

CMP30N25/CMB30N25/CMI30N25/CMF30N25

250V, 90mΩ typ., 30A N-Channel MOSFET

General Description

These Power MOSFETs are produced using Cmos's proprietary, planar stripe, DMOS technology. These devices are well suited for converters in lighting applications.

Product Summary

BVDSS	R _{DS(on)} max.	ID
250V	120mΩ	30A

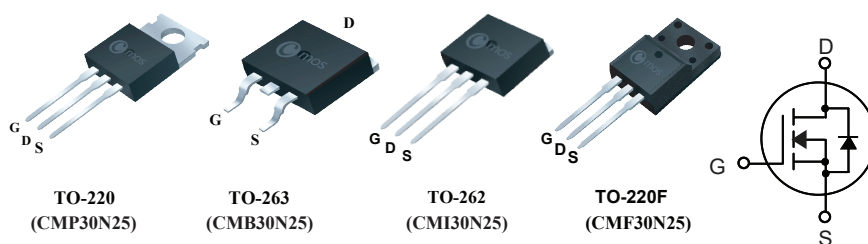
Applications

- lighting
- Uninterruptible Power Supply

Features

- 100% avalanche tested
- Extremely high dv/dt capability
- RoHS Compliant

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



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V _{DS}	Drain-Source Voltage	250		V
V _{GS}	Gate-Source Voltage	±20		V
I _D @T _C =25°C	Continuous Drain Current	30	30*	A
I _D @T _C =100°C	Continuous Drain Current	21	21*	A
I _{DM}	Pulsed Drain Current	120	120*	A
EAS	Single Pulse Avalanche Energy (Note 1)	980		mJ
P _D @T _C =25°C	Total Power Dissipation	160	60	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	2.08	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	250	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	90	120	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=250V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	30	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.0	---	Ω
Q_g	Total Gate Charge	$V_{DS}=160V$, $I_D=21A$ $V_{GS}=10V$	---	34.5	---	nC
Q_{gs}	Gate-Source Charge		---	8.3	---	
Q_{gd}	Gate-Drain Charge		---	12	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=125V$, $I_D=2.8A$ $R_{GEN}=6\Omega$, $V_{GS}=10V$	---	22	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	36	---	
T_f	Fall Time		---	12	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2600	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	20	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	$V_G=V_D=0V$, Force Current	---	---	30	A
$I_{S,pulse}$	Diode pulse current		---	---	120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=20A$, $T_J=25^{\circ}\text{C}$	---	0.88	1.4	V

Note :

