

General Description

The 30N10 uses advanced trench technology to provide excellent $R_{DS(ON)}$.

This universal technology is well suited for PWM, load switching and general purpose applications.

Features

- Low On-Resistance
- 100% avalanche tested
- Simple Drive Requirement
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	30	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$	24	A
I_{DM}	Pulsed Drain Current	120	A
EAS	Single Pulse Avalanche Energy	256	mJ
$P_D@T_C=25^\circ\text{C}$	Power Dissipation	145	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	Typ.	Max.	Unit
$R_{\theta JA}$	Junction-to-Ambient (PCB mount)	---	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Junction-to-Case	---	0.86	$^\circ\text{C/W}$

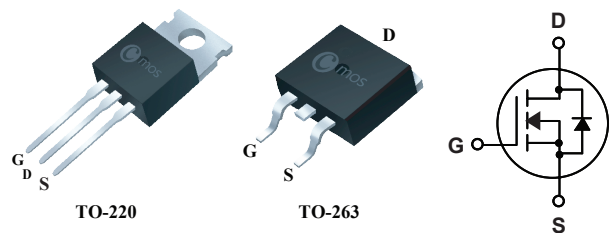
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	33m Ω	30A

Applications

- LED power controller
- DC-DC & DC-AC converters
- High current, High speed switching
- Solenoid and relay drivers
- Motor control, Audio amplifiers

TO-220/263 Pin Configuration



Type	Package	Marking
CMP30N10	TO-220	CMP30N10
CMB30N10	TO-263	CMB30N10

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=20A$	---	---	33	$m\Omega$
		$V_{GS}=4.5V$, $I_D=10A$	---	---	36	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=100V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	23	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1MHz$	---	2.0	---	Ω
Q_g	Total Gate Charge	$I_D=27A$	---	55	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=50V$	---	5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	14	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=50V$	---	11	---	ns
T_r	Rise Time	$I_D=27A$	---	110	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=4.7\Omega$	---	42	---	
T_f	Fall Time	$V_{GS}=10V$	---	57	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1MHz$	---	1500	---	pF
C_{oss}	Output Capacitance		---	115	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	30	A
I_{SM}	Pulsed Source Current		---	---	120	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=20A$, $T_J=25^\circ\text{C}$	---	---	1.2	V

Note :

