

CMP65R600D/CMB65R600D/CMI65R600D/CMF65R600D

650V, 520mΩ typ., 8A N-Channel Super Junction Power MOSFET

General Description

The 65R600D is power MOSFET using Cmos's advanced super junction technology that can realize very low on resistance, gate charge and reduced tendency for ringing. As a result, its switching loss is very low, making it optimized for switching applications. Moreover, these user friendly devices offer the advantages of improved ruggedness and remarkable ESD capability by integrated Zener diode, making it an ideal choice for designers.

Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	0.6Ω	8A

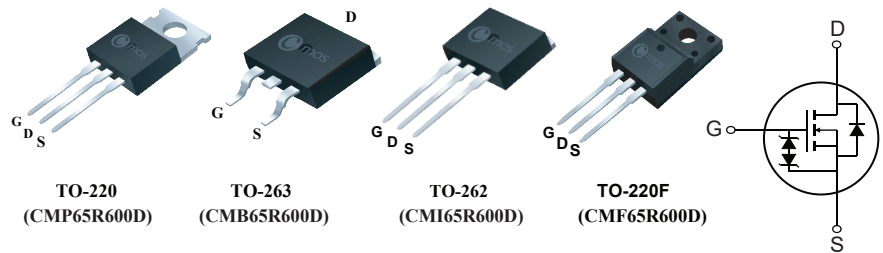
Applications

- Adapter
- PFC power supply stages
- DC-DC converters

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

Features

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



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	8	8*	A
I _D @T _C =100°C	Continuous Drain Current	4.8	4.8*	A
I _{DM}	Pulsed Drain Current	32	32*	A
EAS	Single Pulse Avalanche Energy (Note 1)	30		mJ
P _D @T _C =25°C	Total Power Dissipation	80	30	W
T _{STG}	Storage Temperature Range	-55 to 150		°C
T _J	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 _{θJA}	Thermal Resistance Junction-ambient Max.	133	133	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	1.56	4.17	°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	$V_{GS}=10V$, $I_D=3A$	---	520	600	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2.0	---	4.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=650V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	±10	μA
g_{fs}	Forward Transconductance	$V_{DS}=20V$, $I_D=3.5A$	---	3.7	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	17	---	Ω
Q_g	Total Gate Charge	$I_D=3.2A$	---	22	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=480V$	---	3.5	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=0$ to 10V	---	12	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=400V$ $V_{GS}=13V$ $R_G=6.8\Omega$, $I_D=3.2A$	---	9	---	ns
T_r	Rise Time		---	8	---	
$T_{d(off)}$	Turn-Off Delay Time		---	40	---	
T_f	Fall Time		---	10	---	
C_{iss}	Input Capacitance	$V_{DS}=45V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	300	---	pF
C_{oss}	Output Capacitance		---	150	---	
C_{rss}	Reverse Transfer Capacitance		---	3	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	8	A
I_{SM}	Pulsed Source Current		---	---	32	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=7A$, $T_J=25^{\circ}\text{C}$	---	0.89	1.4	V

Note :