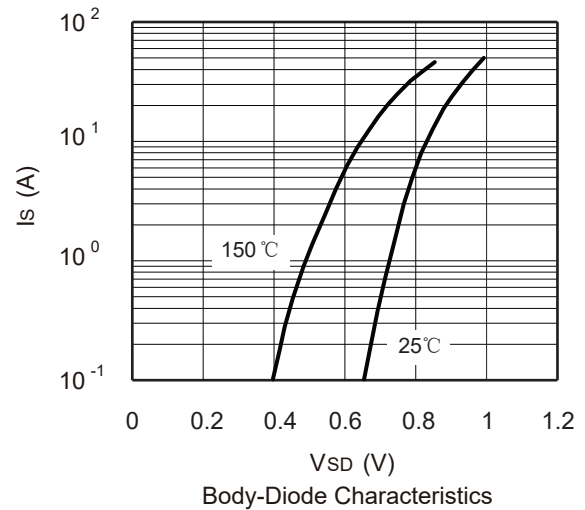
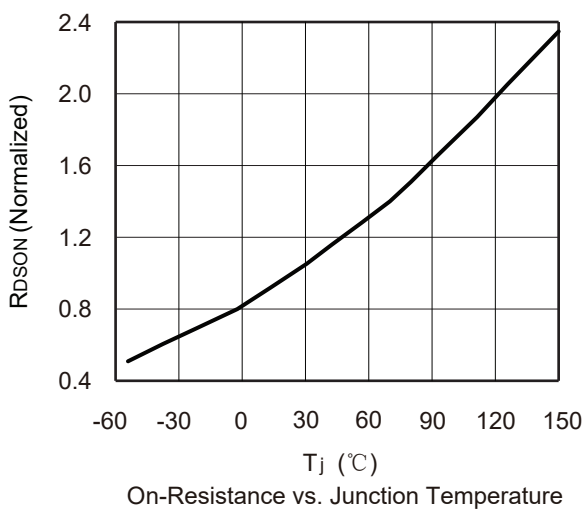
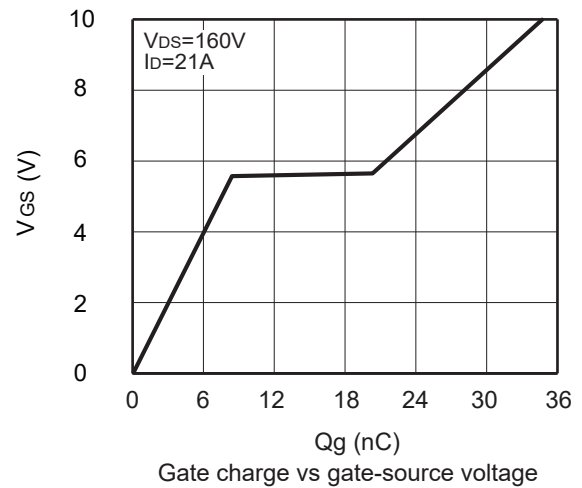
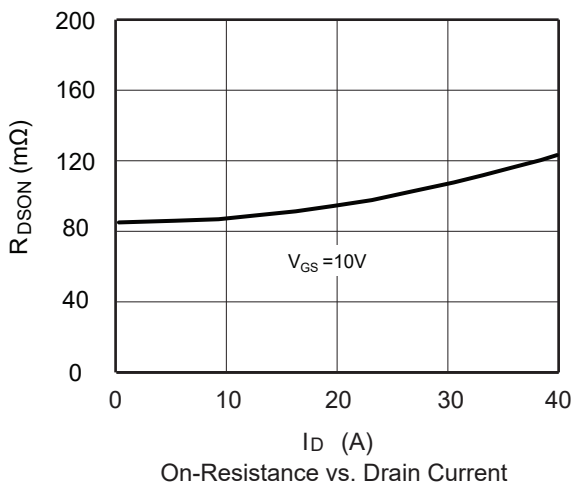
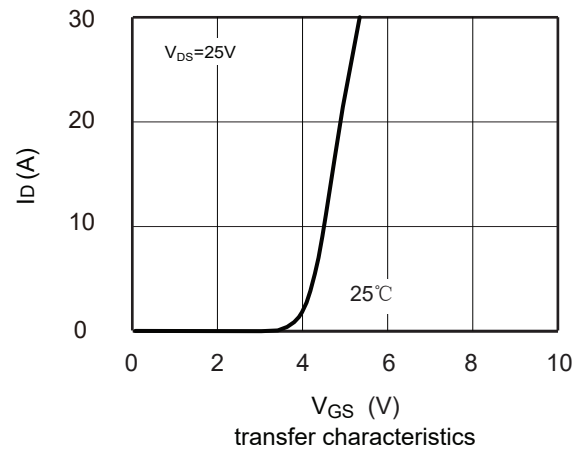
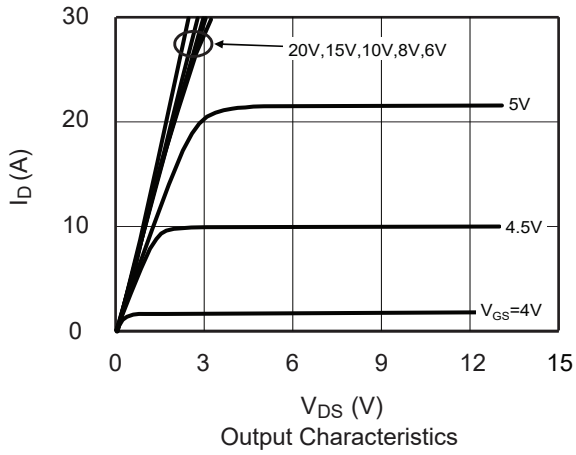
1.The EAS data shows Max. rating .The test condition is $V_{DS}=50V$, $V_{GS}=10V$, $L=2\text{mH}$, $I_{AS}=25A$.

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.Please refer to the latest version of specification.

