

# CMP65R550/CMB65R550/CMI65R550/CMF65R550

650V, 0.45Ω typ., 8A N-Channel Super Junction Power MOSFET

## General Description

The 65R550 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 user friendly devices give an advantage of low EMI to designers as well as low switching loss.

## Features

- Multi-layer Epitaxial Chip Technology
- Low On-Resistance
- 100% Avalanche Tested
- RoHS Compliant

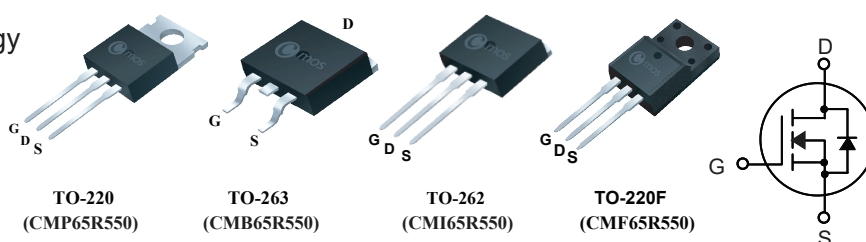
## Product Summary

BV <sub>DSS</sub>	R <sub>DS(on)</sub> max.	I <sub>D</sub>
650V	0.52Ω	8A

## Applications

- Charger
- Adaptor
- Power Supply

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



## Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V <sub>DS</sub>	Drain-Source Voltage	650		V
V <sub>GS</sub>	Gate-Source Voltage	±30		V
I <sub>D</sub> @T <sub>C</sub> =25°C	Continuous Drain Current	8	8*	A
I <sub>D</sub> @T <sub>C</sub> =100°C	Continuous Drain Current	5	5*	A
I <sub>DM</sub>	Pulsed Drain Current	32	32*	A
EAS	Single Pulse Avalanche Energy (Note 1)	240		mJ
P <sub>D</sub> @T <sub>C</sub> =25°C	Total Power Dissipation	73	30	W
T <sub>STG</sub>	Storage Temperature Range	-55 to 150		°C
T <sub>J</sub>	Operating Junction Temperature Range	-55 to 150		°C

\* Drain current limited by maximum junction temperature.

## Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
R <sub>θJA</sub>	Thermal Resistance Junction-ambient Max.	143	143	°C/W
R <sub>θJC</sub>	Thermal Resistance Junction-case Max.	1.71	4.17	°C/W

**Electrical Characteristics (T<sub>J</sub>=25°C , unless otherwise noted)**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V , I <sub>D</sub> =250uA	650	---	---	V
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =10V , I <sub>D</sub> =4A	---	0.45	0.52	Ω
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>GS</sub> =V <sub>DS</sub> , I <sub>D</sub> =250uA	2	---	4	V
I <sub>DSS</sub>	Drain-Source Leakage Current	V <sub>DS</sub> =650V , V <sub>GS</sub> =0V , T <sub>J</sub> =25°C	---	---	1	uA
		V <sub>DS</sub> =650V , V <sub>GS</sub> =0V , T <sub>J</sub> = 150°C	---	1	---	
I <sub>GSS</sub>	Gate-Source Leakage Current	V <sub>GS</sub> = ±30V , V <sub>DS</sub> =0V	---	---	±100	nA
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =20V , I <sub>D</sub> = 8A	---	6	---	S
R <sub>g</sub>	Gate Resistance	V <sub>DS</sub> =0V , V <sub>GS</sub> =0V , f=1MHz	---	20	---	Ω
Q <sub>g</sub>	Total Gate Charge	I <sub>D</sub> =4A	---	15.6	---	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> = 480V	---	3.1	---	
Q <sub>gd</sub>	Gate-Drain Charge	V <sub>GS</sub> = 10V	---	6.5	---	
T <sub>d(on)</sub>	Turn-On Delay Time	V <sub>DS</sub> =400V	---	15	---	ns
T <sub>r</sub>	Rise Time	V <sub>GS</sub> =10V	---	17	---	
T <sub>d(off)</sub>	Turn-Off Delay Time	I <sub>D</sub> =4A	---	78	---	
T <sub>f</sub>	Fall Time	R <sub>G</sub> =27Ω	---	16	---	
C <sub>iss</sub>	Input Capacitance	V <sub>DS</sub> =100V , V <sub>GS</sub> =0V , f=1MHz	---	415	---	pF
C <sub>oss</sub>	Output Capacitance		---	30	---	
C <sub>rss</sub>	Reverse Transfer Capacitance		---	2.5	---	

