

General Description

The 60N20 uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

Features

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	200	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current, V_{GS} @ 10V	60	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current, V_{GS} @ 10V	48	A
I_{DM}	Pulsed Drain Current	240	A
EAS	Single Pulse Avalanche Energy ¹	845	mJ
$P_D@T_C=25$	Power Dissipation	260	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient(PCB mount)	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.48	°C/W

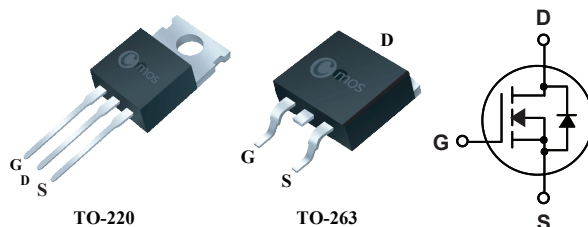
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
200V	32mΩ	60A

Applications

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

TO-220/263 Pin Configuration



Type	Package	Marking
CMP60N20	TO-220	CMP60N20
CMB60N20	TO-263	CMB60N20

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	200	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	27	32	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3	---	5	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=200V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	27	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.5	---	Ω
Q_g	Total Gate Charge	$I_D=30A$	---	100	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=100V$	---	30	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	40	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=100V$	---	31	---	ns
T_r	Rise Time	$I_D=30A$	---	21	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=2.5\Omega$	---	22	---	
T_f	Fall Time	$V_{GS}=10V$	---	32	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5600	---	pF
C_{oss}	Output Capacitance		---	338	---	
C_{rss}	Reverse Transfer Capacitance		---	136	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	60	A
I_{SM}	Pulsed Source Current		---	---	240	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=30A$, $T_J=25^\circ\text{C}$	---	0.83	1.2	V
t_{rr}	Reverse Recovery Time	$di/dt = 100A/\mu s$	---	48	---	ns
Q_{rr}	Reverse Recovery Charge	$T_J=25^\circ\text{C}$, $I_{DS}=30A$	---	78	---	nC

Note :