Typical Characteristics



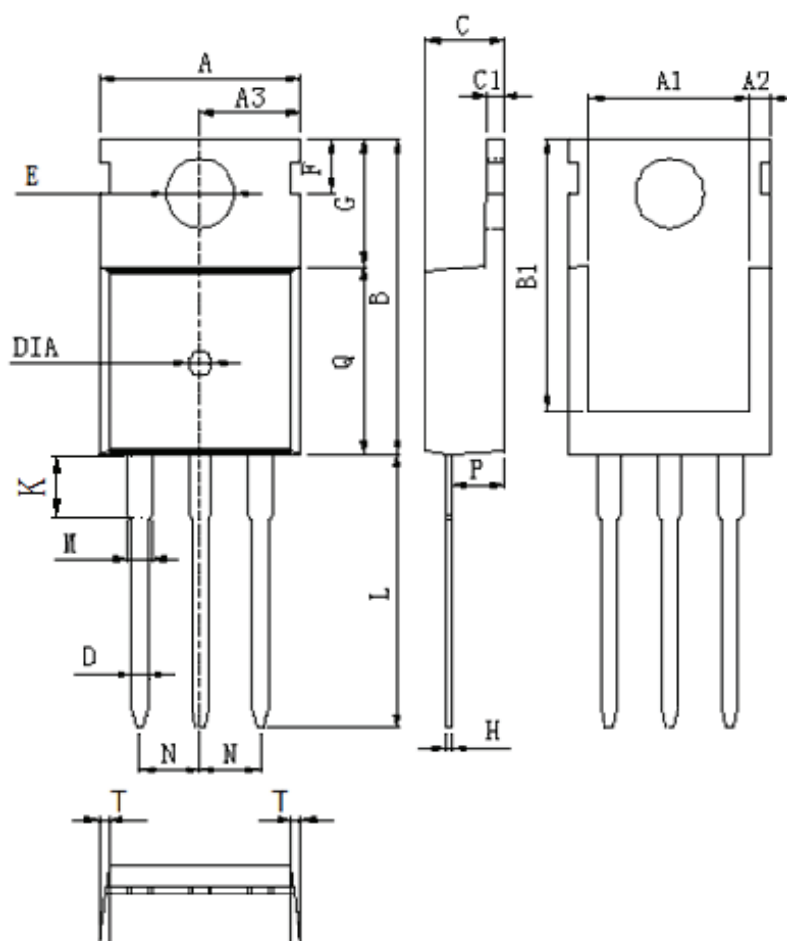
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Package Dimension

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)