**Diode Characteristics**

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I <sub>S</sub>	Continuous Source Current	V <sub>G</sub> =V <sub>D</sub> =0V , Force Current	---	---	8	A
I <sub>SM</sub>	Pulsed Source Current		---	---	32	A
V <sub>SD</sub>	Diode Forward Voltage	V <sub>GS</sub> =0V , I <sub>S</sub> =8A , T <sub>J</sub> =25°C	---	0.88	1.2	V
t <sub>rr</sub>	Reverse Recovery Time	di/dt = 100A/μs	---	210	---	ns
Q <sub>rr</sub>	Reverse Recovery Charge	V <sub>DS</sub> = 400V , I <sub>S</sub> =4A	---	1.76	---	μC

**Notes:**

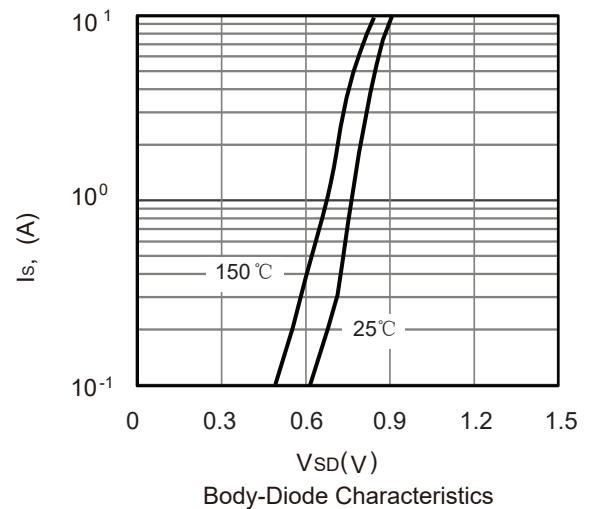
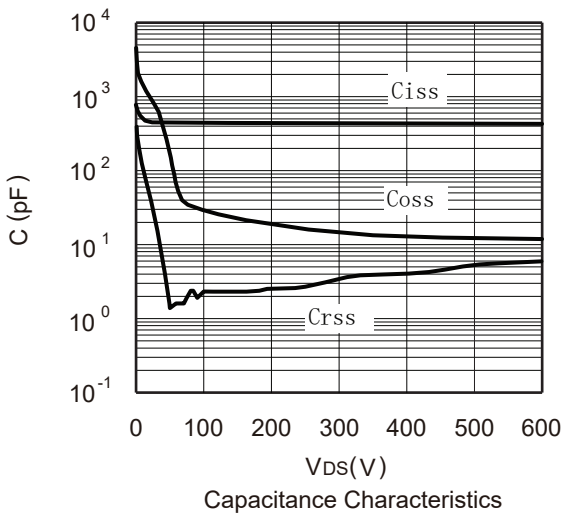
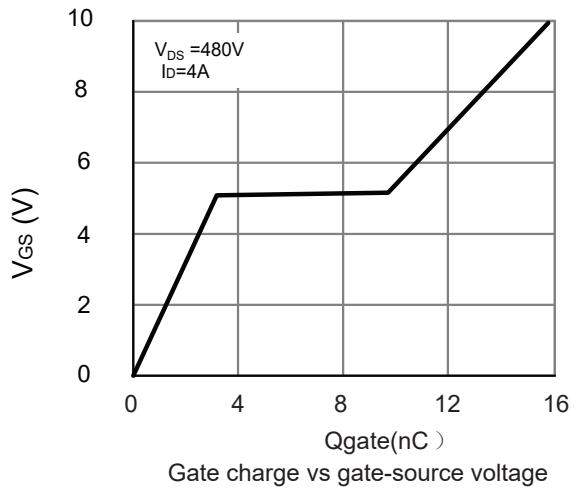
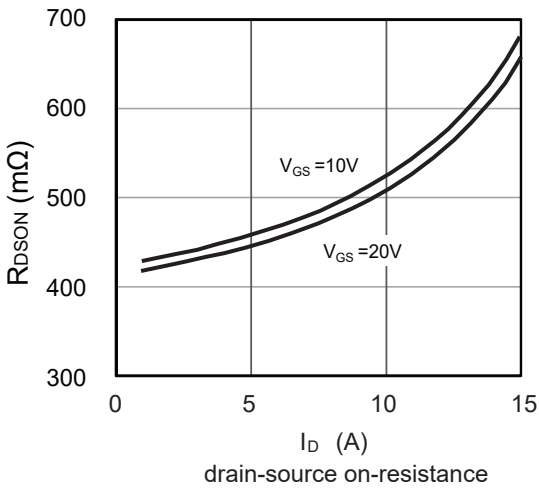
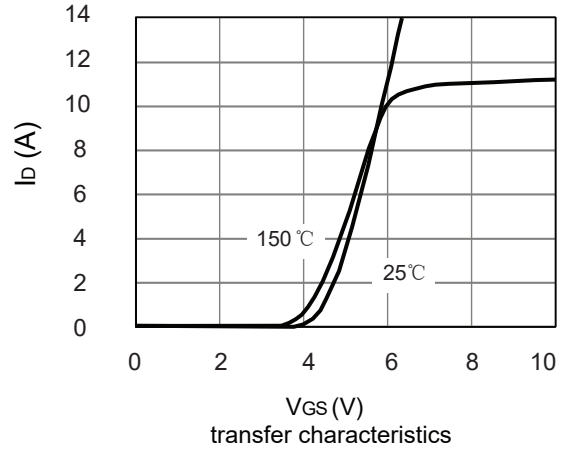
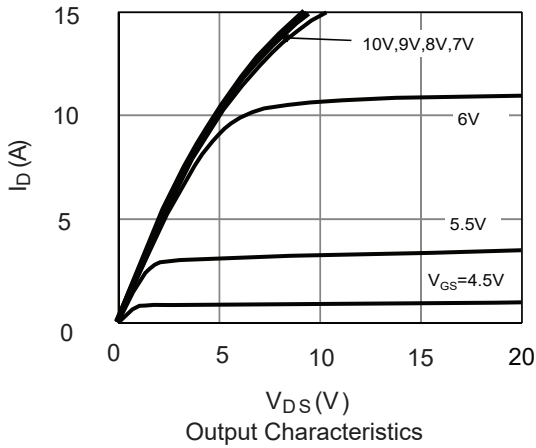
1.The EAS data shows Max. rating .The test condition is V<sub>DS</sub>=80V , V<sub>GS</sub>=10V , L=30mH , I<sub>AS</sub>=4A.

