

CMP65R115P/CMB65R115P/CMI65R115P/CMF65R115P

650V, 91mΩ typ., 33A N-Channel Super Junction Power MOSFET

General Description

65R115P is power MOSFET using Cmos's advanced super junction technology that can realize very low on-resistance and gate charge. It will provide much high efficiency by using optimized charge coupling technology. These parts can be adopted quickly into new and existing offline power supply designs.

Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

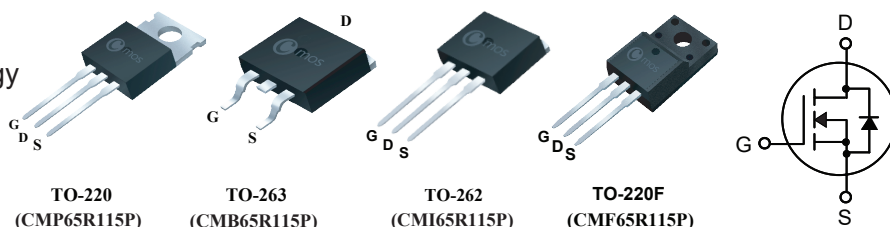
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	115mΩ	33A

Applications

- DC-DC Converters
- Adapter
- PFC Power Supply Stages
- Switching Applications

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



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V _{DS}	Drain-Source Voltage	650		V
V _{GS}	Gate-Source Voltage	±30		V
I _D @T _C =25°C	Continuous Drain Current	33	33*	A
I _D @T _C =100°C	Continuous Drain Current	21	21*	A
I _{DM}	Pulsed Drain Current	132	132*	A
EAS	Single Pulse Avalanche Energy (Note 1)	1100		mJ
P _D @T _C =25°C	Total Power Dissipation	255	35	W
T _{STG}	Storage Temperature Range	-55 to 150		°C
T _J	Operating Junction Temperature Range	150		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
R _{θJA}	Thermal Resistance Junction-ambient	62.5	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	0.49	3.6	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	650	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	91	115	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	$V_{DS}=600V$, $V_{GS}=0V$	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=15A$	---	25	---	S
Q_g	Total Gate Charge	$I_D=33A$	---	77	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=480V$	---	17	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	34	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=300V$	---	46	---	ns
T_r	Rise Time	$V_{GS}=10V$	---	115	---	
$T_{d(off)}$	Turn-Off Delay Time	$I_D=33A$	---	247	---	
T_f	Fall Time	$R_G=25\Omega$	---	92	---	
C_{iss}	Input Capacitance	$V_{DS}=100V$, $V_{GS}=0V$, $f=1MHz$	---	2750	---	pF
C_{oss}	Output Capacitance		---	110	---	
C_{rss}	Reverse Transfer Capacitance		---	13	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	33	A
I_{SM}	Pulsed Source Current		---	---	132	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=15A$	---	---	1.4	V
t_{rr}	Reverse Recovery Time	$V_{DD}=100V$, $I_S=33A$	---	587	---	ns
Q_{rr}	Reverse Recovery Charge	$dI_F/dt=100A/\mu s$	---	10.8	---	μC

Notes:

