CMP30R019SD/30R019SD/30R019SD/30R019SD

300V, 16mΩ typ., 75A N-Channel Super Junction Power MOSFET

General Description

The 30R019SD 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.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
300V	19mΩ	75A

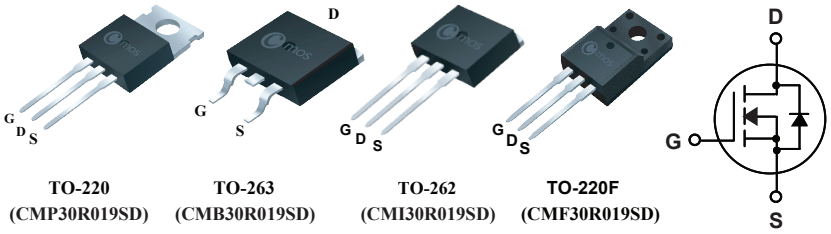
Applications

- Charger
- Power Supply

Features

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

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



TO-220 (CMP30R019SD) | TO-263 (CMB30R019SD) | TO-262 (CMI30R019SD) | TO-220F (CMF30R019SD)

Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	300		V
V_{GS}	Gate-Source Voltage	±30		V
I_D@T_C=25℃	Continuous Drain Current	75	75*	A
I_D@T_C=100℃	Continuous Drain Current	52	52*	A
I_{DM}	Pulsed Drain Current	300	300*	A
EAS	Single Pulse Avalanche Energy (Note 1)	2535		mJ
P_D@T_C=25℃	Total Power Dissipation	300	50	W
T_{STG}	Storage Temperature Range	-55 to 150		℃
T_J	Operating Junction Temperature Range	-55 to 150		℃

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient Max.	45	45	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.42	2.5	℃/W

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Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	300	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=36A	---	16	19	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250uA	3.0	---	5.0	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=300V , V_{GS} =0V	---	---	10	μA
I_{GSS}	Gate-Source Leakage Current	V_{GS} =±30V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=20V , I_D=20A	---	20	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.5	---	Ω
Q_g	Total Gate Charge	I_D=36A V_{DD}=150V V_{GS}=10V	---	100	---	nC
Q_{gs}	Gate-Source Charge		---	43	---	
Q_{gd}	Gate-Drain Charge		---	39	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=150V V_{GS}=10V R_G=5Ω , I_D=36A	---	36	---	ns
T_r	Rise Time		---	94	---	
$T_{d(off)}$	Turn-Off Delay Time		---	65	---	
T_f	Fall Time		---	43	---	
C_{iss}	Input Capacitance	V_{DS}=100V , V_{GS}=0V , f=1MHz	---	5200	---	pF
C_{oss}	Output Capacitance		---	230	---	
C_{rss}	Reverse Transfer Capacitance		---	9	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	75	A
I_{SM}	Pulsed Source Current		---	---	300	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=36A ,T_J=25℃	---	0.83	1.4	V
t_{rr}	Reverse Recovery Time	di/dt = 100A/μs V_{DD}=100V , I_{SD}=36A	---	100	---	ns
Q_{rr}	Reverse Recovery Charge		---	0.5	---	μC

Note :

1.The EAS data shows Max. rating . The test condition is V_{DD}=100V , V_{GS}=10V , L=30mH , I_{AS}=13A.

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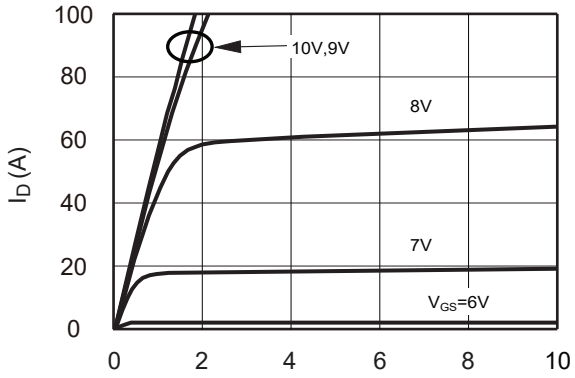
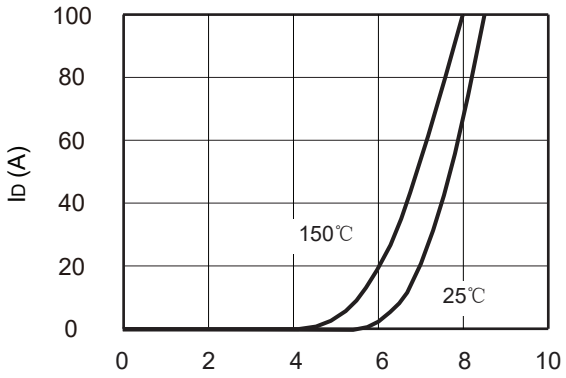
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

