

CMP/CMB/CMI/CMF65R080SD

650V, 67mΩ typ., 55A N-Channel Super Junction Power MOSFET

General Description

The 65R080SD is power MOSFET using Cmos's advanced super junction technology. The resulting devices provide all benefits of a fast switching super junction MOSFET while offering an extremely fast and robust body diode. This combination of extremely low switching, commutation and conduction losses together with highest robustness make especially resonant switching applications more reliable, more efficient and lighter.

Features

- Ultra-fast body diode
- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant
- Multi-layer Epitaxial Chip Technology

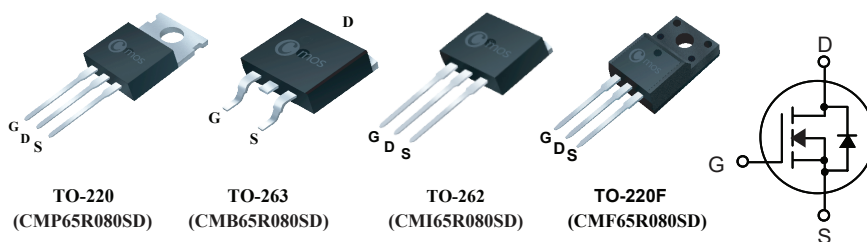
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	75mΩ	55A

Applications

- Charger
- Power Supply

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	55	55*	A
I _D @T _C =100°C	Continuous Drain Current	31	31*	A
I _{DM}	Pulsed Drain Current (Note 1)	220	220*	A
EAS	Single Pulse Avalanche Energy (Note 2)	960		mJ
P _D @T _C =25°C	Total Power Dissipation	480	50	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.	62	62	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	0.26	2.5	°C/W

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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	$V_{GS}=10V$, $I_D=20A$	---	67	75	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	3.0	---	5.0	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=650V$, $V_{GS}=0V$	---	---	10	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	±250	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	21	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7	---	Ω
Q_g	Total Gate Charge	$V_{DS}=400V$, $I_D=12.5A$ $V_{GS}=0$ to $10V$	---	50	---	nC
Q_{gs}	Gate-Source Charge		---	15	---	
Q_{gd}	Gate-Drain Charge		---	15	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=400V$, $I_D=12.5A$ $R_G=5.3\Omega$, $V_{GS}=13V$	---	25	---	ns
T_r	Rise Time		---	10	---	
$T_{d(off)}$	Turn-Off Delay Time		---	105	---	
T_f	Fall Time		---	5	---	
C_{iss}	Input Capacitance	$V_{DS}=100V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2400	---	pF
C_{oss}	Output Capacitance		---	125	---	
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	---	---	55	A
I_{SM}	Pulsed Source Current		---	---	220	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=40A$, $T_J=25^{\circ}\text{C}$	---	1	1.5	V

Note :

