CMP110N15/CMB110N15/CMI110N15/CMF110N15

150V, 10.4mΩ typ., 100A N-Channel MOSFET

General Description

The 110N15 uses advanced SGT technology to provide excellent RDS(ON).This device is suitable for use as a Battery protection or in other Switching application.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
150V	11.5mΩ	100A

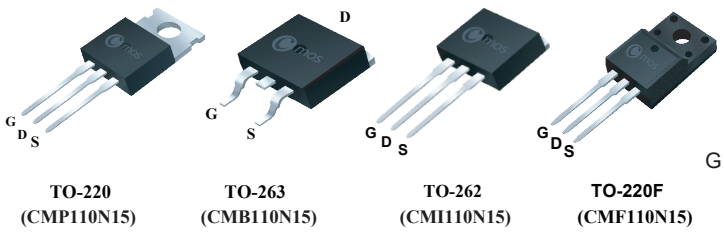
Applications

- Motor control and drive
- Battery management
- Uninterrupible Power Supplies

Features

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

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



TO-220 (CMP110N15) | TO-263 (CMB110N15) | TO-262 (CMI110N15) | TO-220F (CMF110N15)

Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	150		V
V_{GS}	Gate-Source Voltage	±20		V
I_D@T_C=25℃	Continuous Drain Current	100	100*	A
I_D@T_C=100℃	Continuous Drain Current	70	70*	A
I_{DM}	Pulsed Drain Current	400	400*	A
EAS	Single Pulse Avalanche Energy (Note 1)	1102		mJ
P_D@T_C=25℃	Total Power Dissipation	250	40	W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient Max. (Note 2)	43	43	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.50	3.13	℃/W

150V, 10.4mΩ typ., 100A N-Channel MOSFET

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	150	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=20A	---	10.4	11.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2.5	---	4.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=150V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=15V, I_D =20A	---	24	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	3.1	---	Ω
Q_g	Total Gate Charge	V_{DS}=75V , I_D=20A V_{GS}=10V (Note 3)	---	19	---	nC
Q_{gs}	Gate-Source Charge		---	5.9	---	
Q_{gd}	Gate-Drain Charge		---	4.4	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=75V , V_{GS}=10V , I_D=20A R_G =3Ω (Note 3)	---	6.1	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	16	---	
T_f	Fall Time		---	16	---	
C_{iss}	Input Capacitance	V_{DS}=100V , V_{GS}=0V , f=1MHz	---	1250	---	pF
C_{oss}	Output Capacitance		---	260	---	
C_{rss}	Reverse Transfer Capacitance		---	10	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	100	A
I_{SM}	Pulsed Source Current		---	---	400	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=20A ,T_J=25℃	---	0.81	1.2	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs T_J =25℃ , I_F =20A (Note 3)	---	101	---	ns
Q_{rr}	Reverse Recovery Charge		---	337	---	nC

Note :

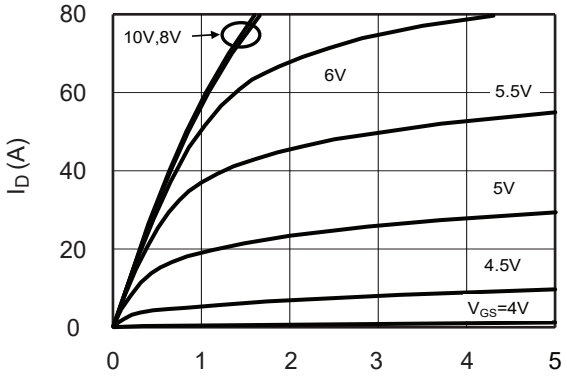
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=5mH , I_{AS}=21A.

2.Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.

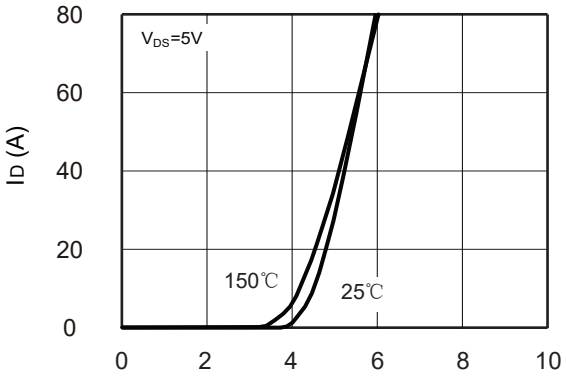
3. Defined by design, not subject to production.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

