

N-Channel Enhancement Mode Field Effect Transistor

General Description

The 130N07 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

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

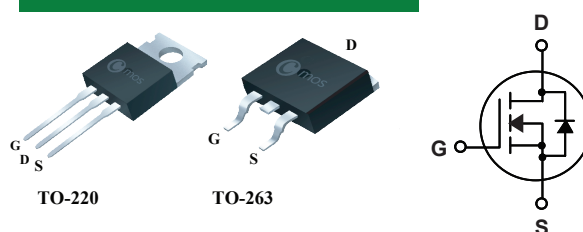
Product Summary

BVDSS	R _{DS(on)} max.	ID
70V	6.0mΩ	130A

Applications

- Motor Control
- DC-DC converters
- Switching applications

TO-220/263 Pin Configuration



Type	Package	Marking
CMP130N07	TO-220	CMP130N07
CMB130N07	TO-263	CMB130N07

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	70	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	130	A
I _D @T _C =100°C	Continuous Drain Current	100	A
I _{DM}	Pulsed Drain Current	390	A
EAS	Single Pulse Avalanche Energy	600	mJ
P _D @T _C =25°C	Total Power Dissipation	200	W
T _{STG}	Storage Temperature Range	-55 to 175	°C
T _J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.75	°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_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	70	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	---	6	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=70V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=32A$	---	28	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.2	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	126	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=35V$	---	25	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	50	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=35V$	---	21	---	ns
T_r	Rise Time	$I_D=2A$	---	20	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=2.5\Omega$	---	71	---	
T_f	Fall Time	$V_{GS}=10V$	---	50	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5900	---	pF
C_{oss}	Output Capacitance		---	411	---	
C_{rss}	Reverse Transfer Capacitance		---	316	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	130	A
I_{SM}	Pulsed Source Current		---	---	390	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=50A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