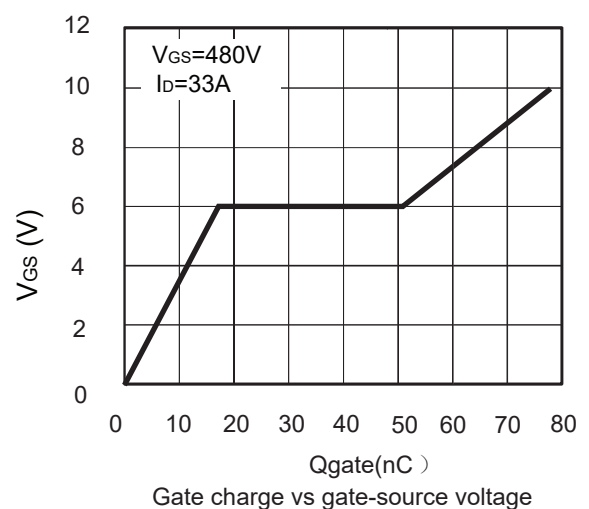
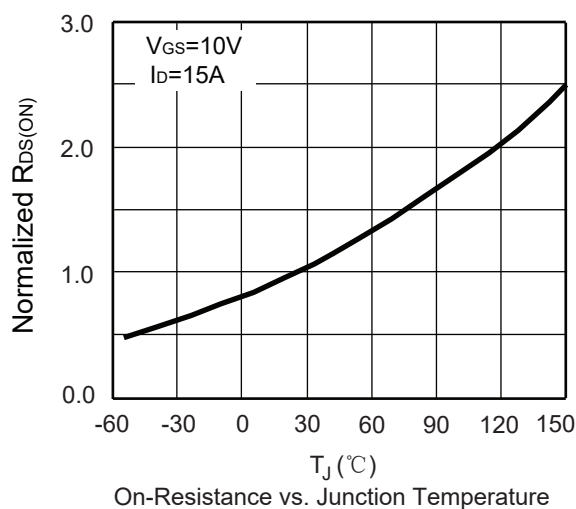
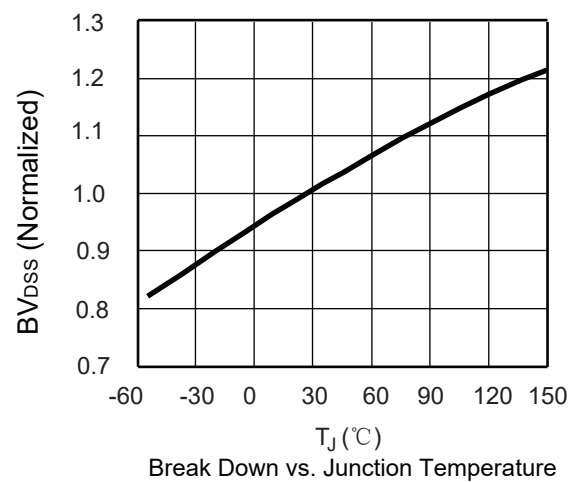
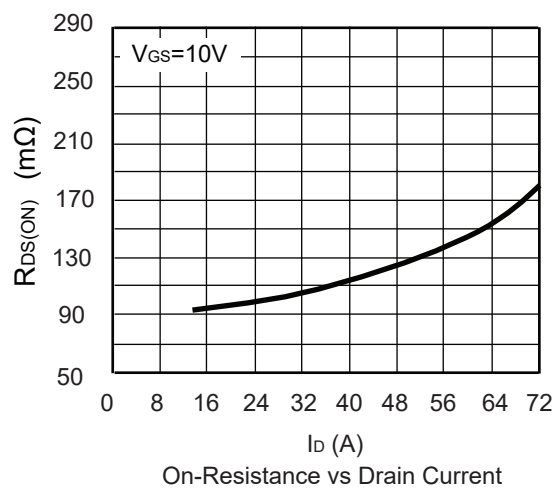
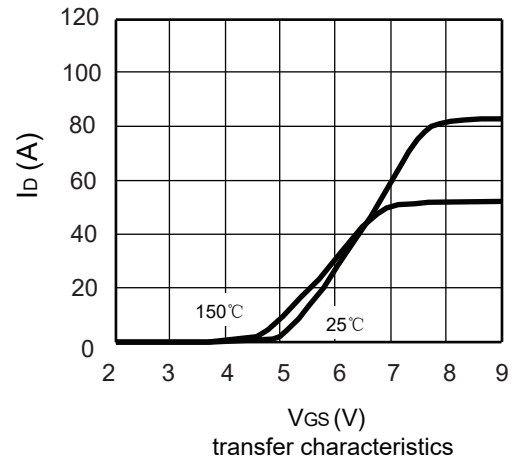
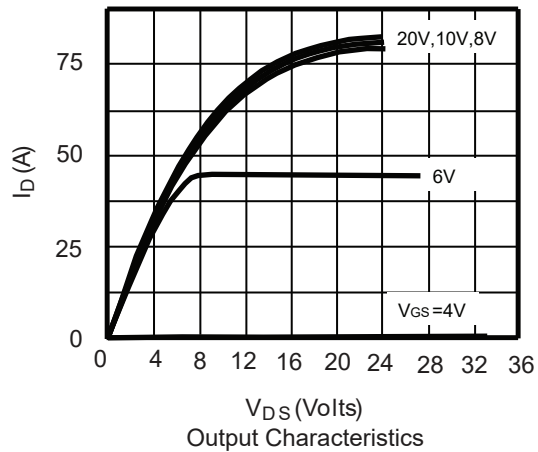
1.The EAS data shows Max. rating . The test condition is $V_{DD}=80V$, $V_{GS}=10V$, $L=20mH$, $I_D=10.5A$

This product has been designed and qualified for the counsumer market.