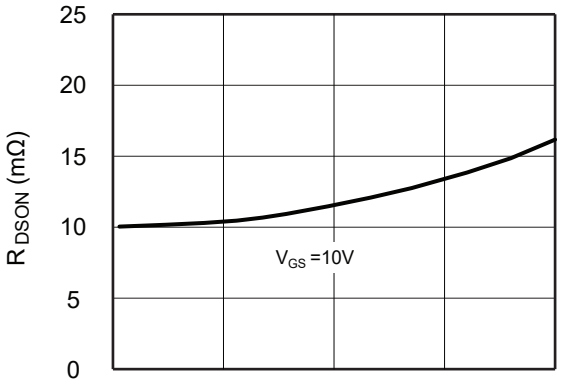
Typical Characteristics



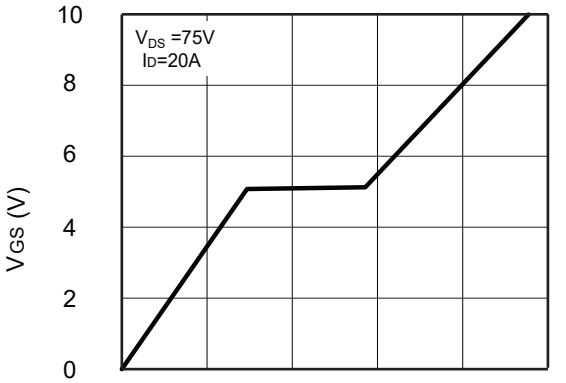
Output Characteristics



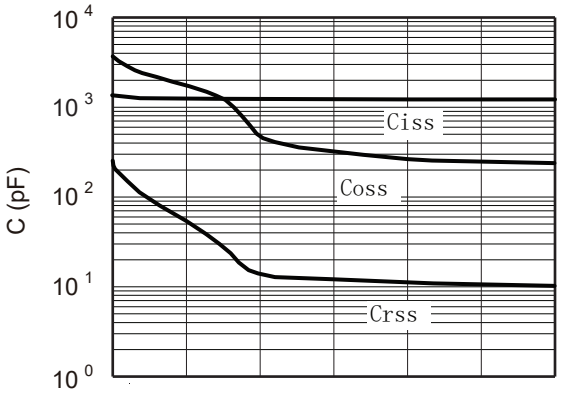
transfer characteristics



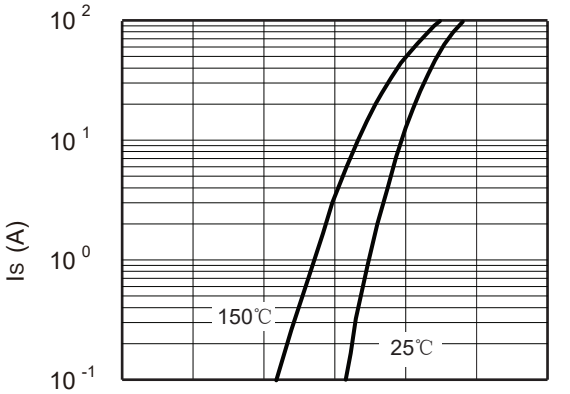
drain-source on-resistance



Gate charge vs gate-source voltage



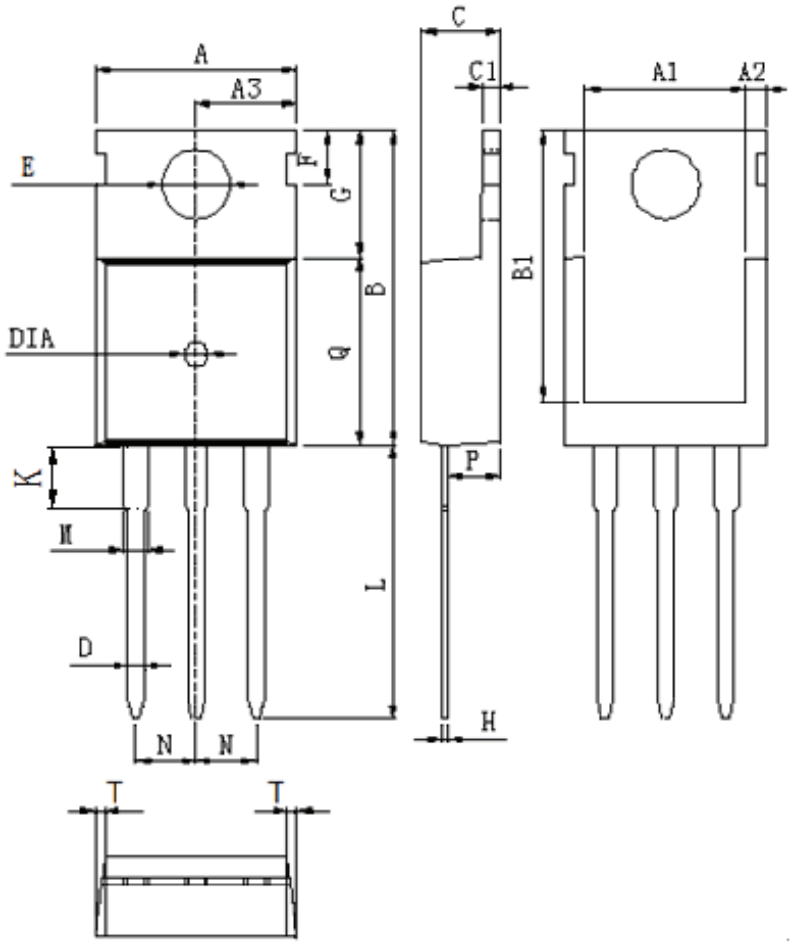
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

