

CMP65R140/CMB65R140/CMI65R140/CMF65R140



650V, 110mΩ typ., 24A N-Channel Super Junction Power MOSFET

General Description

The 65R140 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 devices are well suited for the switching power applications such as PFC, server/telecom power, FPD TV power, ATX power and industrial power applications.

Features

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

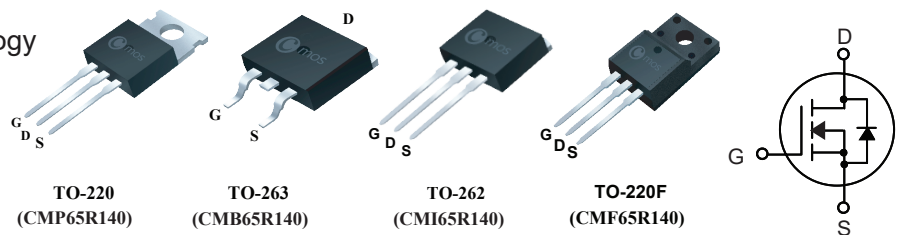
Product Summary

BVDSS	R _{DS(on)} max.	ID
650V	140mΩ	24A

Applications

- Charger
- Adaptor
- 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	24	24*	A
I _D @T _C =100°C	Continuous Drain Current	17	17*	A
I _{DM}	Pulsed Drain Current	96	96*	A
EAS	Single Pulse Avalanche Energy (Note 1)	375		mJ
P _D @T _C =25°C	Total Power Dissipation	200	35	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.	64	64	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	0.63	3.57	°C/W

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Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	650	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =10V , I _D =12A	---	110	140	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	3	---	5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =650V , V _{GS} =0V	---	---	5	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±30V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =12A	---	13	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	9.6	---	Ω
Q _g	Total Gate Charge	I _D =11A	---	46	---	nC
Q _{gs}	Gate-Source Charge	V _{DS} =480V	---	14	---	
Q _{gd}	Gate-Drain Charge	V _{GS} =10V	---	24	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =400V	---	60	---	ns
T _r	Rise Time	V _{GS} =10V	---	61	---	
T _{d(off)}	Turn-Off Delay Time	I _D =11A	---	140	---	
T _f	Fall Time	R _G =27Ω	---	31	---	
C _{iss}	Input Capacitance	V _{DS} =100V , V _{GS} =0V , f=1MHz	---	1700	---	pF
C _{oss}	Output Capacitance		---	100	---	
C _{rss}	Reverse Transfer Capacitance		---	2.3	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	24	A
I _{SM}	Pulsed Source Current		---	---	96	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _S =12A , T _J =25°C	---	0.90	1.4	V
t _{rr}	Reverse Recovery Time	di/dt = 100A/μs	---	120	---	ns
Q _{rr}	Reverse Recovery Charge	V _{DS} =400V , I _{SD} =11A	---	0.63	---	μC

Note :