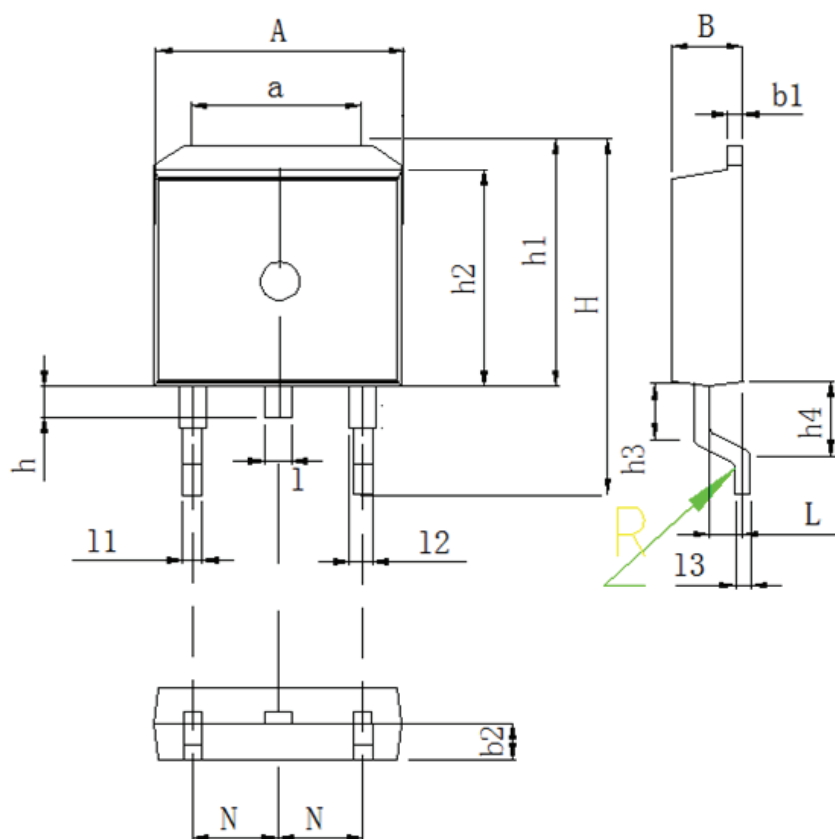
CMP30N25/CMB30N25/CMI30N25/CMF30N25

250V, 90mΩ typ., 30A N-Channel MOSFET

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	$0.5R \pm 0.05$

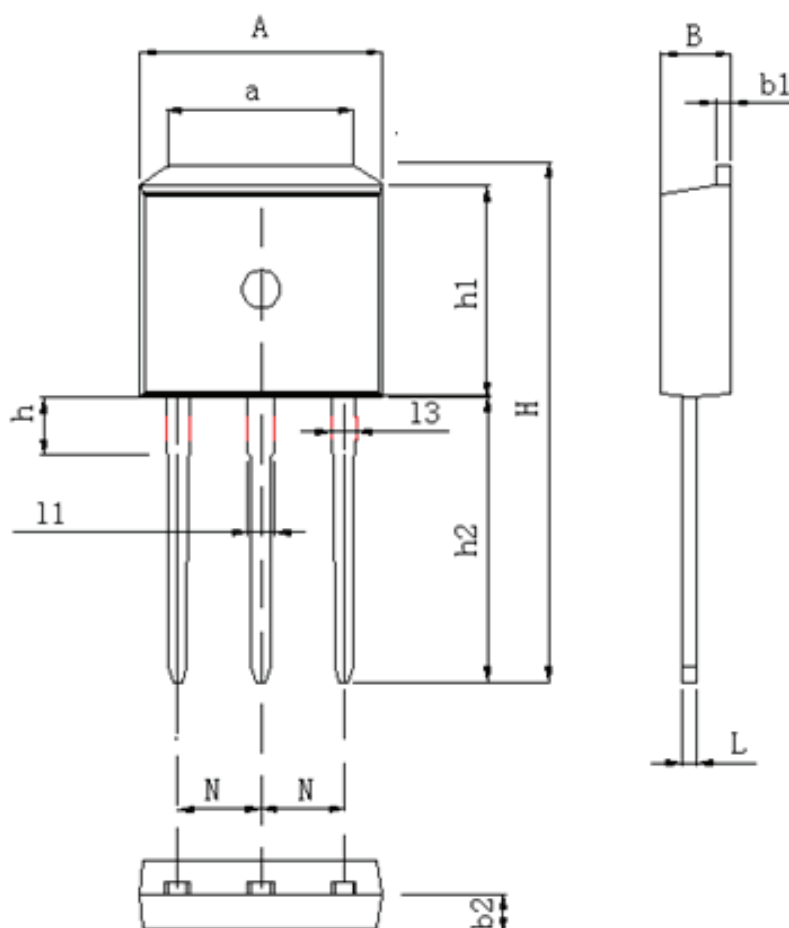
CMP30N25/CMB30N25/CMI30N25/CMF30N25

250V, 90mΩ typ., 30A N-Channel MOSFET

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

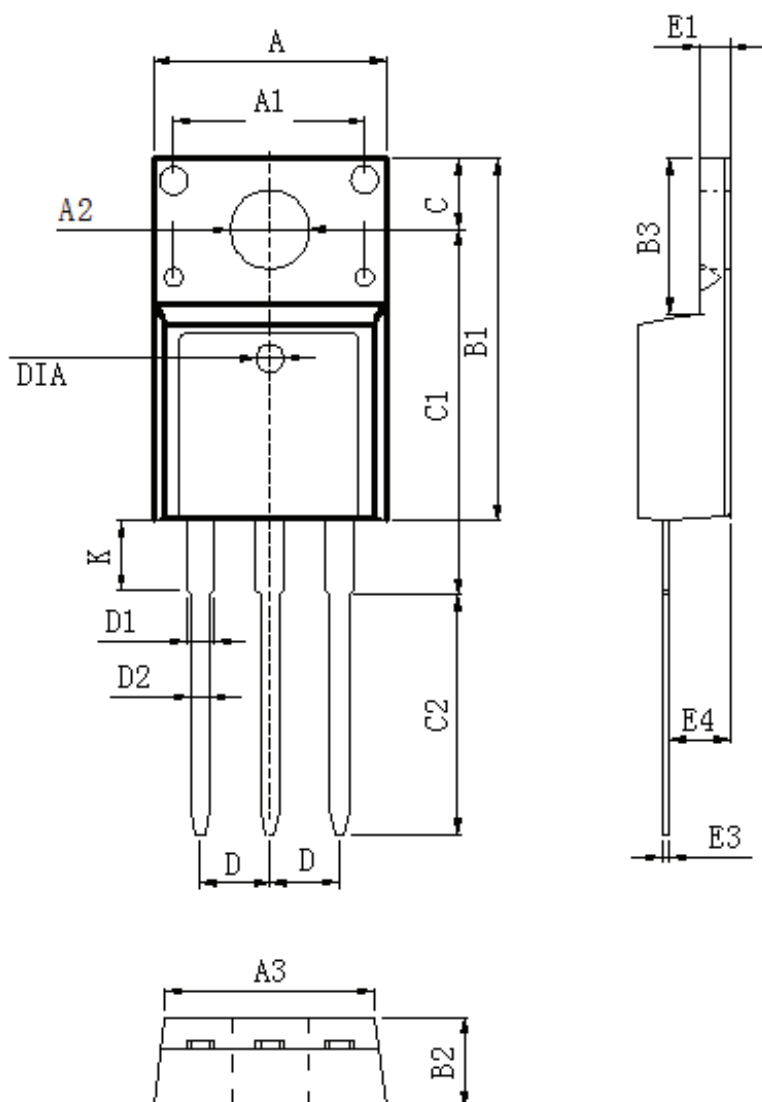
CMP30N25/CMB30N25/CMI30N25/CMF30N25

250V, 90mΩ typ., 30A N-Channel MOSFET

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	$\varnothing 1.5$ (deep 0.2)