

CMP32N30P/CMB32N30P/CMI32N30P/CMF32N30P

300V, 106mΩ typ., 32A N-Channel MOSFET

General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology. These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies.

Product Summary

BVDSS	R _{DS(on)} max.	ID
300V	0.12Ω	32A

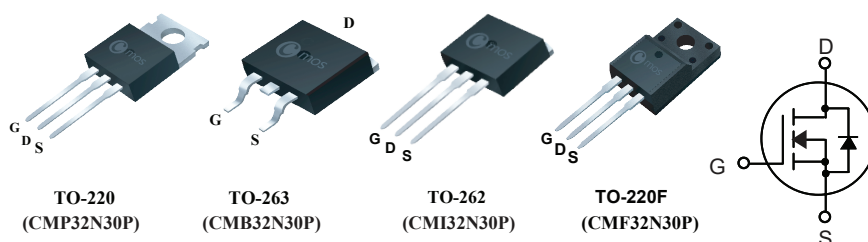
Applications

- DC/DC converters
- switch mode power supplies

Features

- Low gate charge
- 100% avalanche tested
- RoHS Compliant

TO-220/263/262/220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V _{DS}	Drain-Source Voltage	300		V
V _{GS}	Gate-Source Voltage	±30		V
I _D @T _C =25°C	Continuous Drain Current	32	32*	A
I _D @T _C =100°C	Continuous Drain Current	22.4	22.4*	A
I _{DM}	Pulsed Drain Current	128	128*	A
EAS	Single Pulse Avalanche Energy (Note 1)	1562		mJ
P _D @T _C =25°C	Total Power Dissipation	160	50	W
T _{STG}	Storage Temperature Range	-55 to 150		°C
T _J	Operating Junction Temperature Range	-55 to 150		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
R _{θJA}	Thermal Resistance Junction-ambient Max.	62.5	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	0.78	2.5	°C/W

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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 =250μA	300	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =16A	---	106	120	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	2	---	4	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =300V , V _{GS} =0V	---	---	1	μA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =20V , I _D =16A	---	21	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	1.1	---	Ω
Q _g	Total Gate Charge	V _{DD} =240V , I _D =32A V _{GS} =10V	---	60	---	nC
Q _{gs}	Gate-Source Charge		---	17	---	
Q _{gd}	Gate-Drain Charge		---	20	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =150V , I _D =34A R _G =4.3Ω , R _D =5.88Ω	---	16	---	ns
T _r	Rise Time		---	72	---	
T _{d(off)}	Turn-Off Delay Time		---	42	---	
T _f	Fall Time		---	58	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , f=1MHz	---	3000	---	pF
C _{oss}	Output Capacitance		---	300	---	
C _{rss}	Reverse Transfer Capacitance		---	25	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Diode continuous forward current	V _G =V _D =0V , Force Current	---	---	32	A
I _{S,pulse}	Diode pulse current		---	---	128	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =32A , T _J =25 °C	---	0.91	1.2	V

Note :