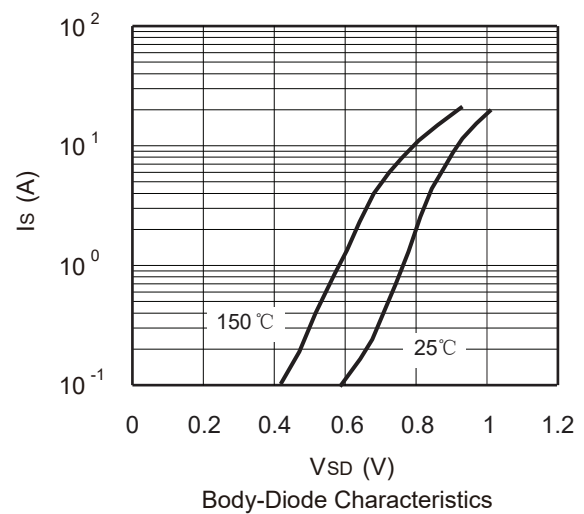
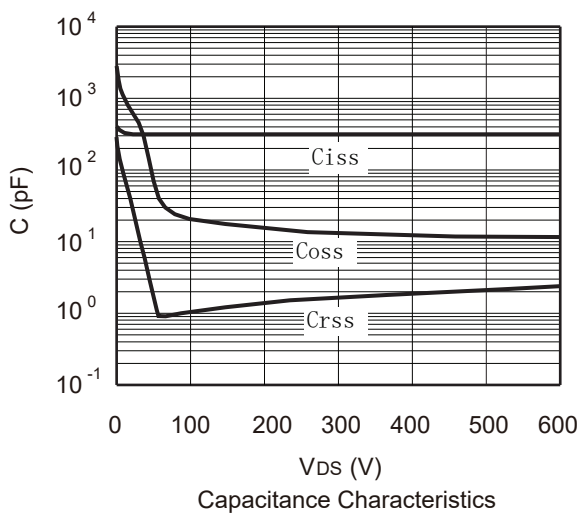
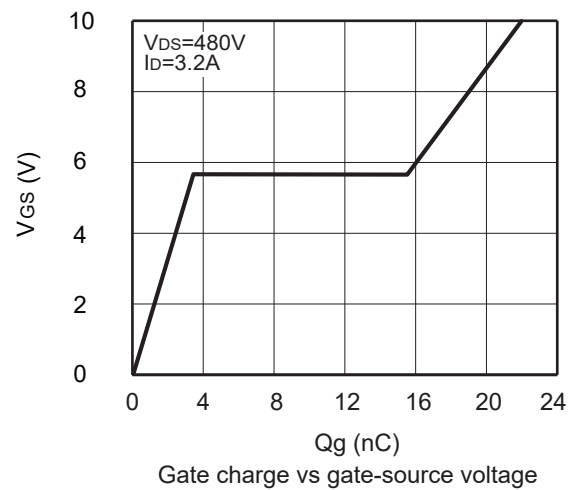
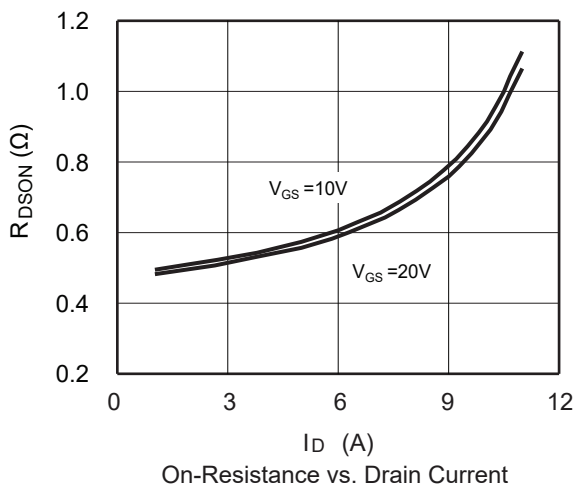
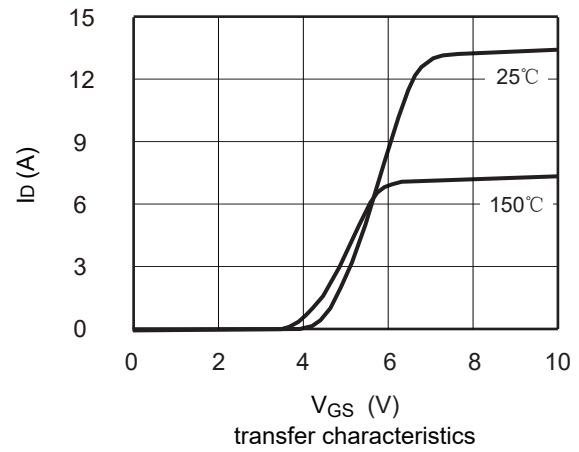
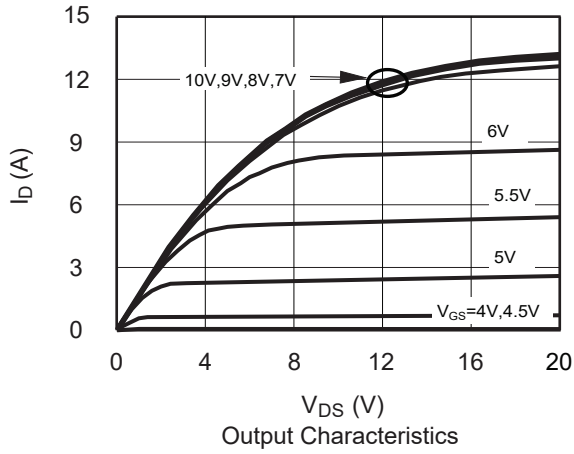
1.The EAS data shows Max. rating . The test condition is $V_{DD}=100V$, $V_{GS}=10V$, $L=30\text{mH}$, $I_{AS}=1.4A$.