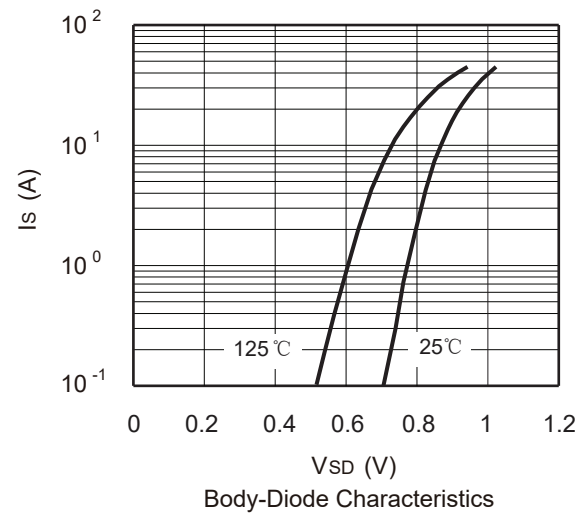
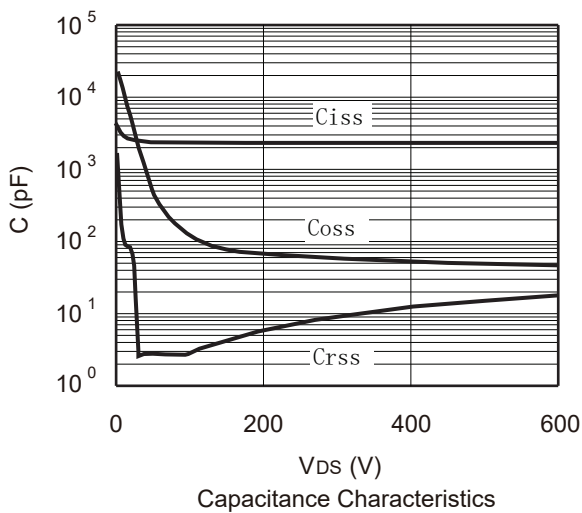
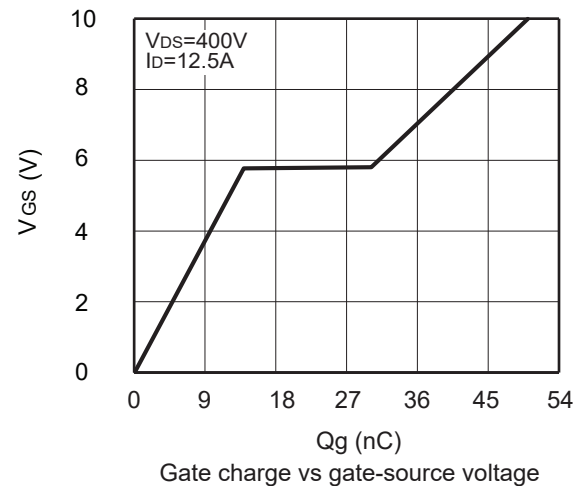
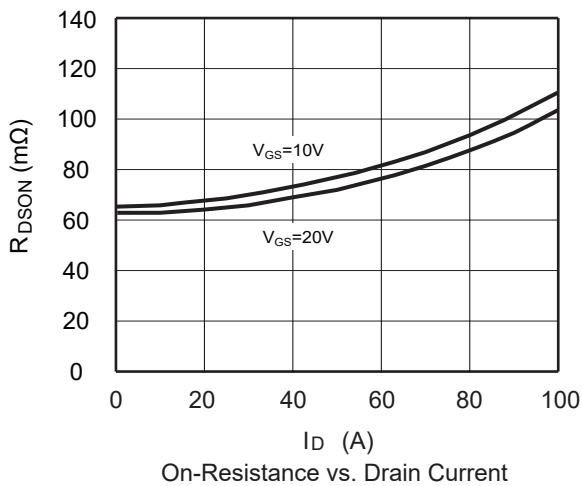
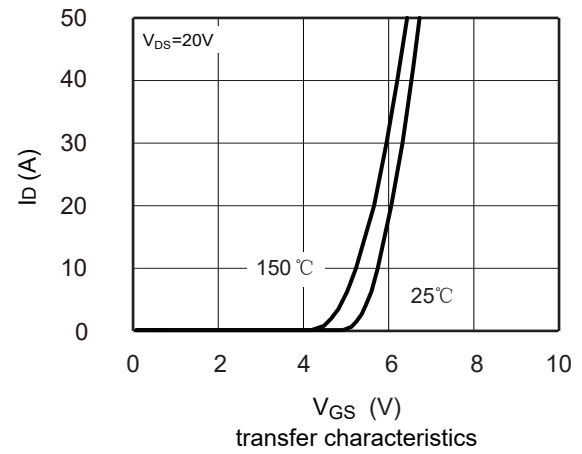
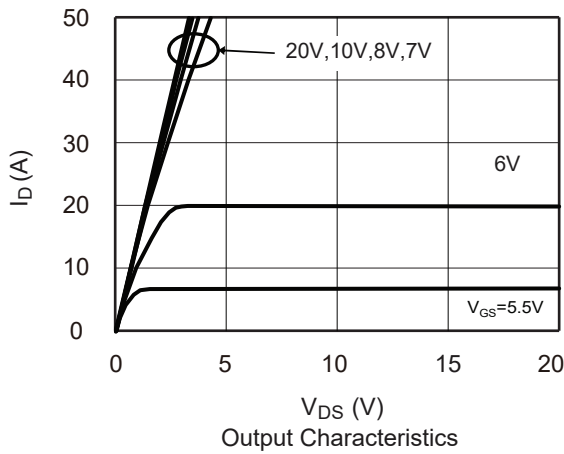
1. Repetitive rating: Pulse width limited by maximum junction temperature.
2. The EAS data shows Max. rating . The test condition is $V_{DD}=100V$, $V_{GS}=10V$, $L=30\text{mH}$, $I_{AS}=8A$.