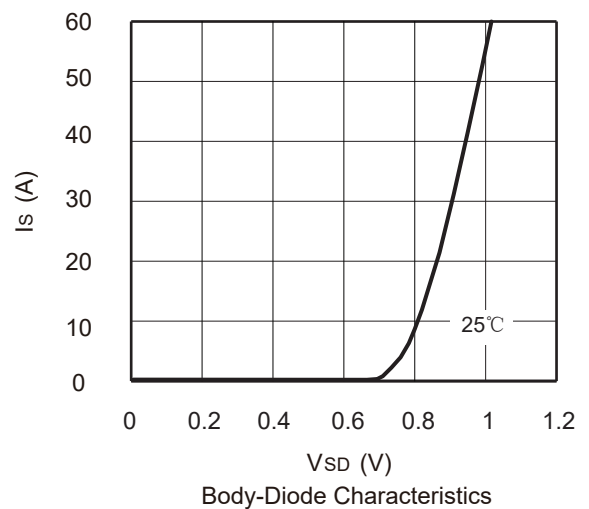
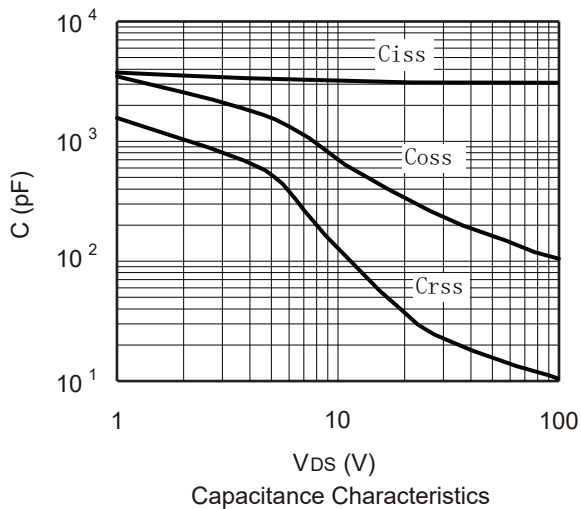
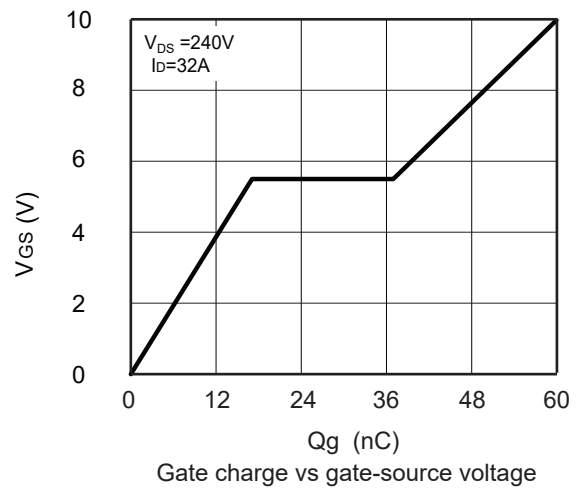
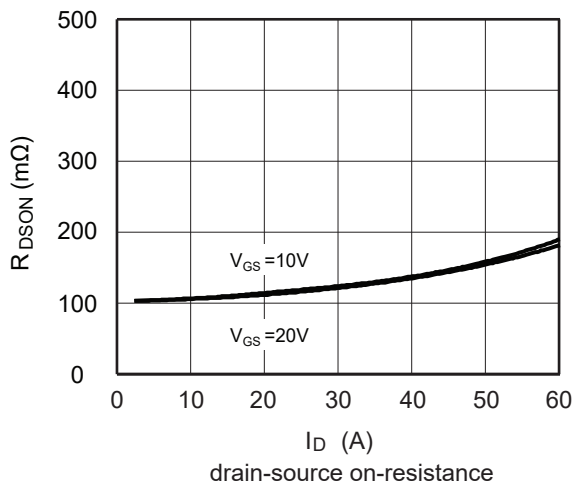
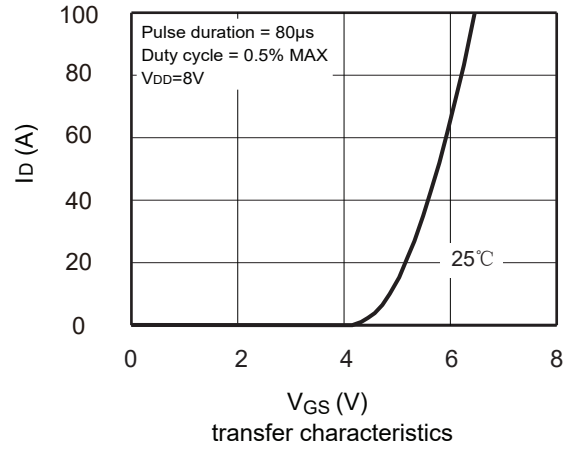
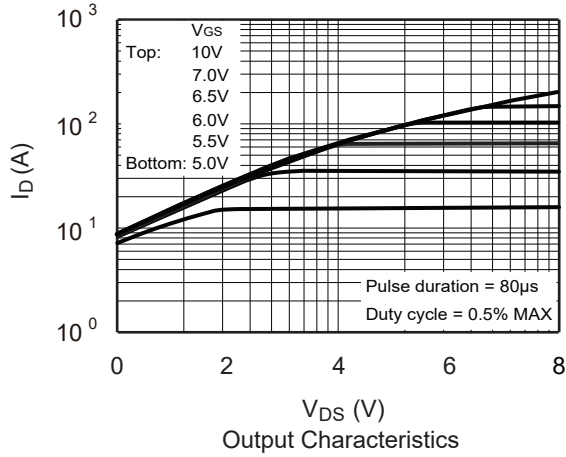
1.The EAS data shows Max. rating .The test condition is V_{DS}=50V , V_{GS}=10V , L=5mH , I_{AS}=25A.

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.