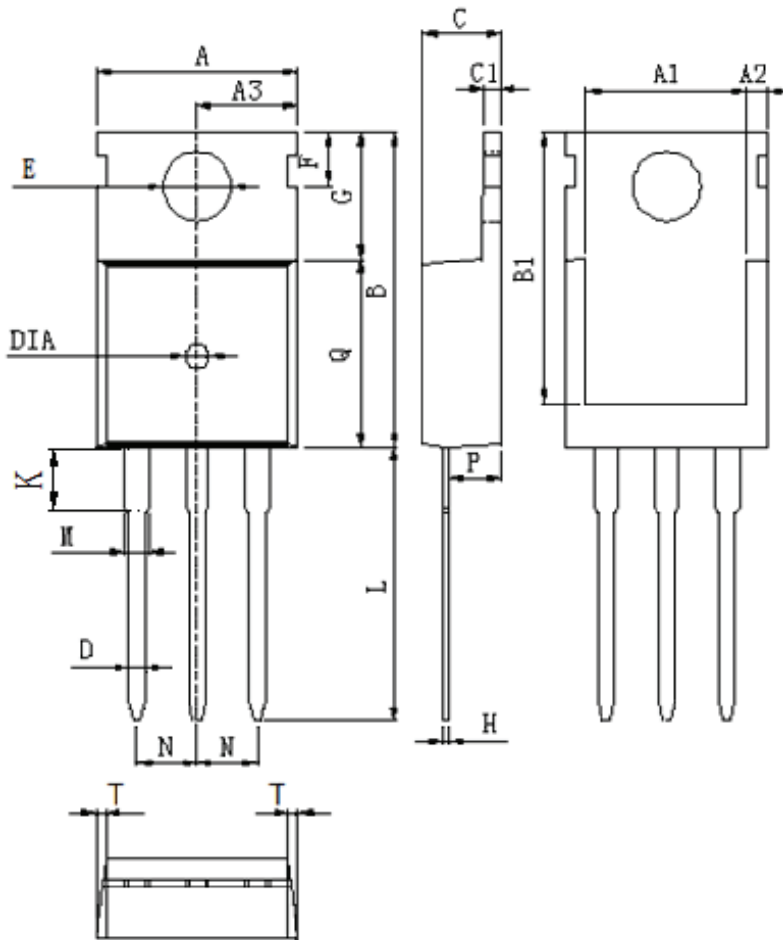
This product has been designed and qualified for the consumer market.

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)

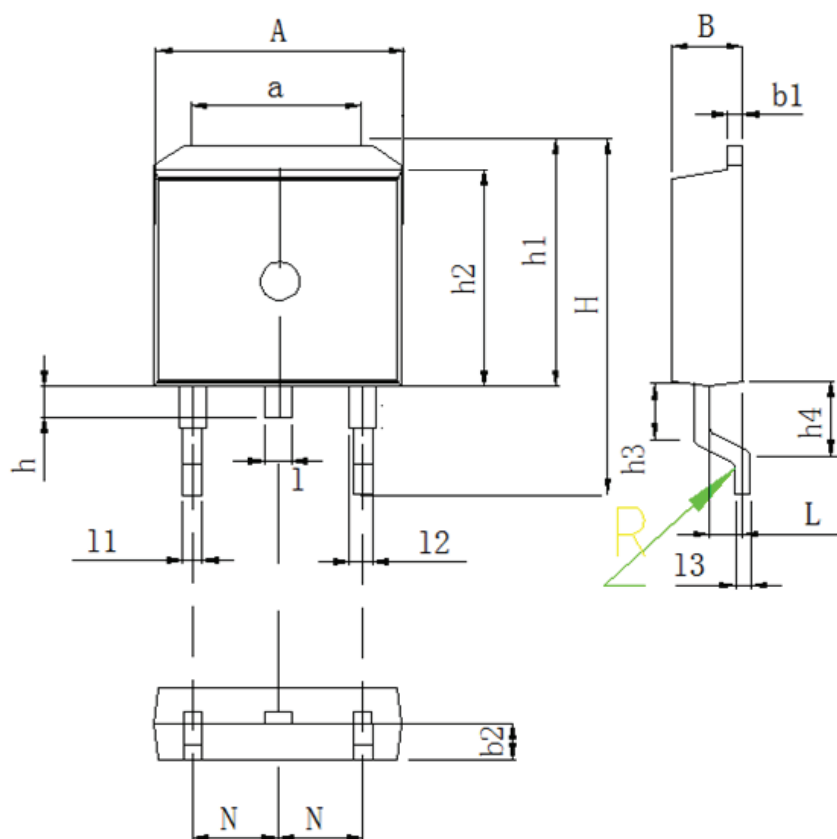
CMP65R600D/CMB65R600D/CMI65R600D/CMF65R600D