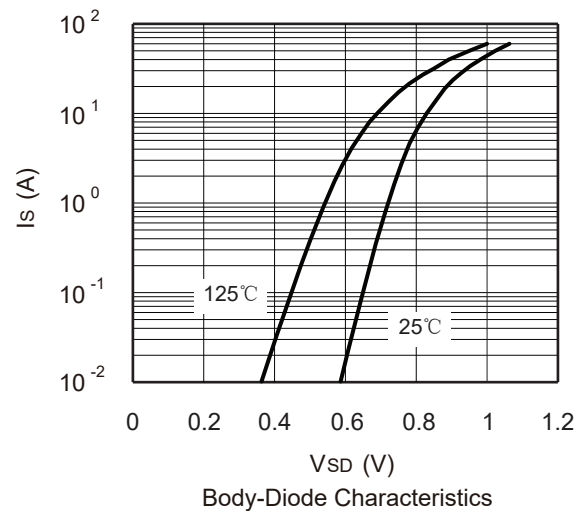
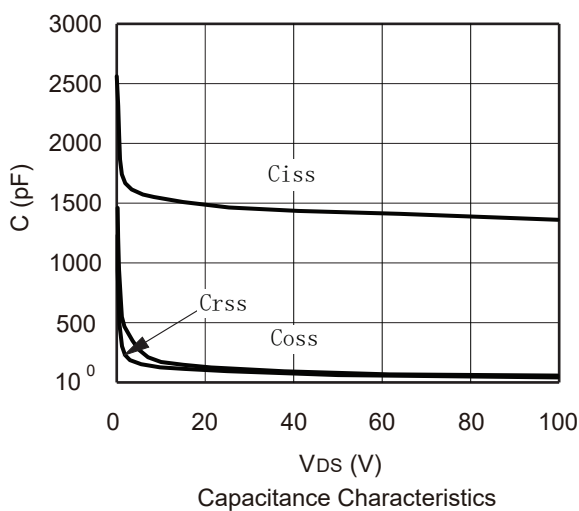
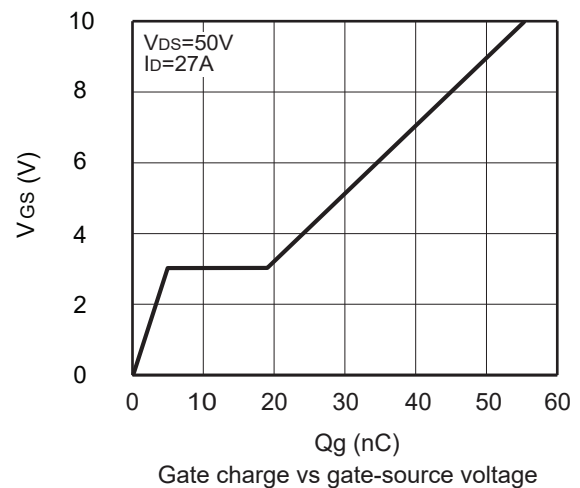
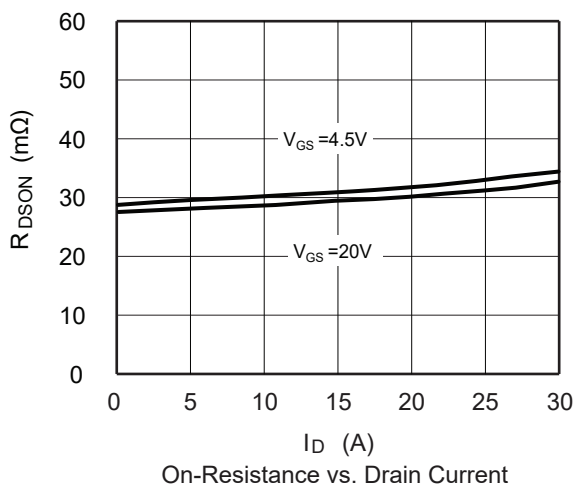
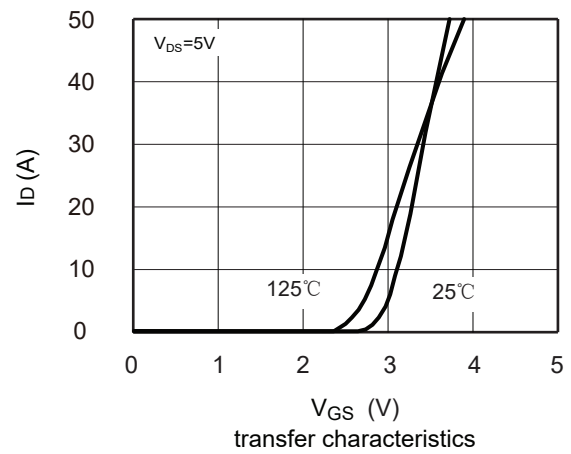
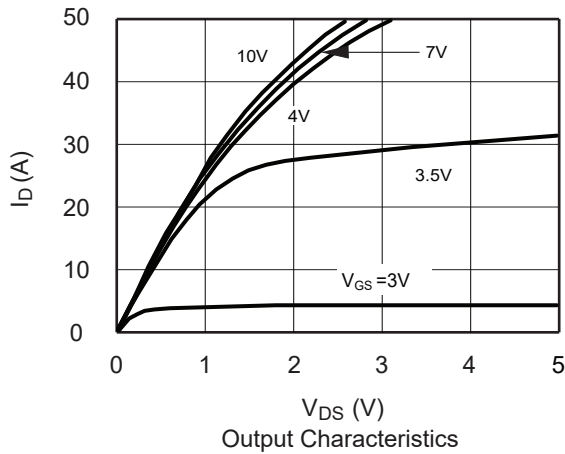
1. The EAS data shows Max. rating .The test condition is $V_{DS}=50V$, $V_{GS}=10V$, $L=2mH$, $I_{AS}=16A$.

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.