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



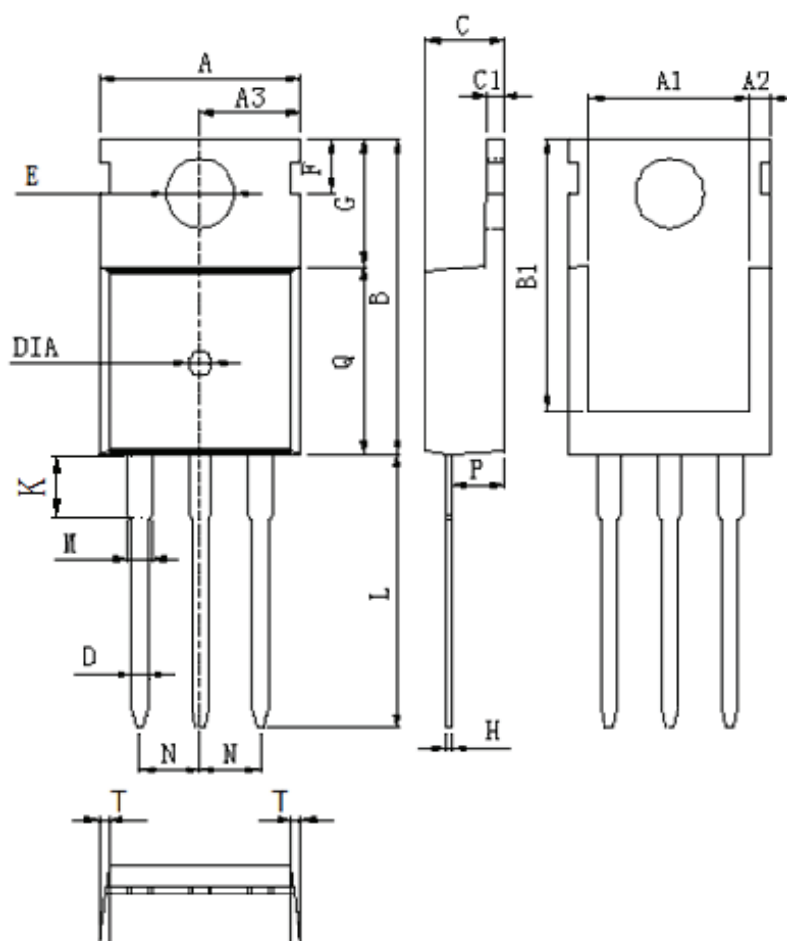
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Package Dimension

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)

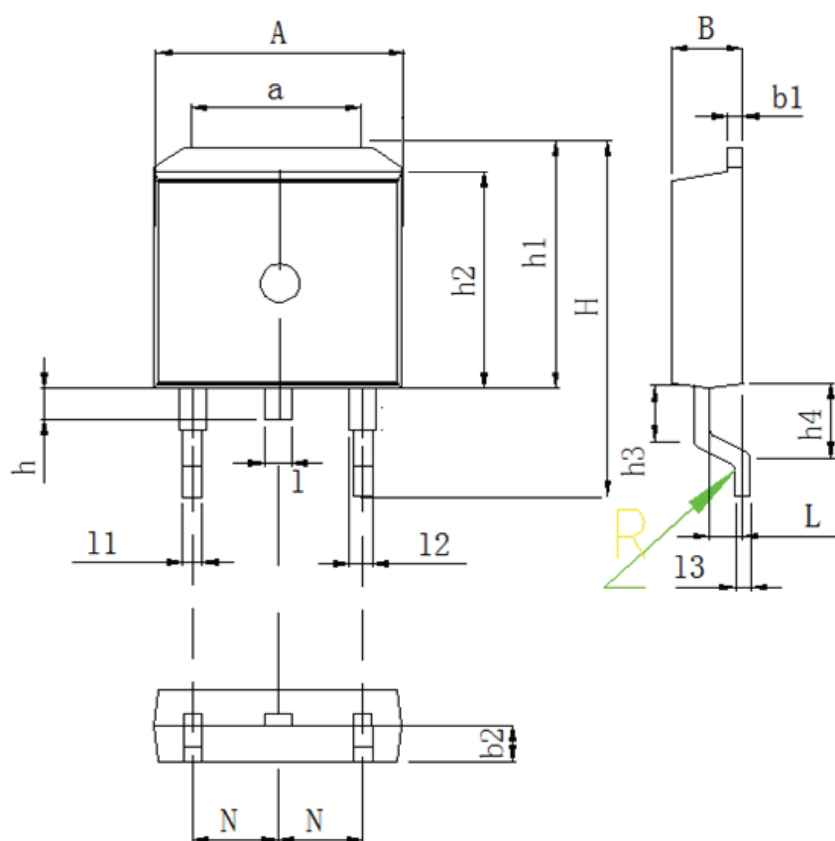
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Package Dimension