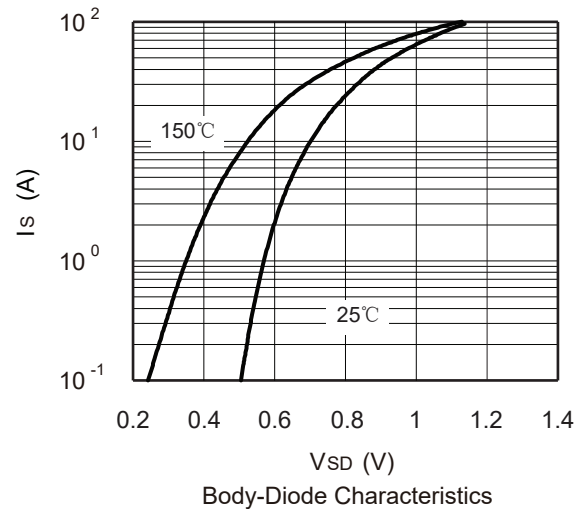
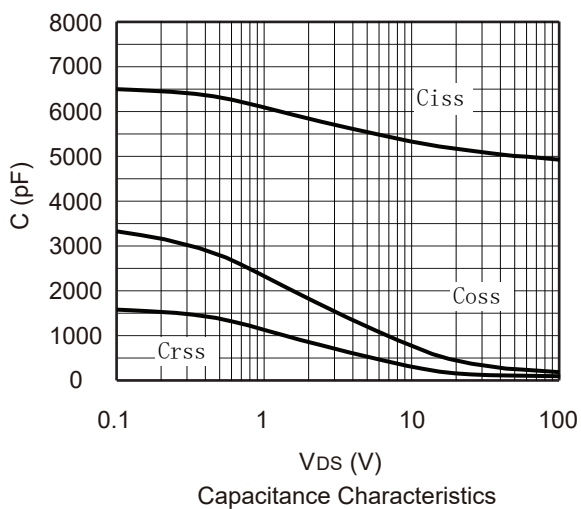
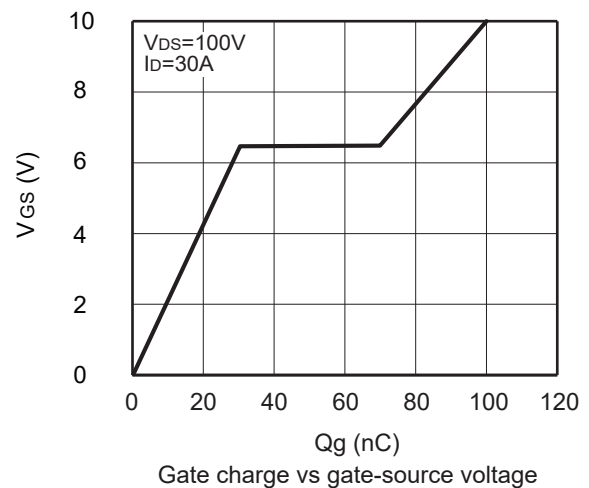
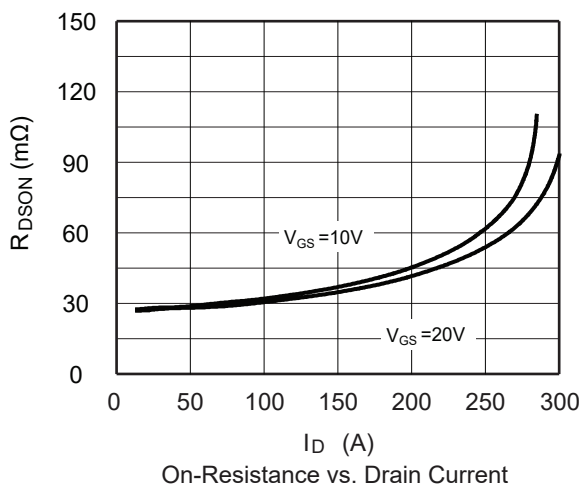
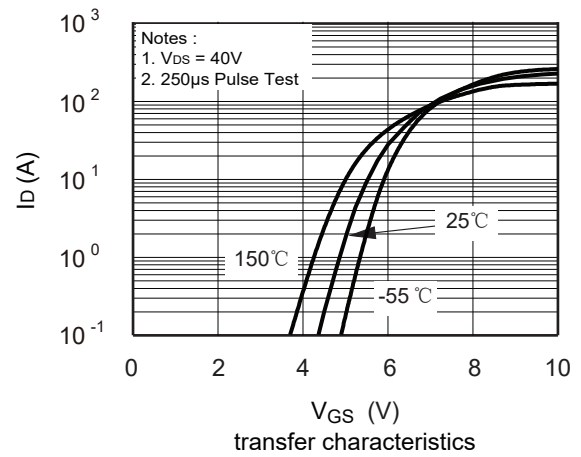
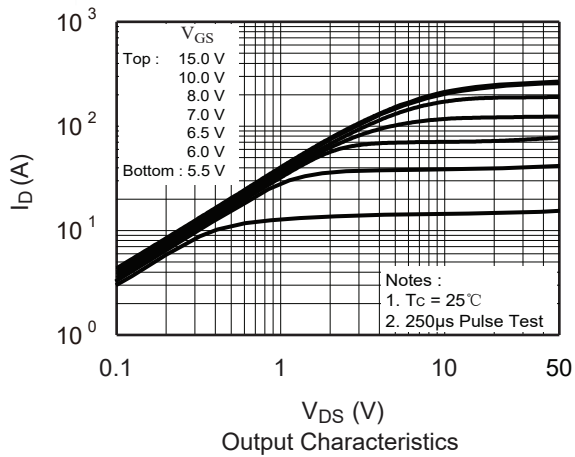
1.The EAS data shows Max. rating . The test condition is $V_{DD}=80V$, $V_{GS}=10V$, $L=10\text{mH}$, $I_{AS}=13A$.

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.