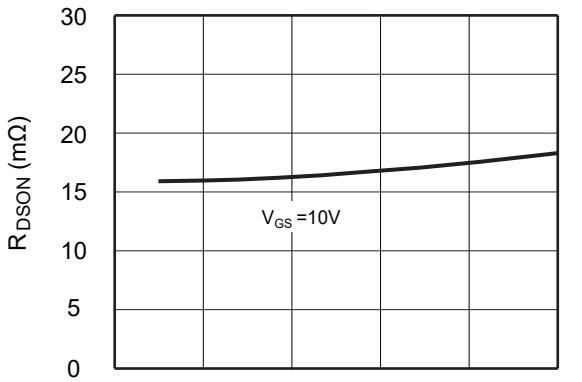
Typical Characteristics



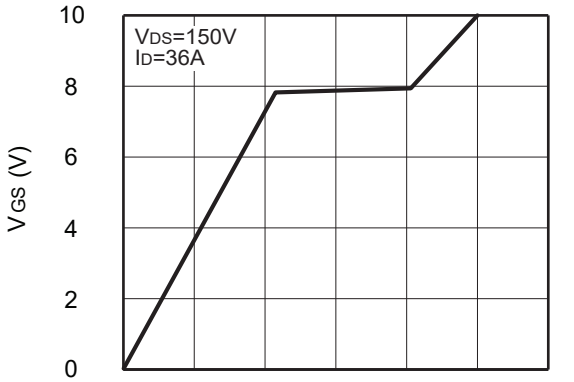
Output Characteristics



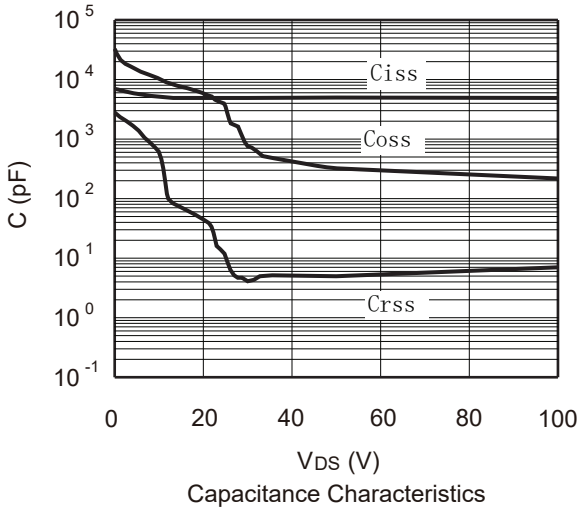
transfer characteristics



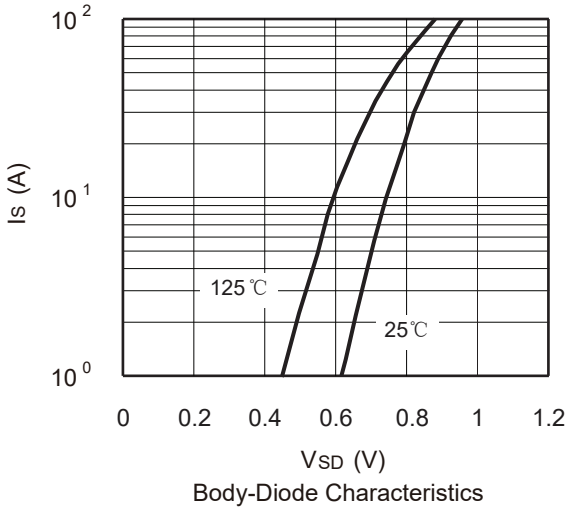
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