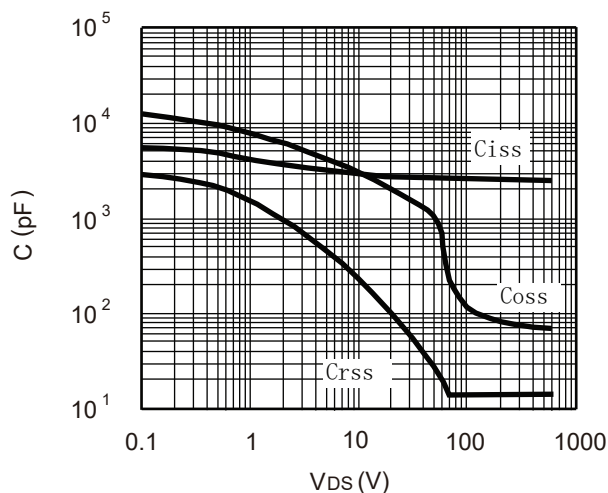
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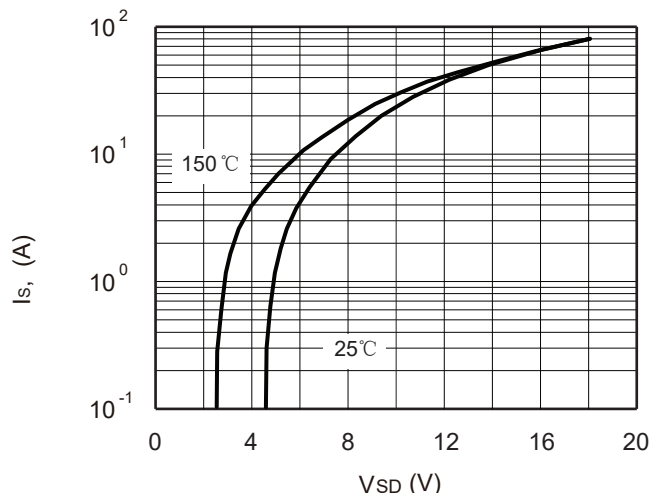
Typical Characteristics