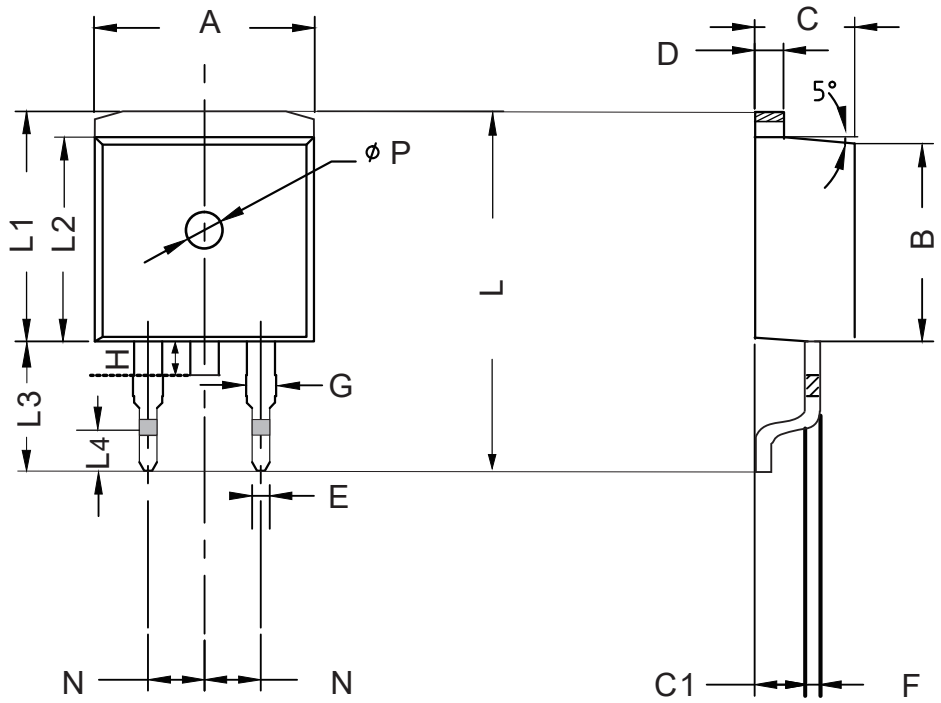
TO-220 Unit :mm



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

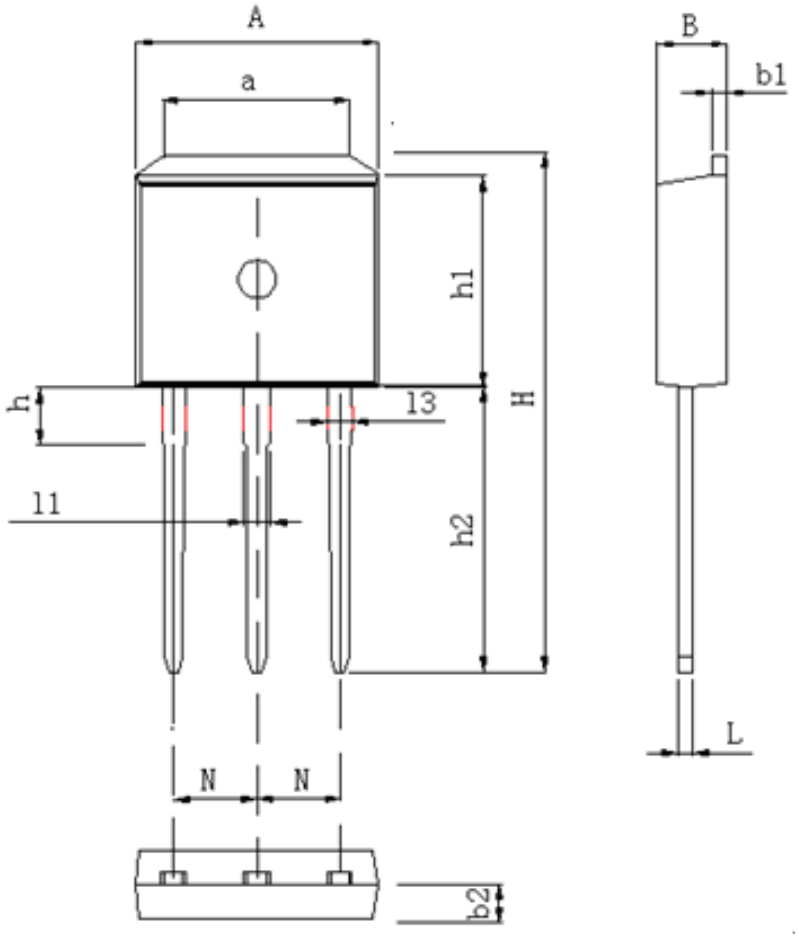
TO-263 Unit :mm



Symbol	Millimeters		Symbol	Millimeters	
	Min.	Max.		Min.	Max.
A	9.60	10.30	H	1.45	1.75
B	8.40	9.00	L	14.60	15.00
C1	2.20	2.60	L1	10.00	11.00