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.

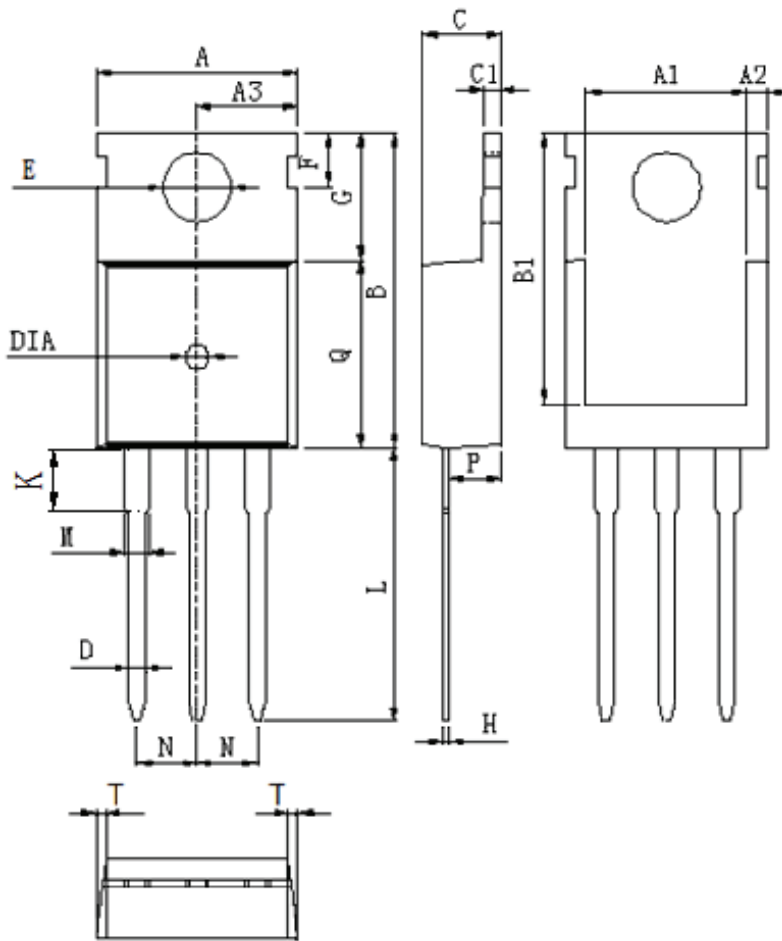
Typical Characteristics



**Package Dimension**

TO-220

Unit :mm

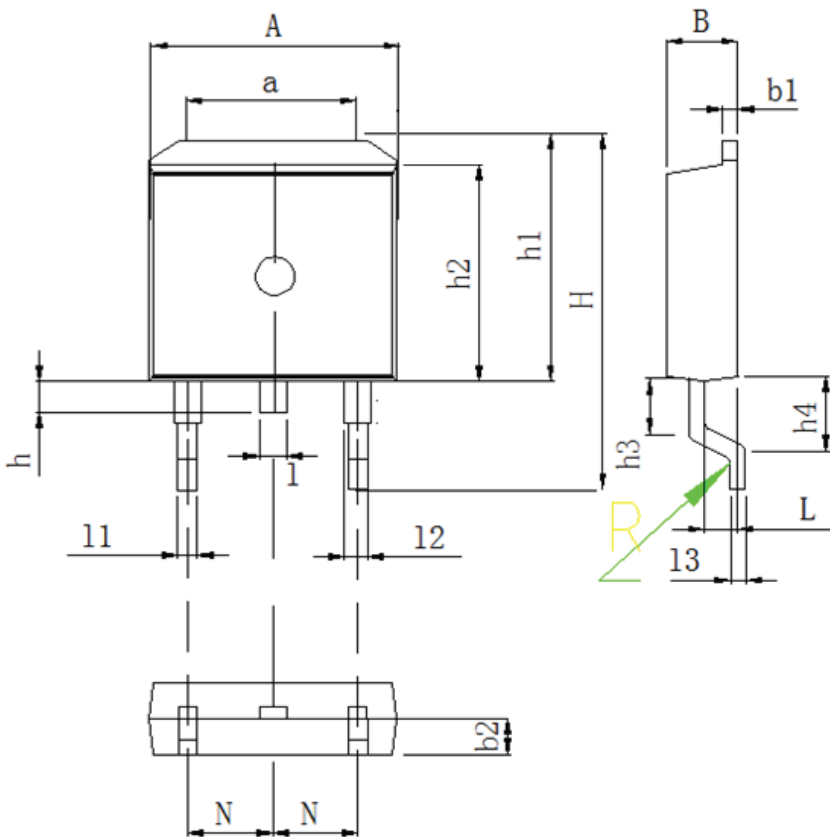


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5(deep 0.2)

**Package Dimension**

TO-263

Unit :mm



DIM	MILLIMETERS
A	$9.8 \pm 0.2$
a	$7.4 \pm 0.4$
B	$4.5 \pm 0.2$
b1	$1.3 \pm 0.05$