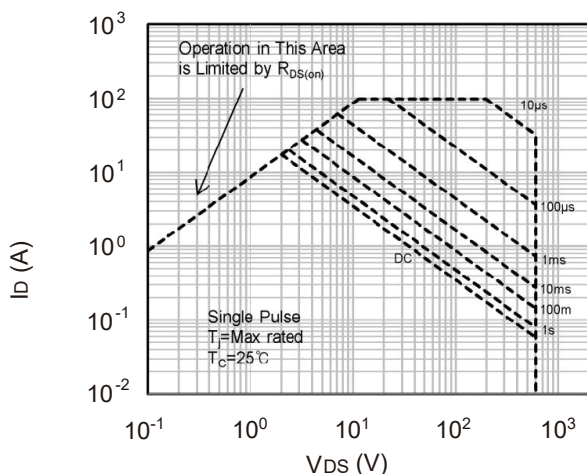
Typical Characteristics



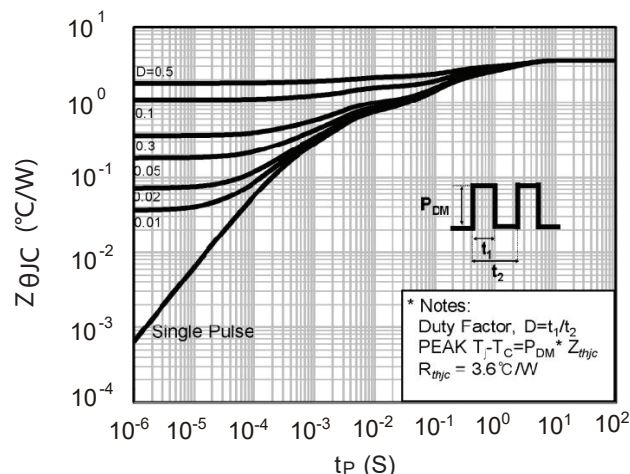
Capacitance Characteristics



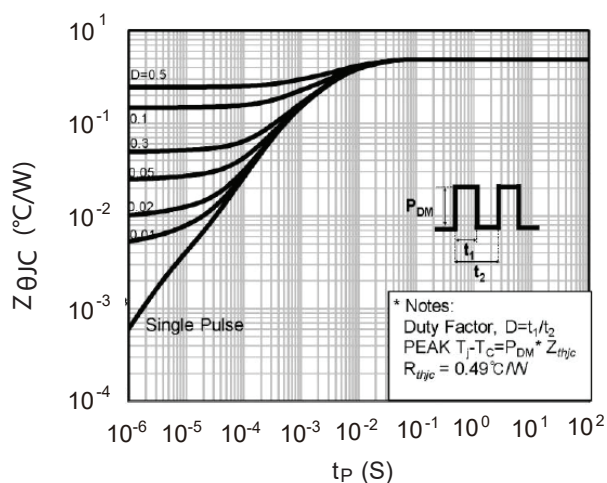
Body-Diode Characteristics



Safe operating area



Transient Thermal Response Curve(TO-220F)

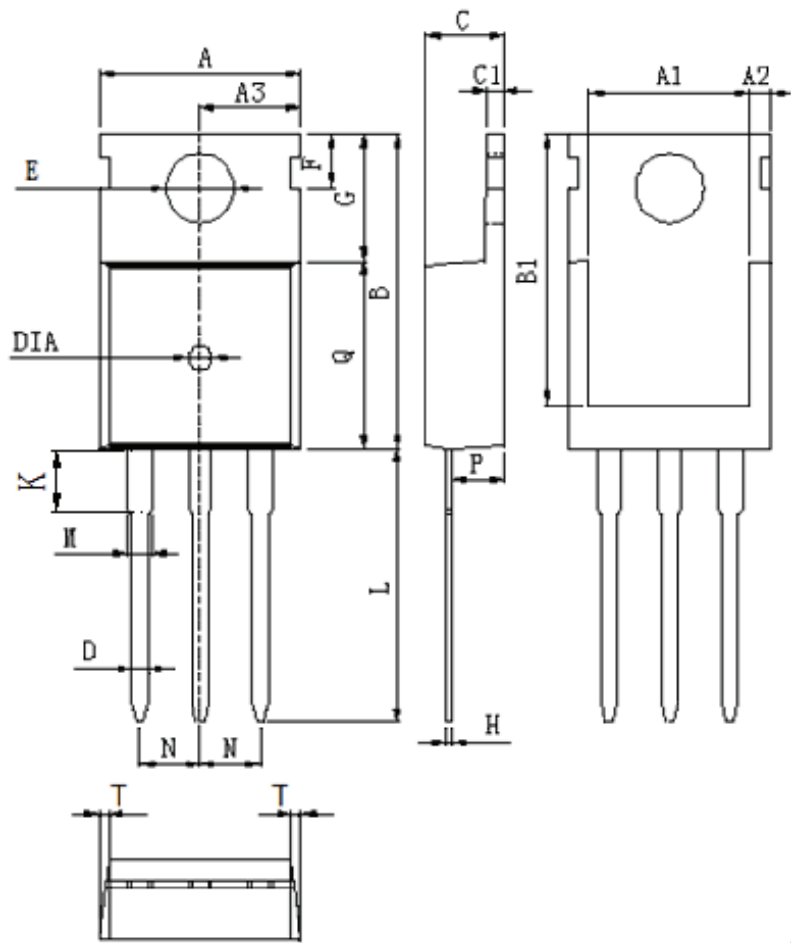


Transient Thermal Response Curve(TO-220/263/262)