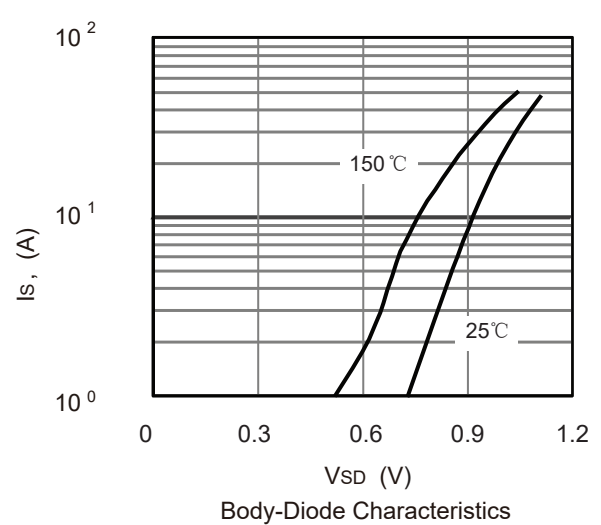
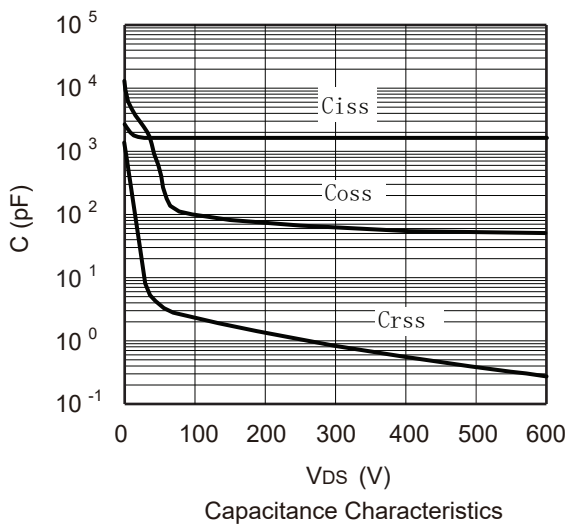
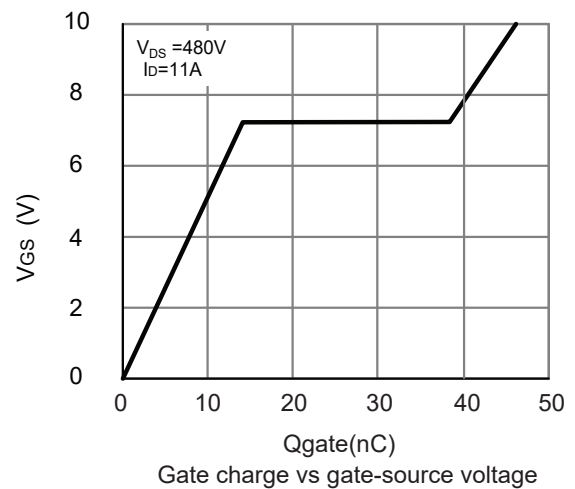
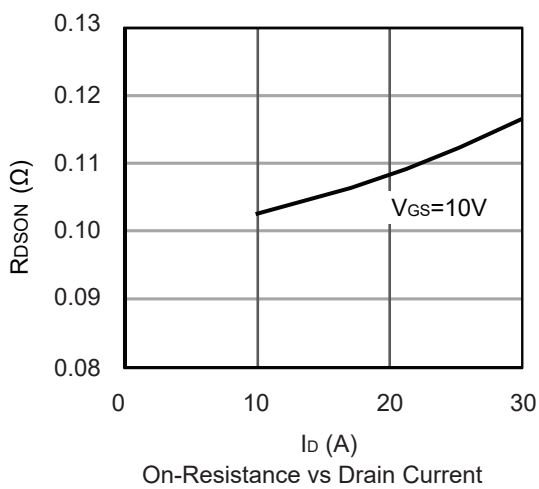
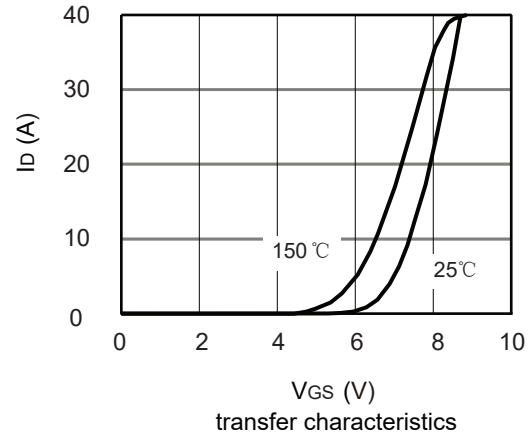
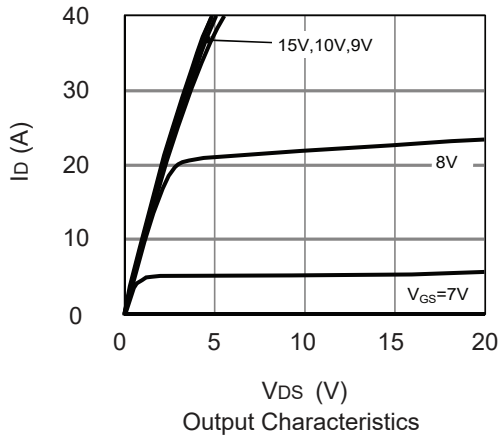
1.The EAS data shows Max. rating .The test condition is V_{DS}=80V , V_{GS}=10V , L=30mH , I_{AS}=5A.

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

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Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