Capacitance Characteristics



Body-Diode Characteristics

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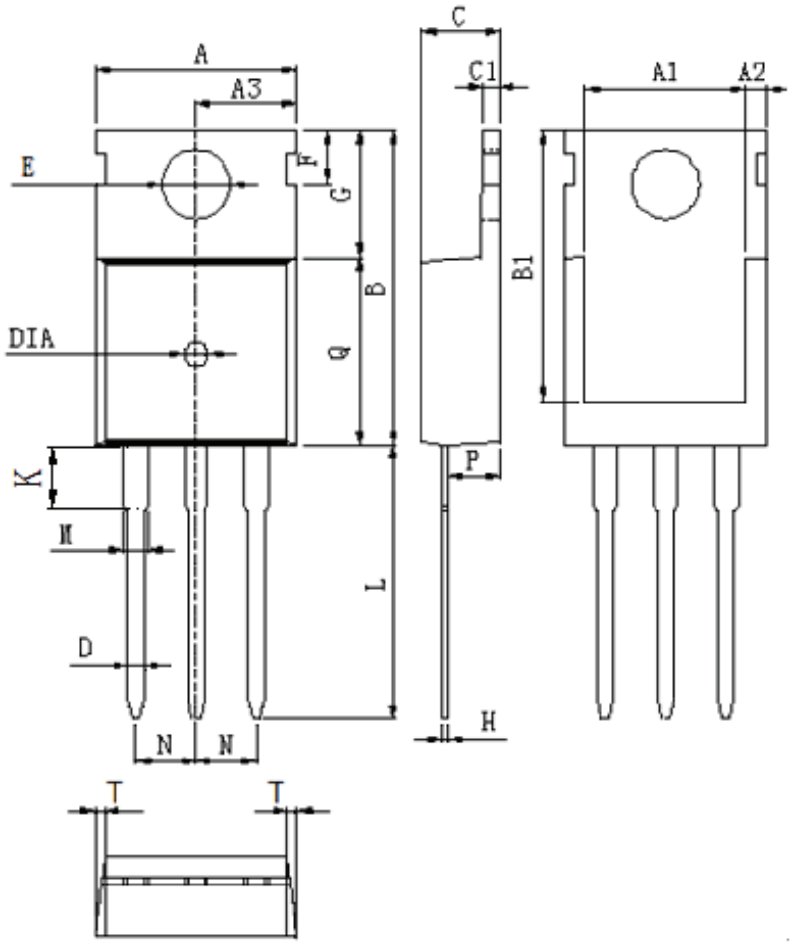
Package Dimension