650V, 520mΩ typ., 8A N-Channel Super Junction Power MOSFET

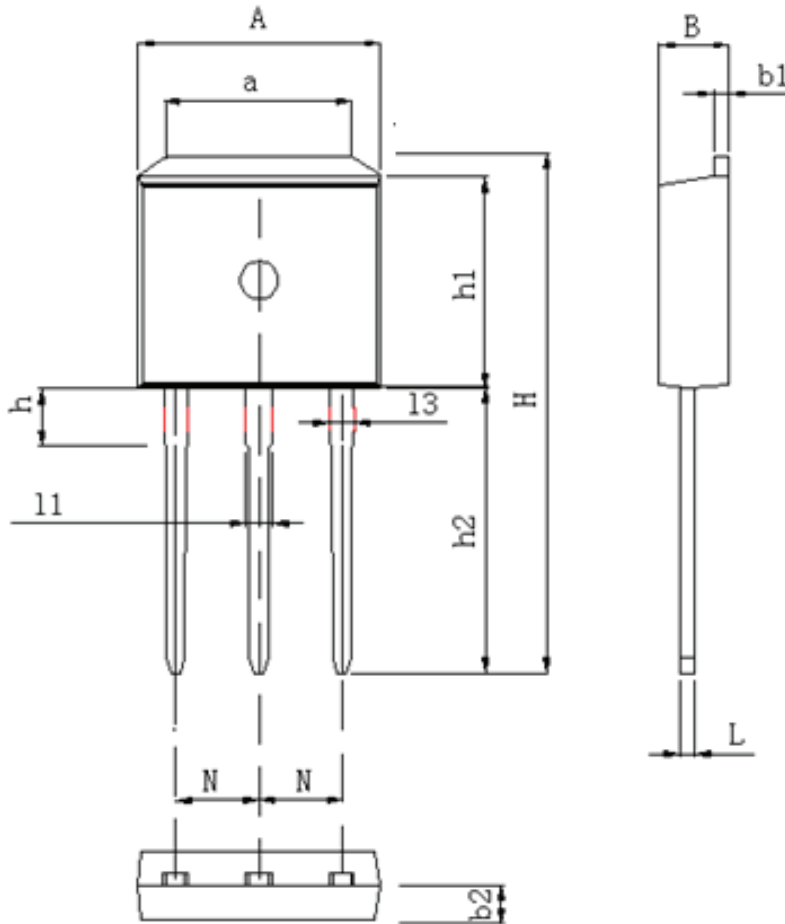
Package Dimension

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
1	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	$0.5R \pm 0.05$

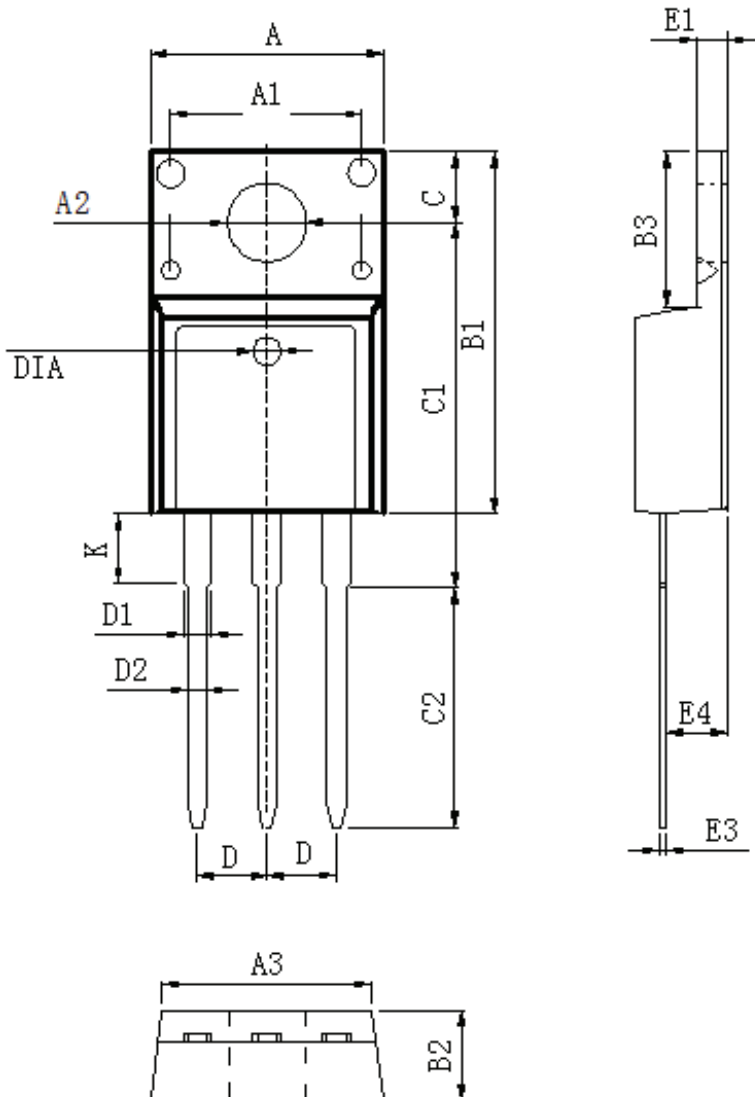
Package Dimension
TO-262
Unit :mm


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
11	1.3 ± 0.1
12	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)