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	$0.5R \pm 0.05$

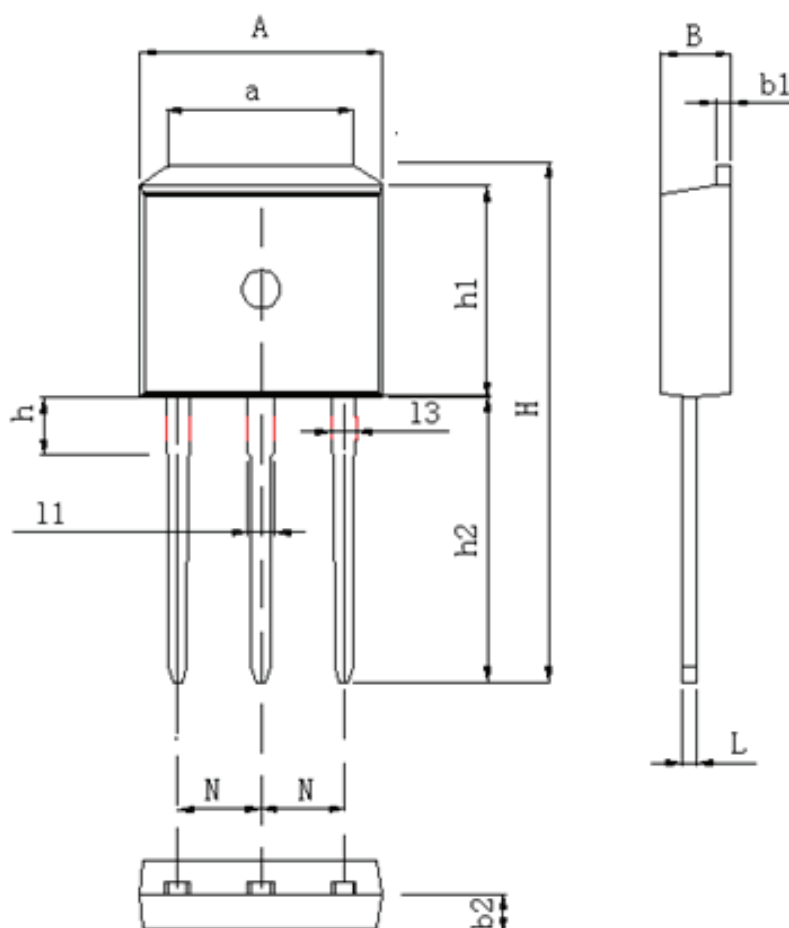
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Package Dimension

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

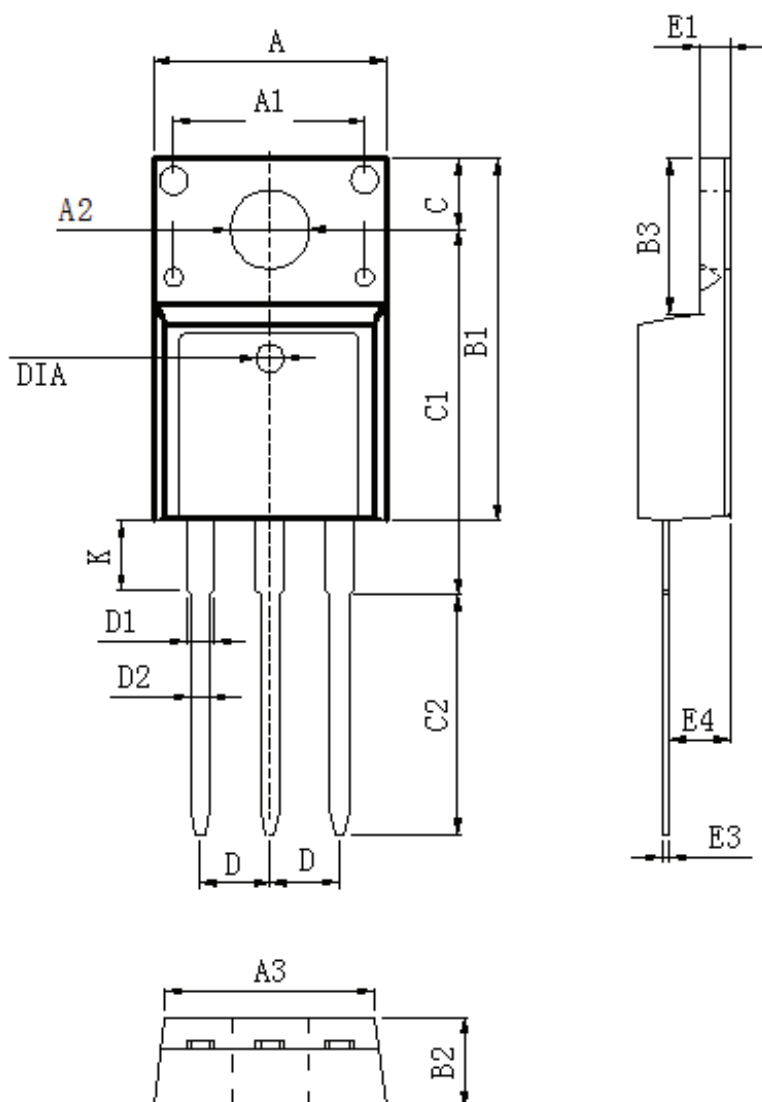
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Package Dimension

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	$\odot 1.5$ (deep 0.2)