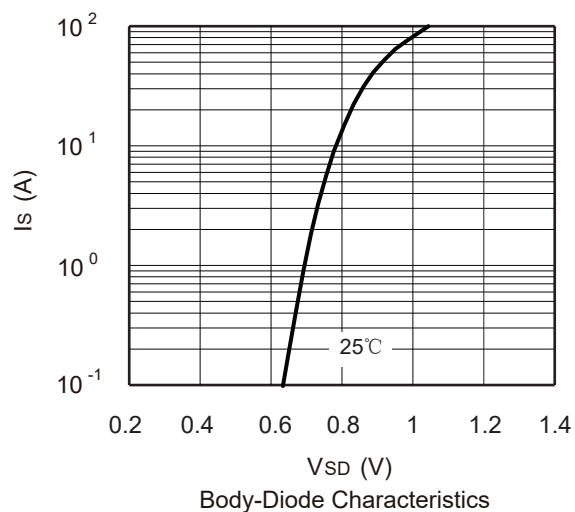
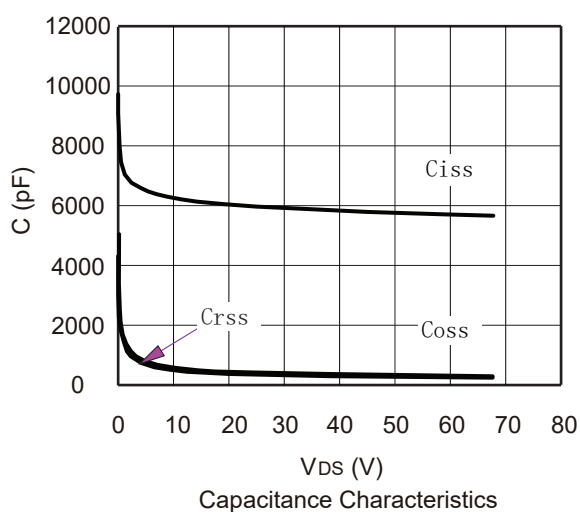
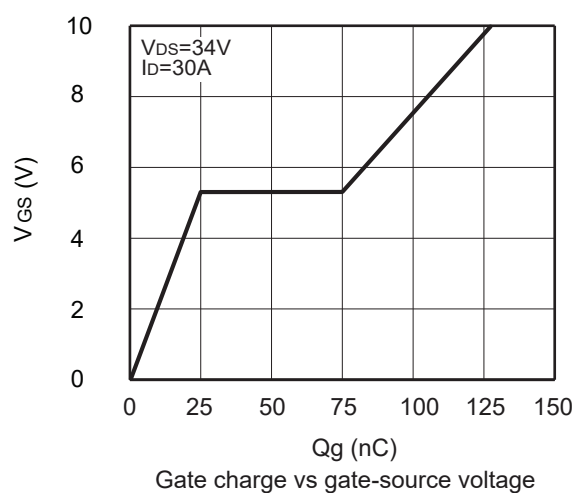
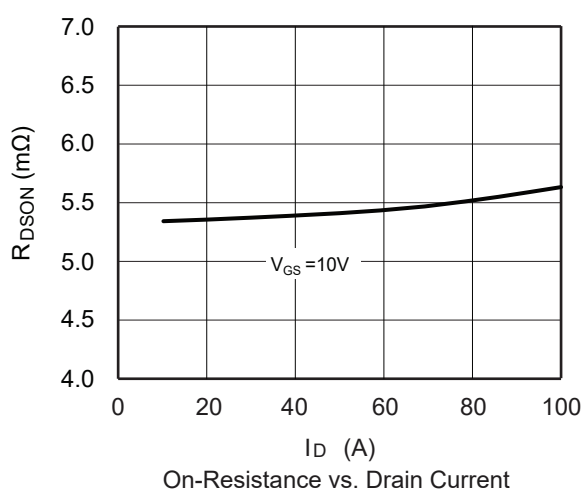
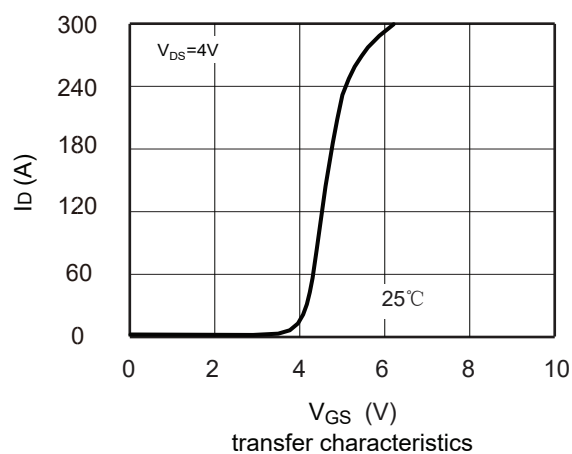
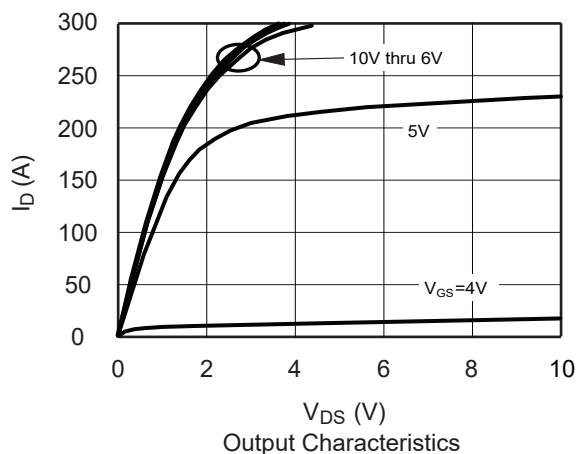
Note :

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.

