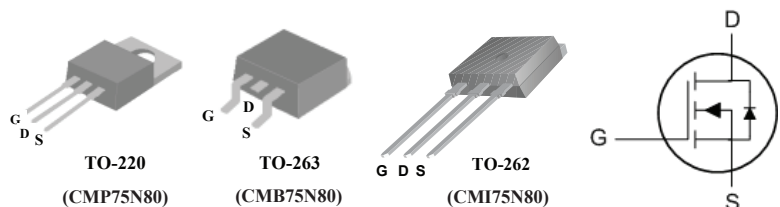
Product Summary

BVDSS	RDSON	ID
80V	11mΩ	75A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO220/263/262 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	80	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	75	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	60	A
I_{DM}	Pulsed Drain Current ¹	230	A
EAS	Single Pulse Avalanche Energy ²	400	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	75	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	37	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	2	$^\circ\text{C/W}$

N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=40A$	---	---	11	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=\text{Max Rating}$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
g_{fs}	Forward Transconductance ³	$V_{DS}=15V$, $I_D=40A$	---	20	---	S
R_g	Gate Resistance	$f=1\text{MHz}$	---	2.3	---	Ω
Q_g	Total Gate Charge	$I_D=75A$	---	120	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=60V$	---	54	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	38	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V$	---	80	---	ns
T_r	Rise Time	$R_G=10\Omega$	---	37	---	
$T_{d(off)}$	Turn-Off Delay Time	$V_{GS}=10V$	---	140	---	
T_f	Fall Time	$R_L=15\Omega$	---	27	---	
C_{iss}	Input Capacitance	$V_{DS}=20V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7400	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	140	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage ³	$V_{GS}=0V$, $I_{SD}=25A$	---	---	1.5	V

Note :

1. Pulse width limited by safe operating area

2. Starting $T_J=25\text{ }^{\circ}\text{C}$, $I_D=30A$, $V_{DD}=37.5V$

3. Pulsed: pulse duration $\leq 300\mu s$, duty cycle $\leq 2\%$