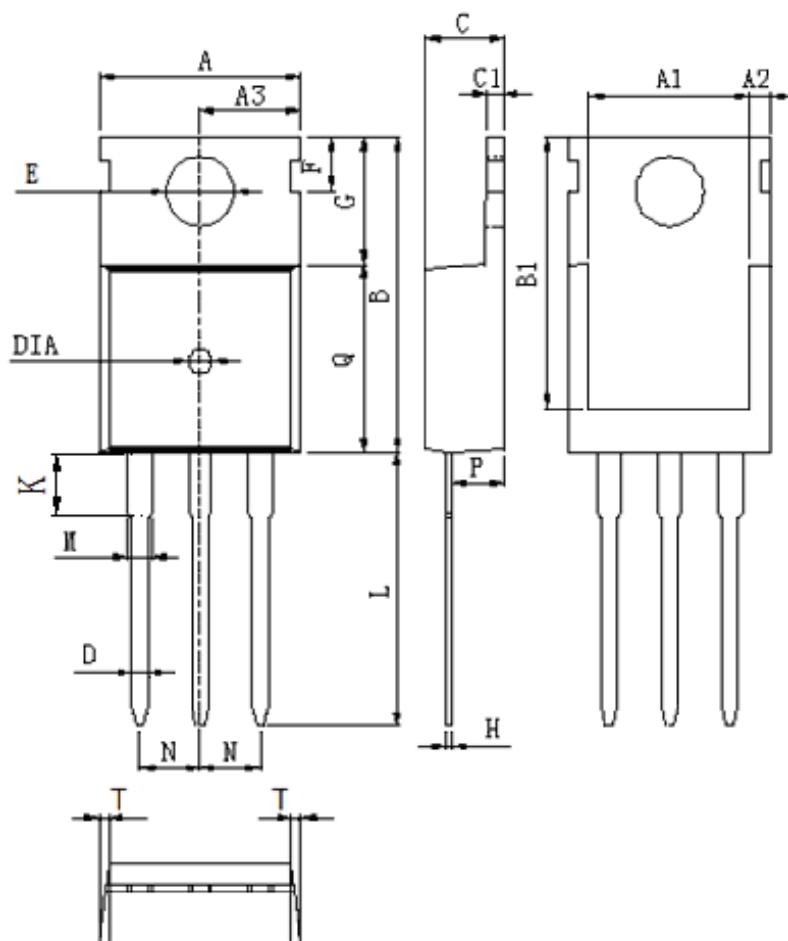
Typical Characteristics



Package Dimension

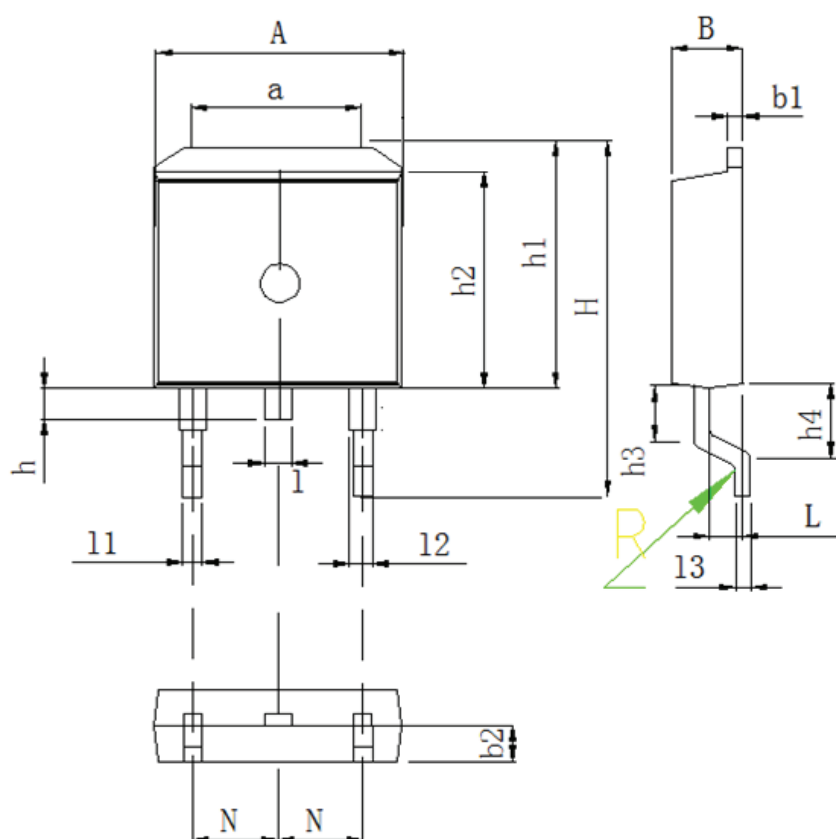
TO-220

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)

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
l	1.3 ± 0.1
l1	0.8 ± 0.1
l2	1.3 ± 0.1
l3	0.5 ± 0.1
N	2.54 ± 0.1
R	$0.5R \pm 0.05$