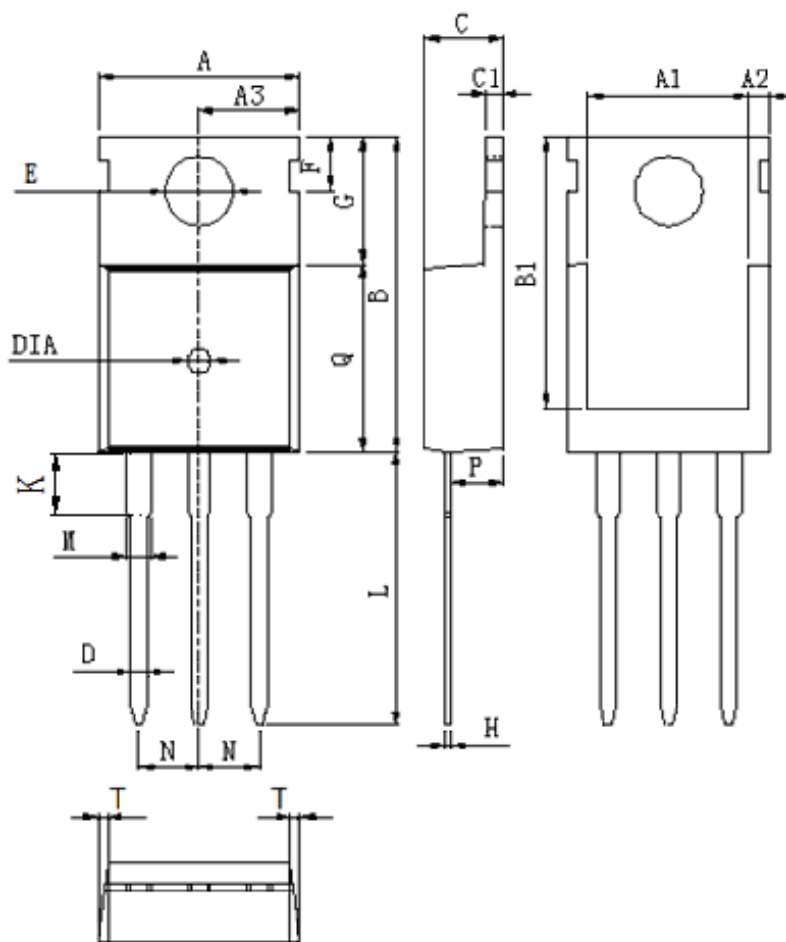
Typical Characteristics



Package Dimension

TO-220

Unit :mm

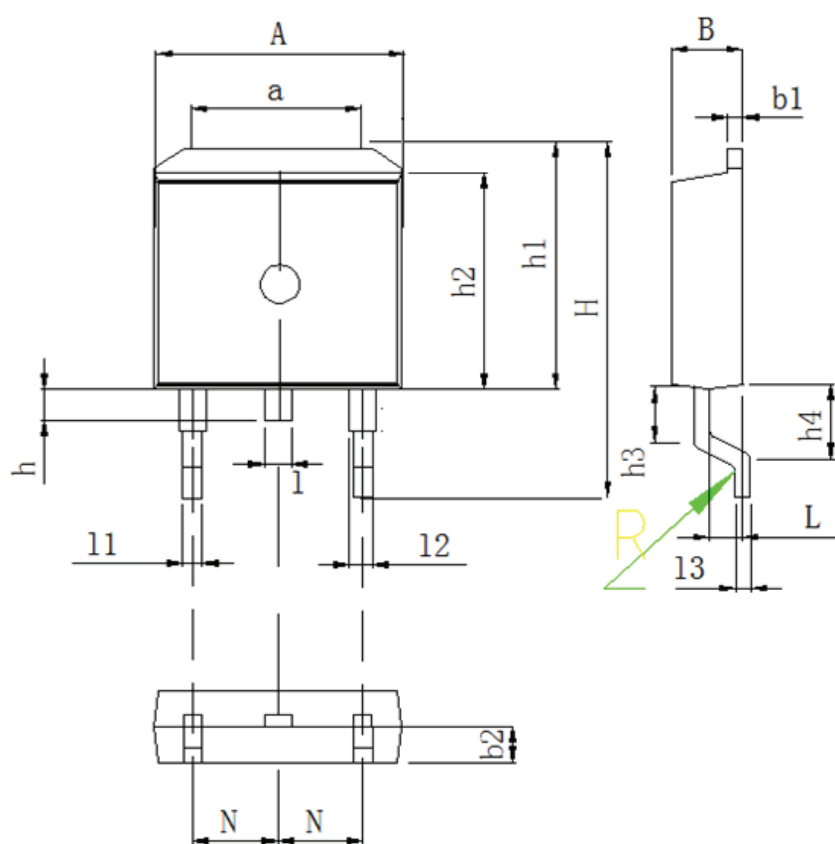


DIM	MILLIMETERS
A	10.0 ± 0.3
A1	8.64 ± 0.2
A2	1.15 ± 0.1
A3	5.0 ± 0.2
B	15.8 ± 0.4
B1	13.2 ± 0.3
C	4.56 ± 0.1
C1	1.3 ± 0.2
D	0.8 ± 0.2
E	3.6 ± 0.2
F	2.95 ± 0.3
G	6.5 ± 0.3
H	0.5 ± 0.1
K	3.1 ± 0.2
L	13.2 ± 0.4
M	1.25 ± 0.1
N	2.54 ± 0.1
P	2.4 ± 0.3
Q	9.0 ± 0.3
T	W:0.35
DIA	$\odot 1.5$ (deep 0.2)

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	$0.5R \pm 0.05$