

General Description

The 75NF75A uses advanced trench technology to provide excellent $R_{DS(ON)}$. This device is suitable for PWM, load switching and general purpose applications.

Features

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

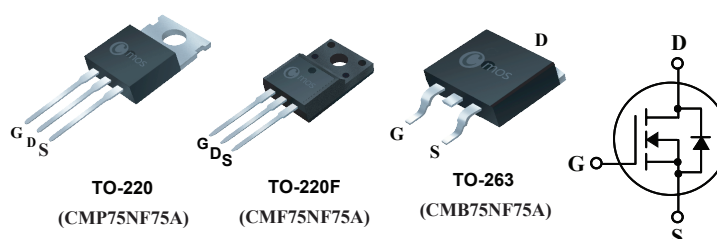
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
80V	9m Ω	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
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	80	80	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	70	70	A
I_{DM}	Pulsed Drain Current ¹	320	320	A
EAS	Single Pulse Avalanche Energy ²	920	920	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	240	45	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	220/263	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	62.5		$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	0.52	3.33	$^\circ\text{C/W}$

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	$V_{GS}=0V$, $I_D=250\mu A$	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	$V_{DS}=37.5V$	---	18	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	32	---	
$T_{d(on)}$	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		---	---	320	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

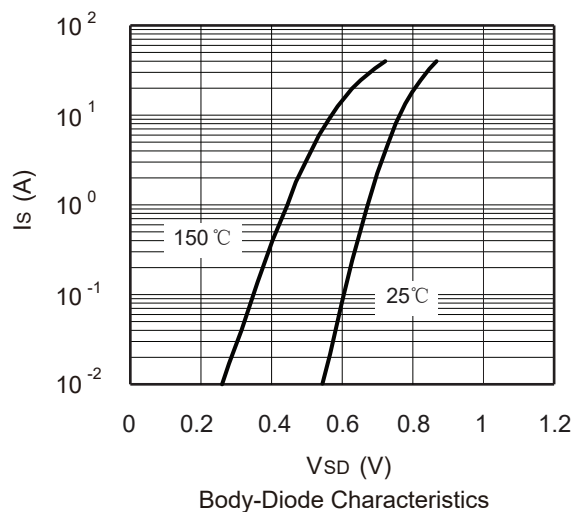
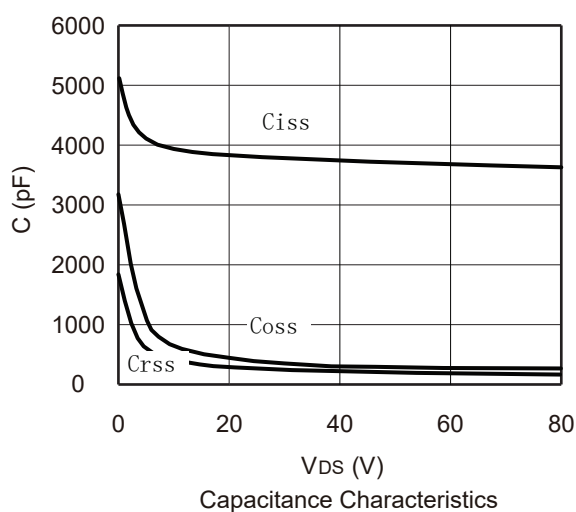
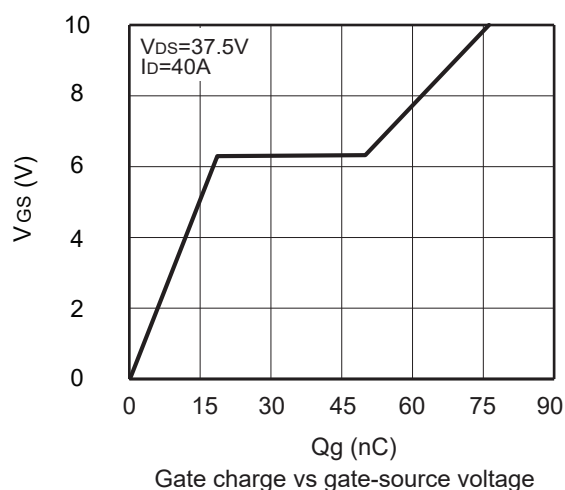
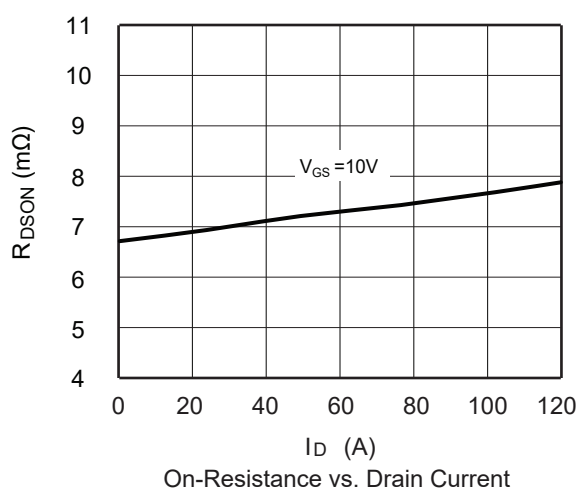
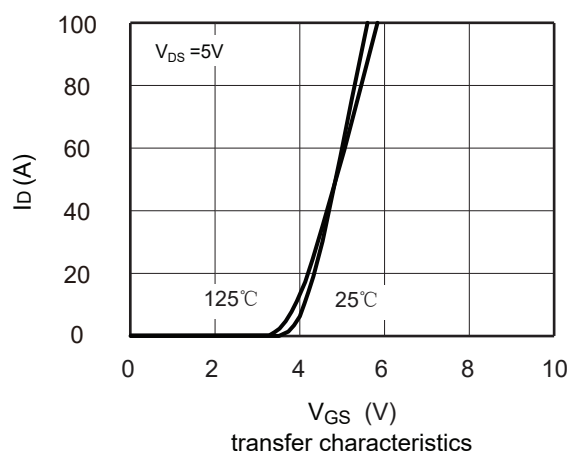
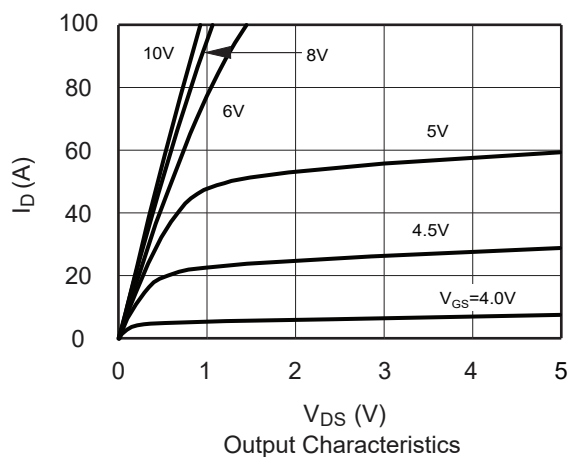
- 1.Pulse width limited by safe operating area
- 2.Starting $T_J=25^{\circ}\text{C}$, $I_D=43A$, $V_{DD}=50V$, $L=1\text{mH}$
- 3.Pulsed: pulse duration $\leq 300\mu s$, duty cycle $\leq 2\%$