b2	$2.4 \pm 0.2$
H	$15.5 \pm 0.3$
h	$1.54 \pm 0.2$
h1	$10.5 \pm 0.2$
h2	$9.2 \pm 0.1$
h3	$1.54 \pm 0.2$
h4	$2.7 \pm 0.2$
L	$2.4 \pm 0.2$
1	$1.3 \pm 0.1$
11	$0.8 \pm 0.1$
12	$1.3 \pm 0.1$
13	$0.5 \pm 0.1$
N	$2.54 \pm 0.1$
R	$0.5R \pm 0.05$

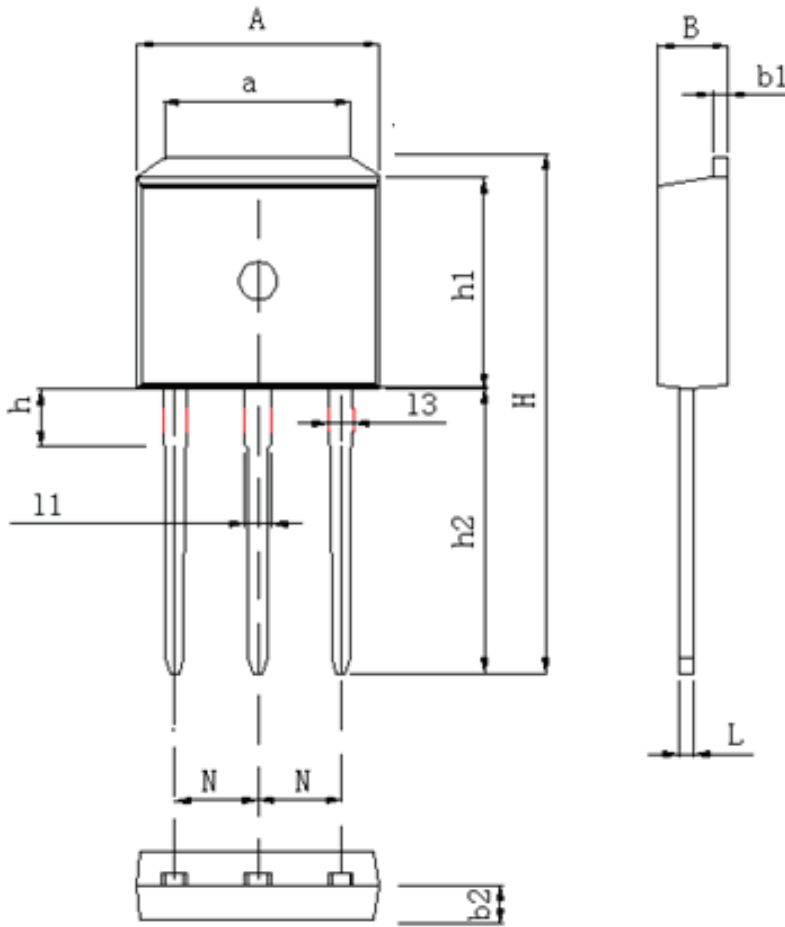
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650V, 0.45Ω typ., 8A N-Channel Super Junction Power MOSFET