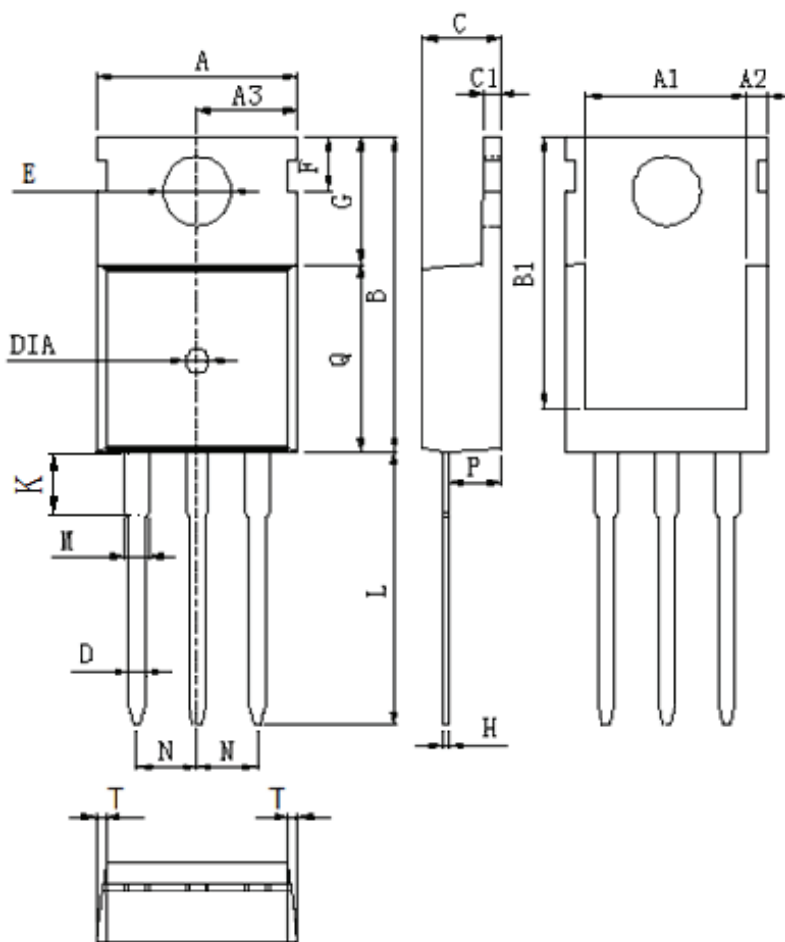
Typical Characteristics



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)

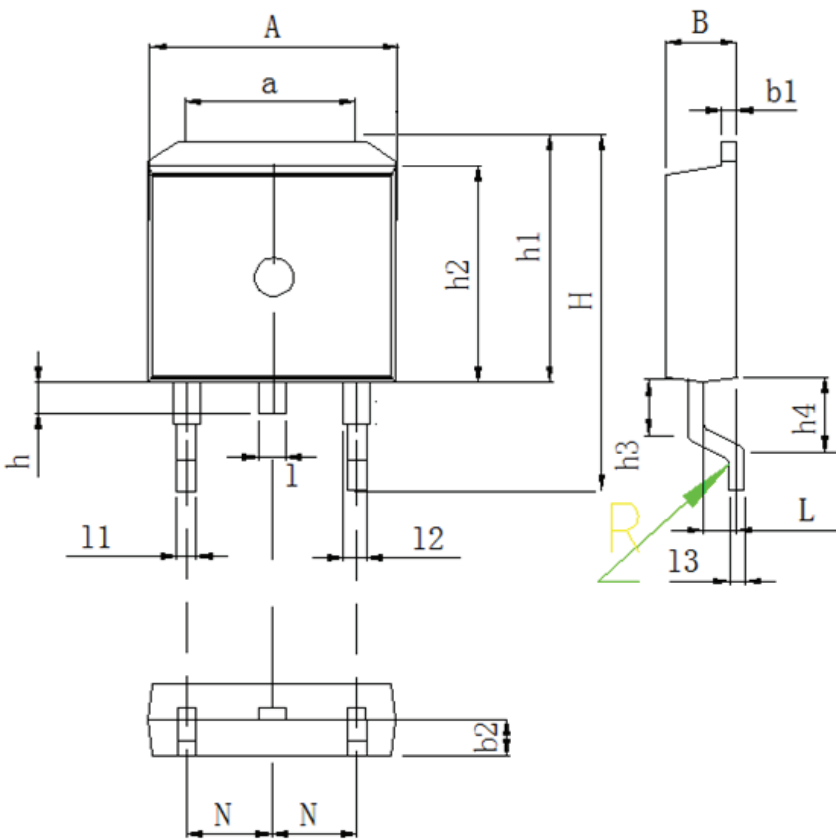
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Package Dimension