Package Dimension

TO-220

Unit :mm

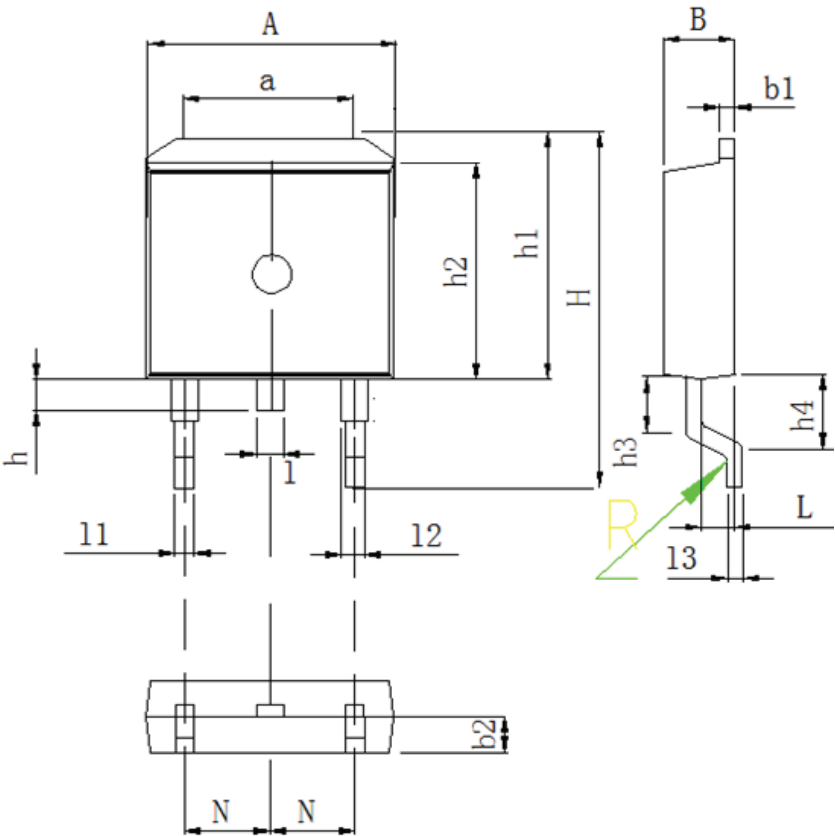


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5 (deep 0.2)