## Package Dimension

TO-262

Unit :mm

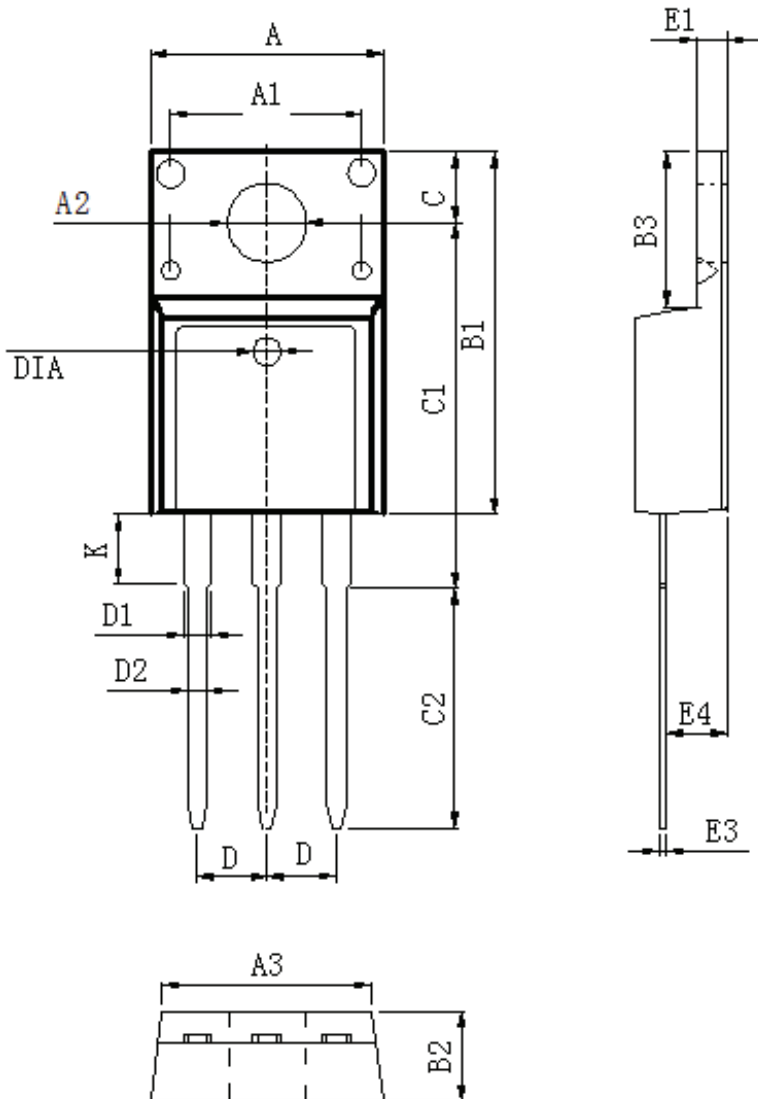


DIM	MILLIMETERS
A	$9.98 \pm 0.2$
a	$7.4 \pm 0.4$
B	$4.5 \pm 0.2$
b1	$1.3 \pm 0.05$
b2	$2.4 \pm 0.2$
H	$23.9 \pm 0.3$
h	$3.1 \pm 0.2$
h1	$9.16 \pm 0.2$
h2	$13.2 \pm 0.2$
L	$0.5 \pm 0.1$
11	$1.3 \pm 0.1$
12	$0.8 \pm 0.1$
N	$2.45 \pm 0.1$

**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)