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	$0.5R \pm 0.05$

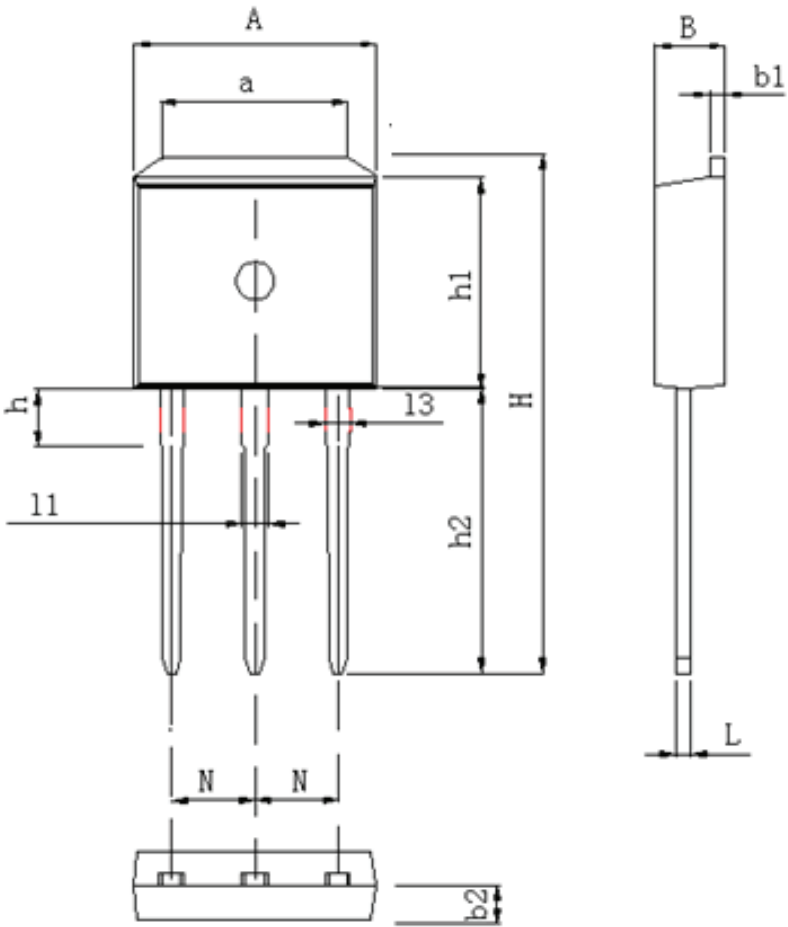
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Package Dimension

TO-262

Unit :mm

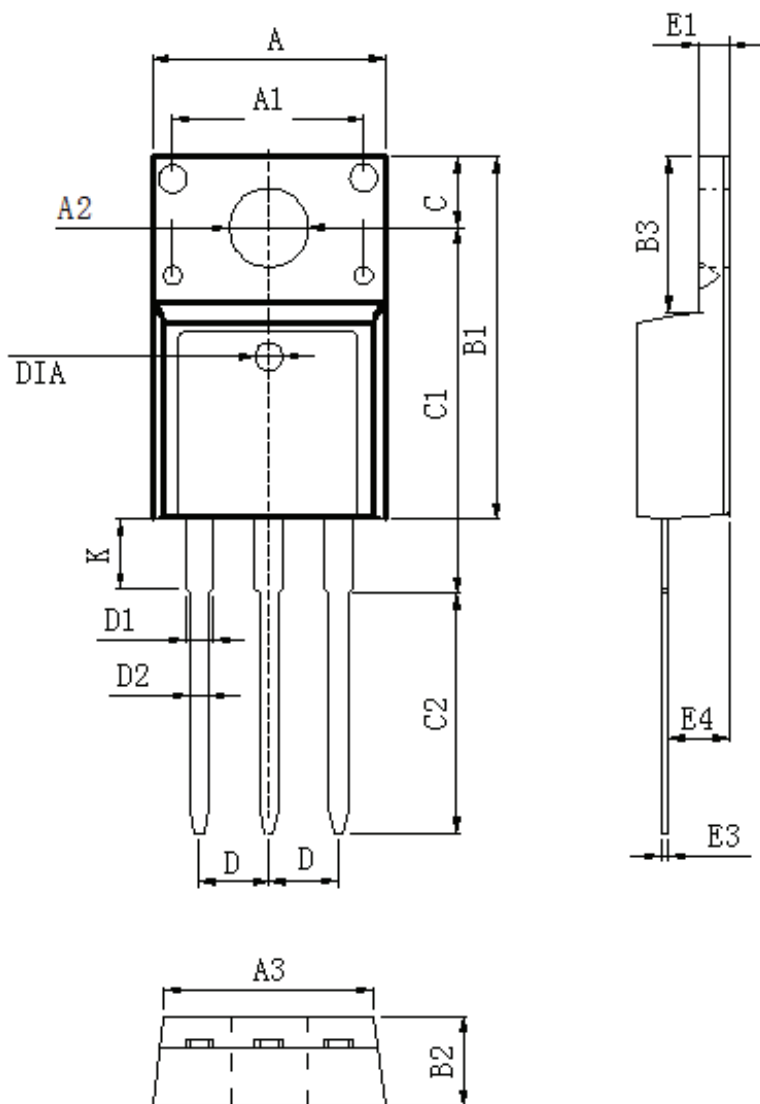


DIM	MILLIMETERS
A	9.98 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	23.9 ± 0.3
h	3.1 ± 0.2
h1	9.16 ± 0.2
h2	13.2 ± 0.2
L	0.5 ± 0.1
11	1.3 ± 0.1
12	0.8 ± 0.1
N	2.45 ± 0.1

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)