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

Typical Characteristics



CMP75NF75A/CMF75NF75A/CMB75NF75A

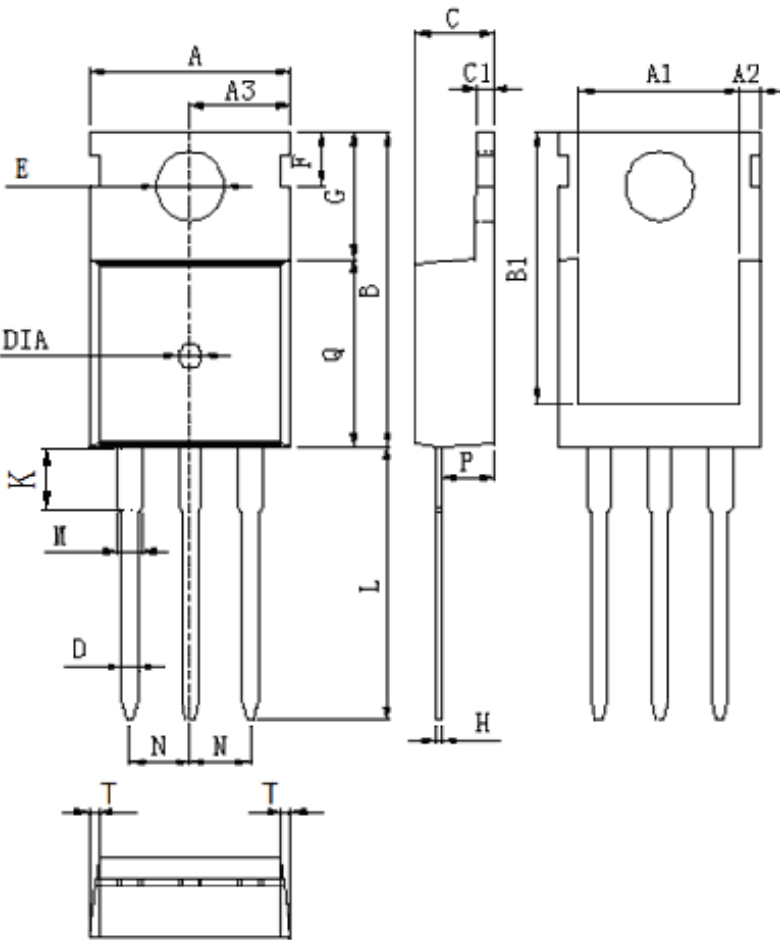


N-Channel Enhancement Mode Field Effect Transistor

Package Dimension

TO-220

Unit :mm

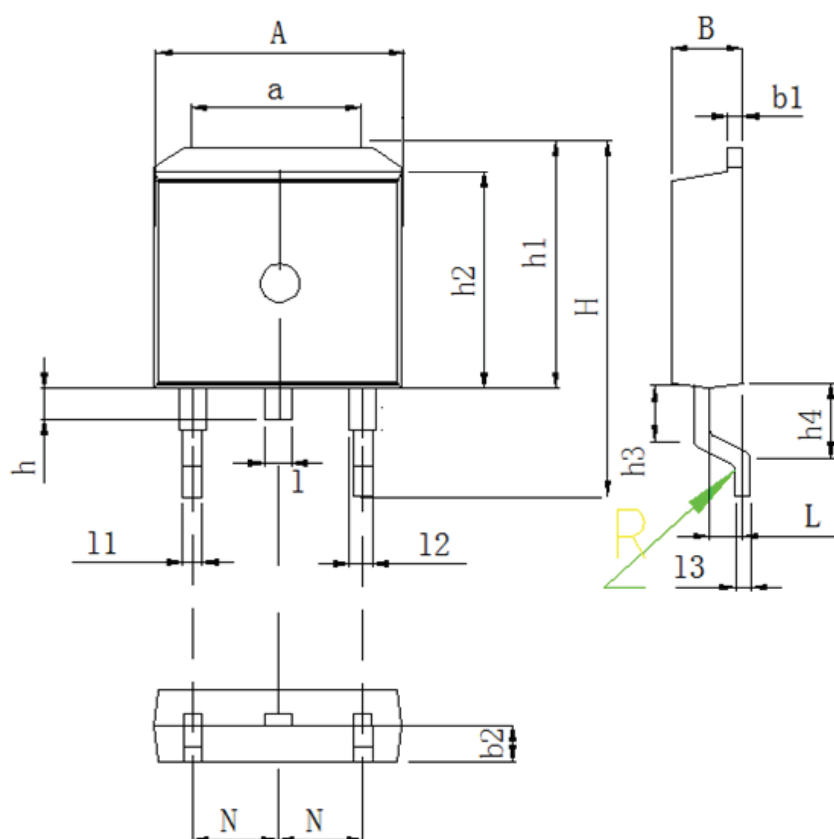


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5 (deep 0.2)