Package Dimension

TO-263

Unit :mm

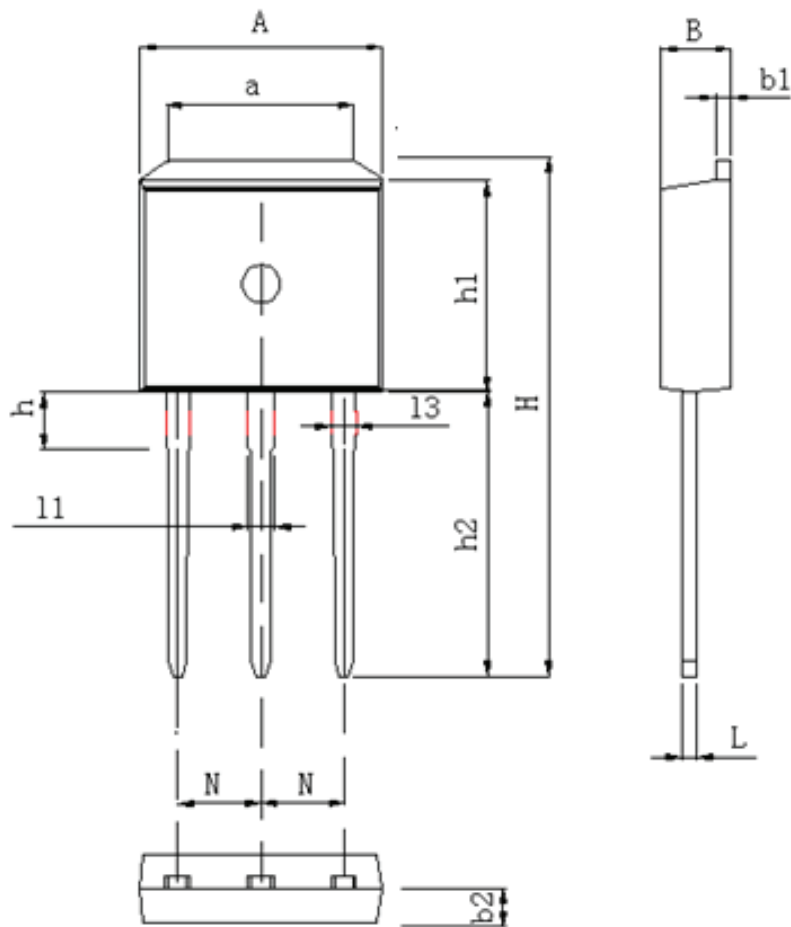


DIM	MILLIMETERS
A	9.8 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	15.5 ± 0.3
h	1.54 ± 0.2
h1	10.5 ± 0.2
h2	9.2 ± 0.1
h3	1.54 ± 0.2
h4	2.7 ± 0.2
L	2.4 ± 0.2
l	1.3 ± 0.1
11	0.8 ± 0.1
12	1.3 ± 0.1
13	0.5 ± 0.1
N	2.54 ± 0.1
R	$0.5R \pm 0.05$

Package Dimension

TO-262

Unit :mm

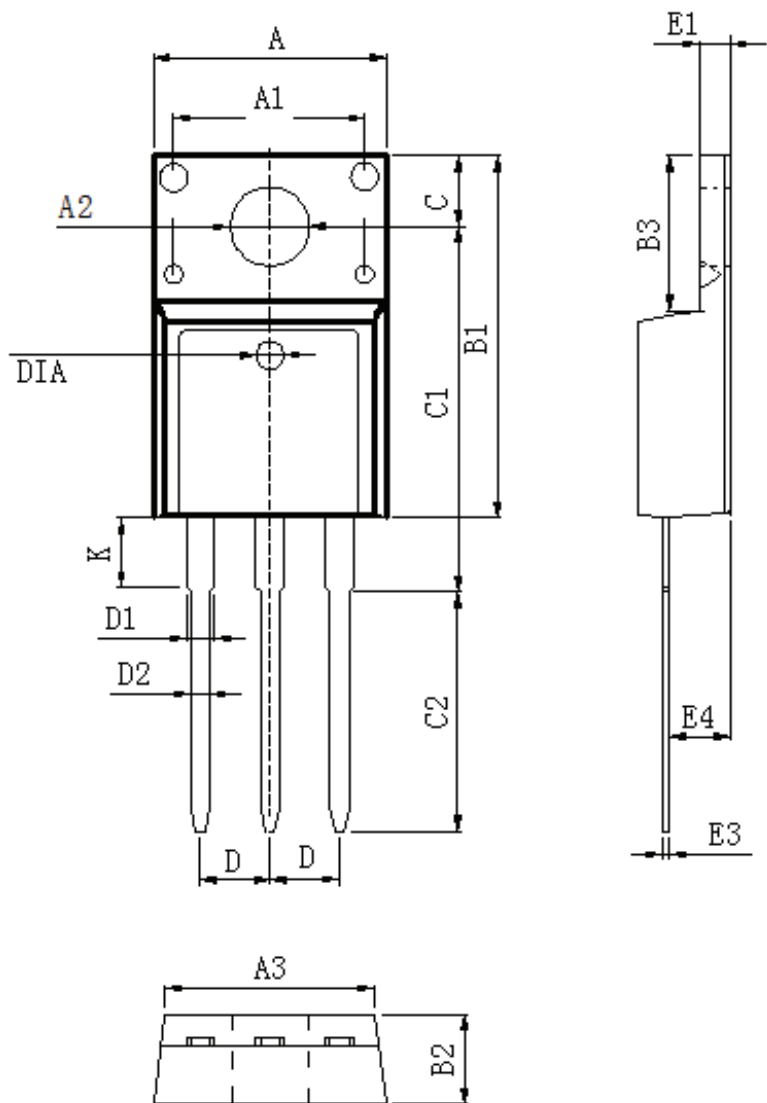


DIM	MILLIMETERS
A	9.98 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	23.9 ± 0.3
h	3.1 ± 0.2
h1	9.16 ± 0.2
h2	13.2 ± 0.2
L	0.5 ± 0.1
l1	1.3 ± 0.1
l2	0.8 ± 0.1
N	2.45 ± 0.1

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)