Typical Characteristics



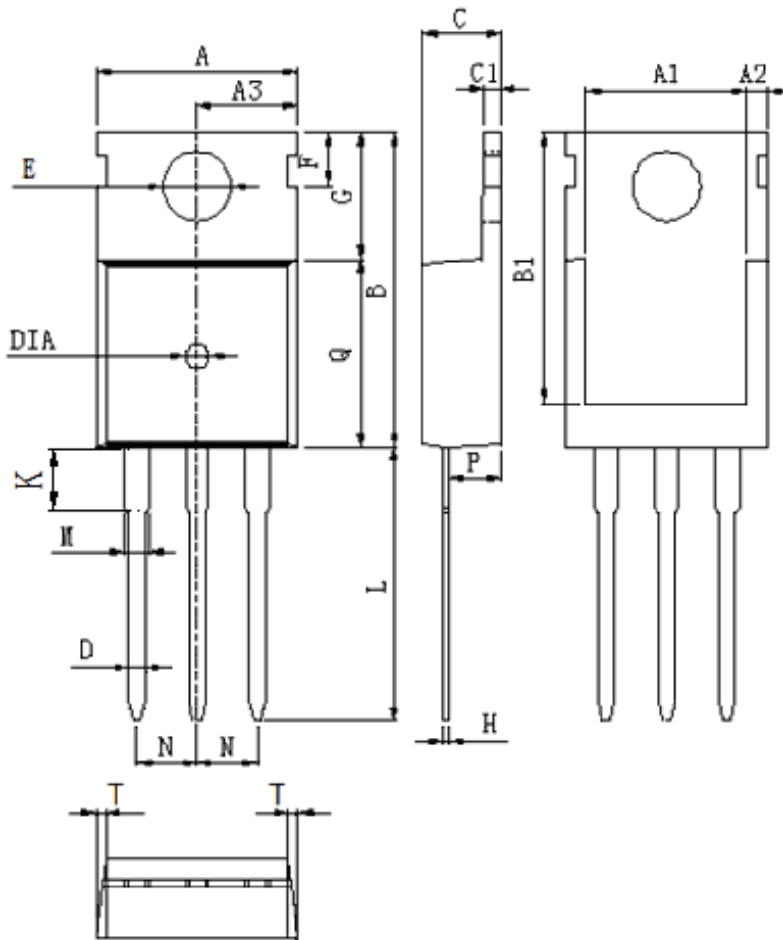
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Package Dimension

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)

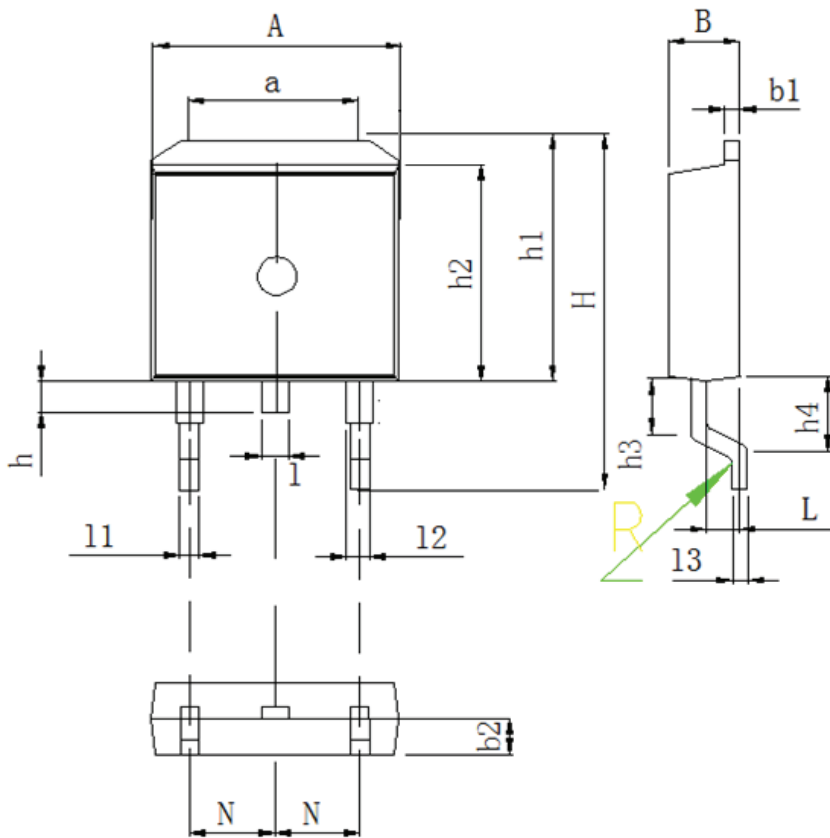
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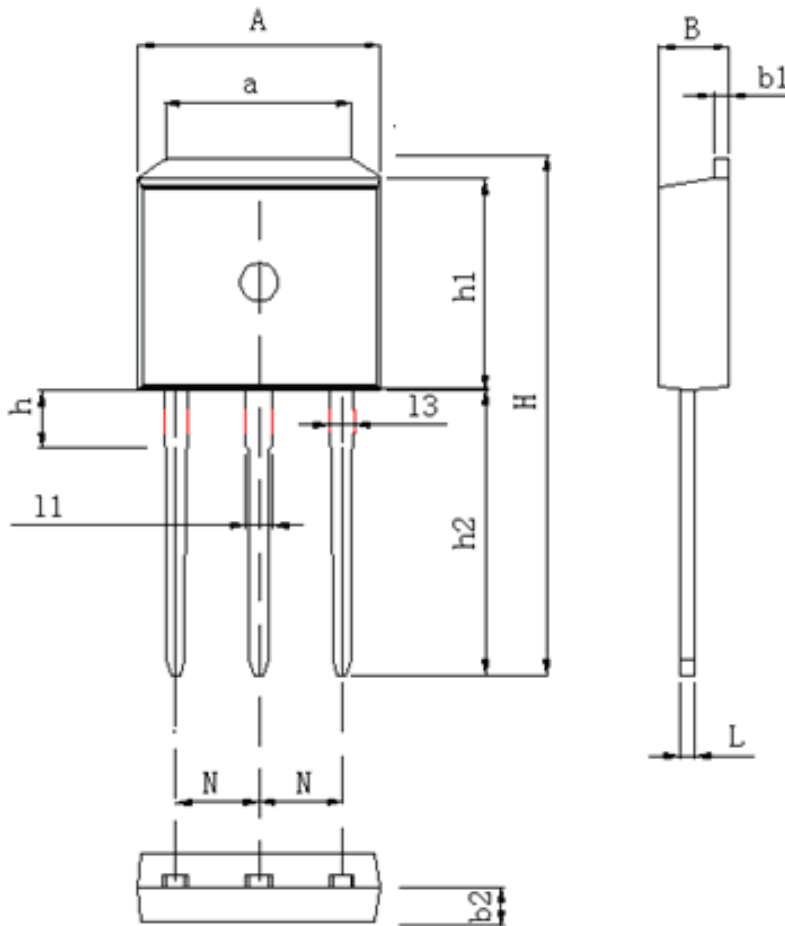
Package Dimension