C	4.30	4.70	L2	9.00	9.40
D	1.20	1.40	L3	4.10	4.50
E	0.70	0.90	L4	1.70	2.10
F	0.40	0.60	N	2.50	2.58
G	1.20	1.50	ØP	1.40	1.60

Package Dimension

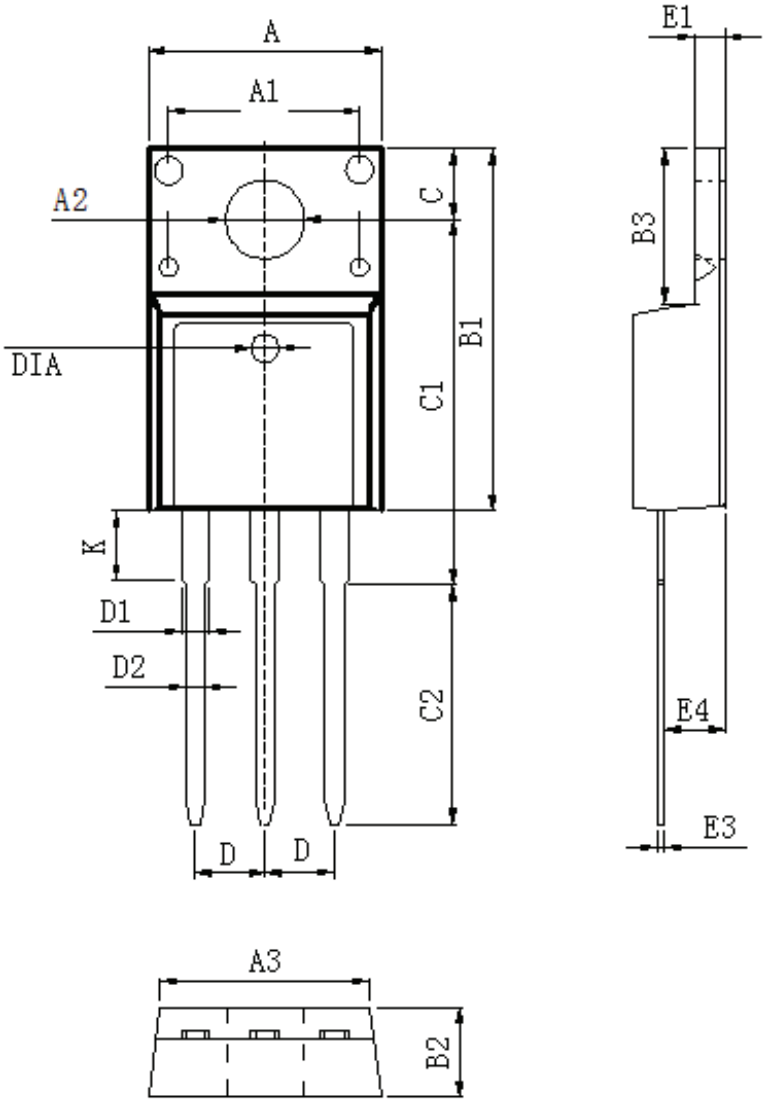
TO-262 Unit :mm



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

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	⊙1.5(deep 0.2)