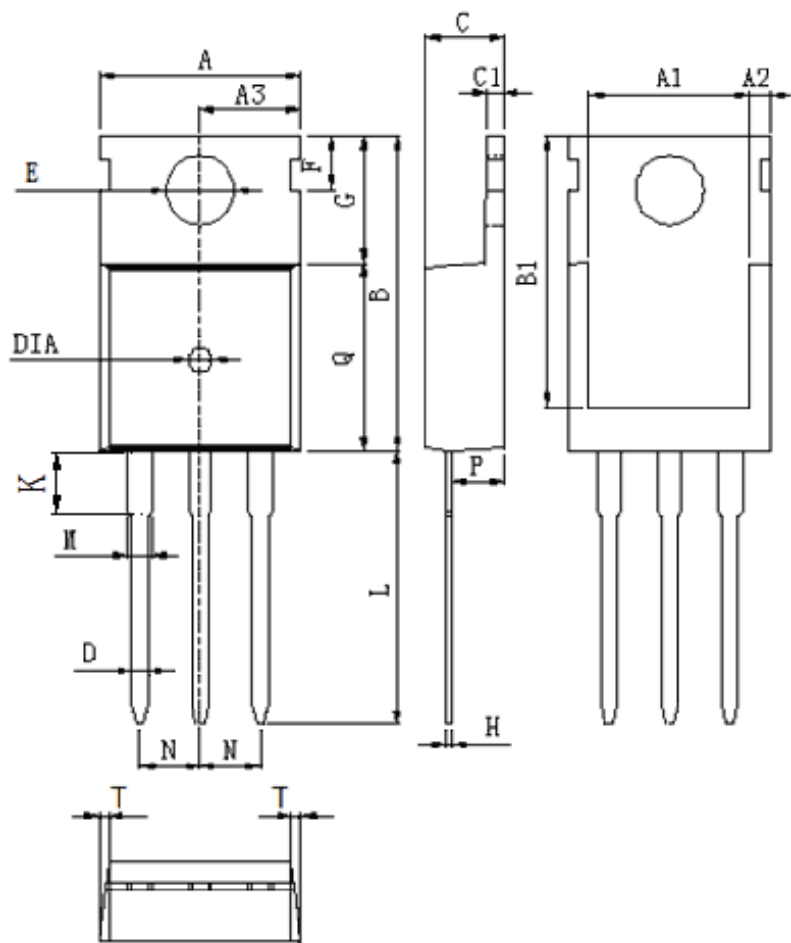
Typical Characteristics



Package Dimension

TO-220

Unit :mm

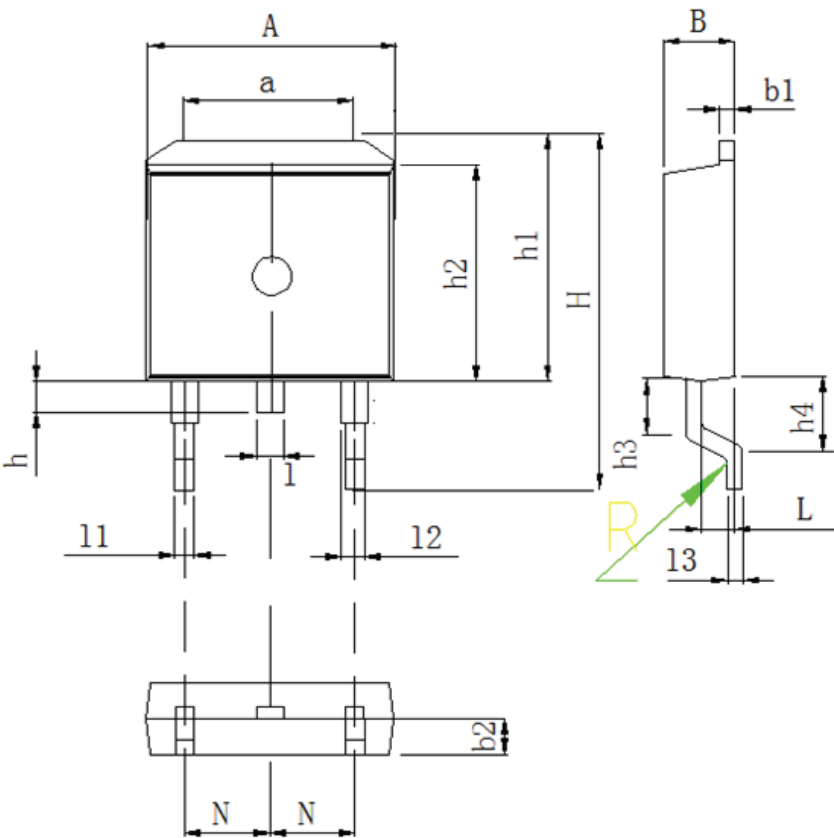


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5 (deep 0.2)

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
l	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±0.05