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-262
Unit :mm


DIM	MILLIMETERS
A	9.98 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	23.9 ± 0.3
h	3.1 ± 0.2
h1	9.16 ± 0.2
h2	13.2 ± 0.2
L	0.5 ± 0.1
l1	1.3 ± 0.1
l2	0.8 ± 0.1
N	2.45 ± 0.1

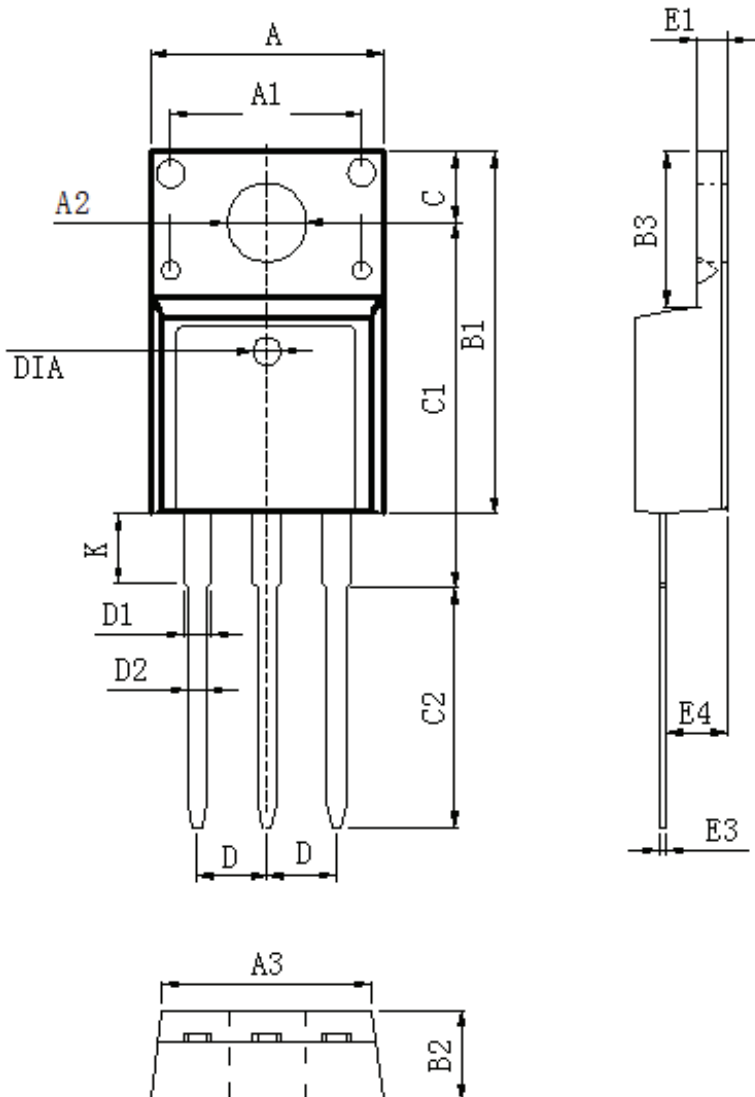
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Package Dimension

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)