Package Dimension

TO-263

Unit :mm

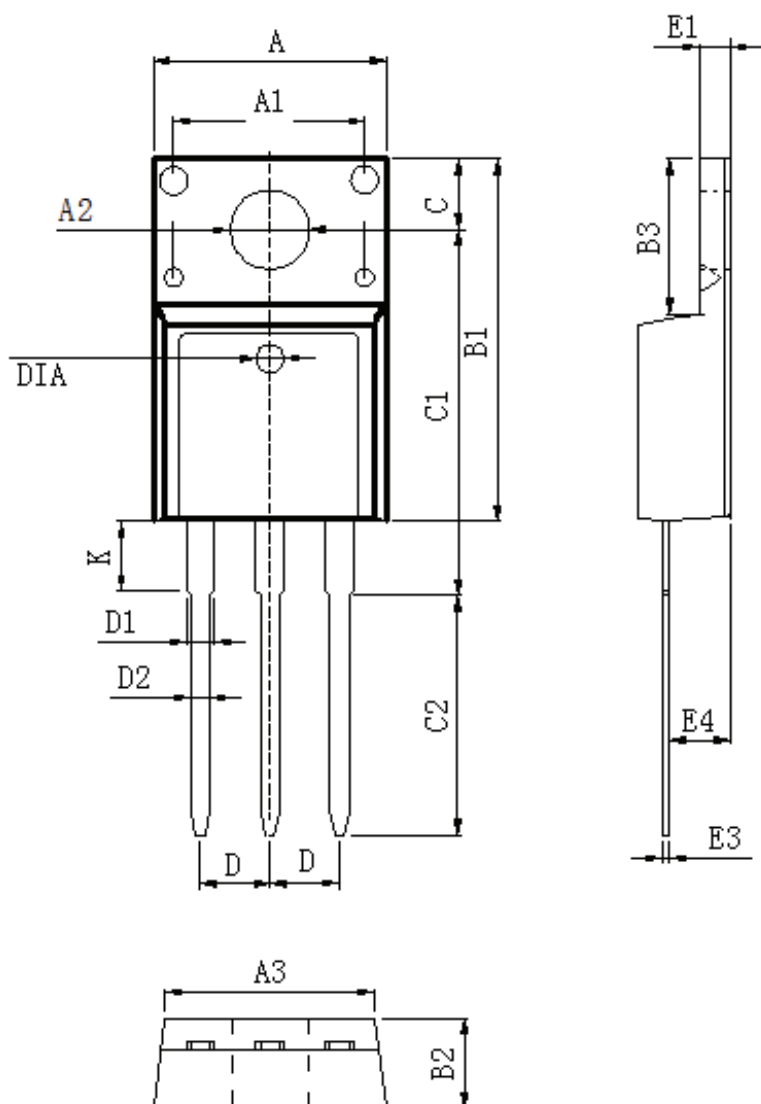


DIM	MILLIMETERS
A	9.8 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	15.5 ± 0.3
h	1.54 ± 0.2
h1	10.5 ± 0.2
h2	9.2 ± 0.1
h3	1.54 ± 0.2
h4	2.7 ± 0.2
L	2.4 ± 0.2
1	1.3 ± 0.1
11	0.8 ± 0.1
12	1.3 ± 0.1
13	0.5 ± 0.1
N	2.54 ± 0.1
R	$0.5R \pm 0.05$

Package Dimension

TO-220F

Unit :mm



DIM	MILLIMETERS
A	10.16 ± 0.3
A1	7.00 ± 0.1
A2	3.3 ± 0.2
A3	9.5 ± 0.2
B1	15.87 ± 0.3
B2	4.7 ± 0.2
B3	6.68 ± 0.4
C	3.3 ± 0.2
C1	12.57 ± 0.3
C2	10.02 ± 0.5
D	2.54 ± 0.05
D1	1.28 ± 0.2
D2	0.8 ± 0.1
K	3.1 ± 0.3
E1	2.54 ± 0.1
E3	0.5 ± 0.1
E4	2.76 ± 0.2
DIA	$\odot 1.5$ (deep 0.2)