

CMP75NF75A/CMF75NF75A/CMB75NF75A



N-Channel Enhancement Mode Field Effect Transistor

General Description

The 75NF75A 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

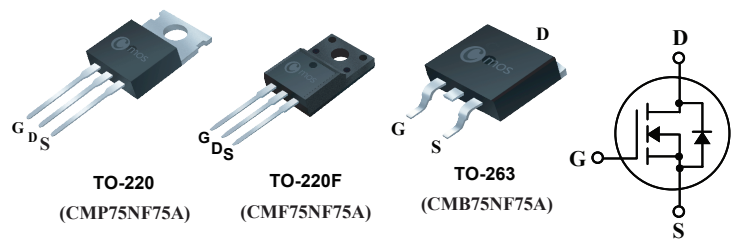
Product Summary

BVDSS	RDSON	ID
80V	9mΩ	80A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO-220/220F/263 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263	220F	Units
V_{DS}	Drain-Source Voltage	80		V
V_{GS}	Gate-Source Voltage	±20		V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	80	80	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	70	70	A
I_{DM}	Pulsed Drain Current ¹	240	240	A
EAS	Single Pulse Avalanche Energy ²	920	920	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	240	45	W
T_{STG}	Storage Temperature Range	-55 to 175		°C
T_J	Operating Junction Temperature Range	-55 to 175		°C

Thermal Data

Symbol	Parameter	220/263	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5		°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	0.52	3.33	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	---	9	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=64V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$	---	---	± 100	nA
R_g	Gate Resistance	$f=1\text{MHz}$	---	1.7	---	Ω
Q_g	Total Gate Charge	$I_D=40A$	---	76	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=37.5V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	40	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=37.5V$	---	21	---	ns
T_r	Rise Time	$R_G=6.8\Omega$	---	65	---	
$T_{d(off)}$	Turn-Off Delay Time	$V_{GS}=10V$	---	67	---	
T_f	Fall Time	$I_D=40A$	---	45	---	
C_{iss}	Input Capacitance	$V_{DS}=20V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	4100	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	270	---	

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		---	---	240	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

- 1.Pulse width limited by safe operating area
- 2.Starting $T_J=25^{\circ}\text{C}$, $I_D=43A$, $V_{DD}=50V$, $L=1\text{mH}$
- 3.Pulsed: pulse duration $\leq 300\mu s$, duty cycle $\leq 2\%$

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