TO-220 Unit :mm

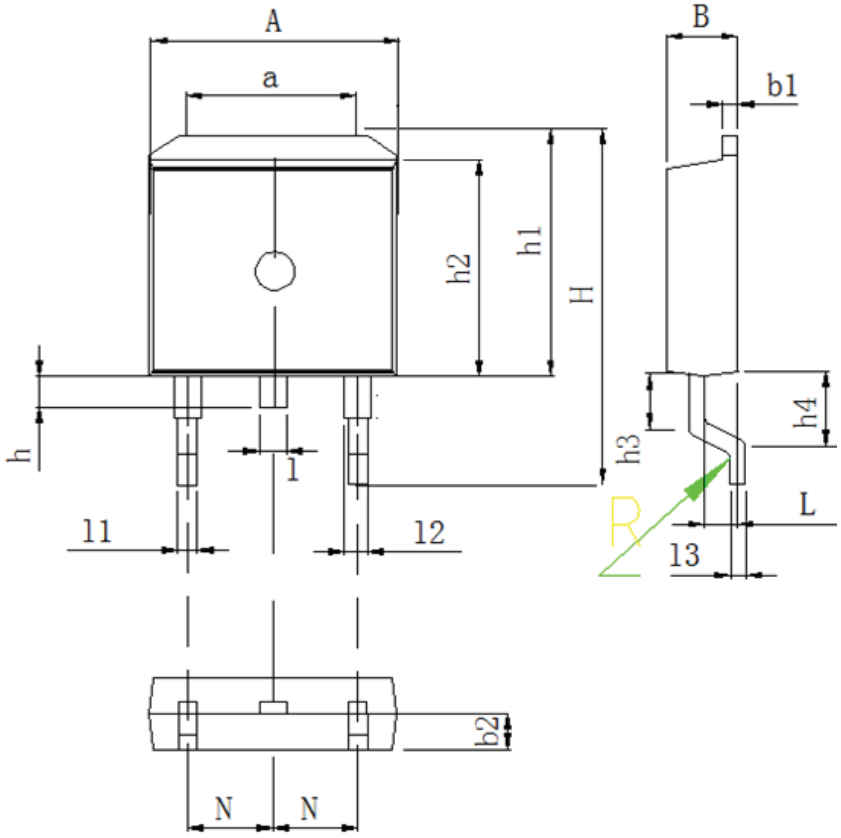


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5(deep 0.2)

300V, 16mΩ typ., 75A N-Channel Super Junction Power MOSFET

Package Dimension

TO-263 Unit :mm

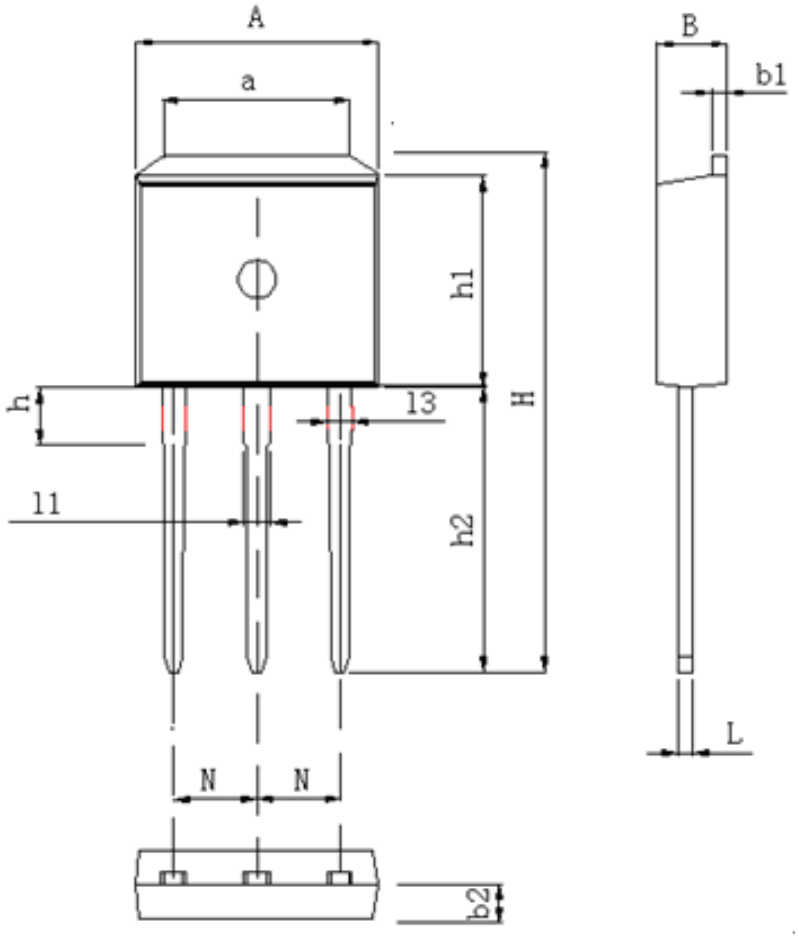


DIM	MILLIMETERS
A	9.8±0.2
a	7.4±0.4
B	4.5±0.2
b1	1.3±0.05
b2	2.4±0.2
H	15.5±0.3
h	1.54±0.2
h1	10.5±0.2
h2	9.2±0.1
h3	1.54±0.2
h4	2.7±0.2
L	2.4±0.2
l	1.3±0.1
l1	0.8±0.1
l2	1.3±0.1
l3	0.5±0.1
N	2.54±0.1
R	0.5R±0.05

300V, 16mΩ typ., 75A N-Channel Super Junction Power MOSFET

Package Dimension

TO-262 Unit :mm

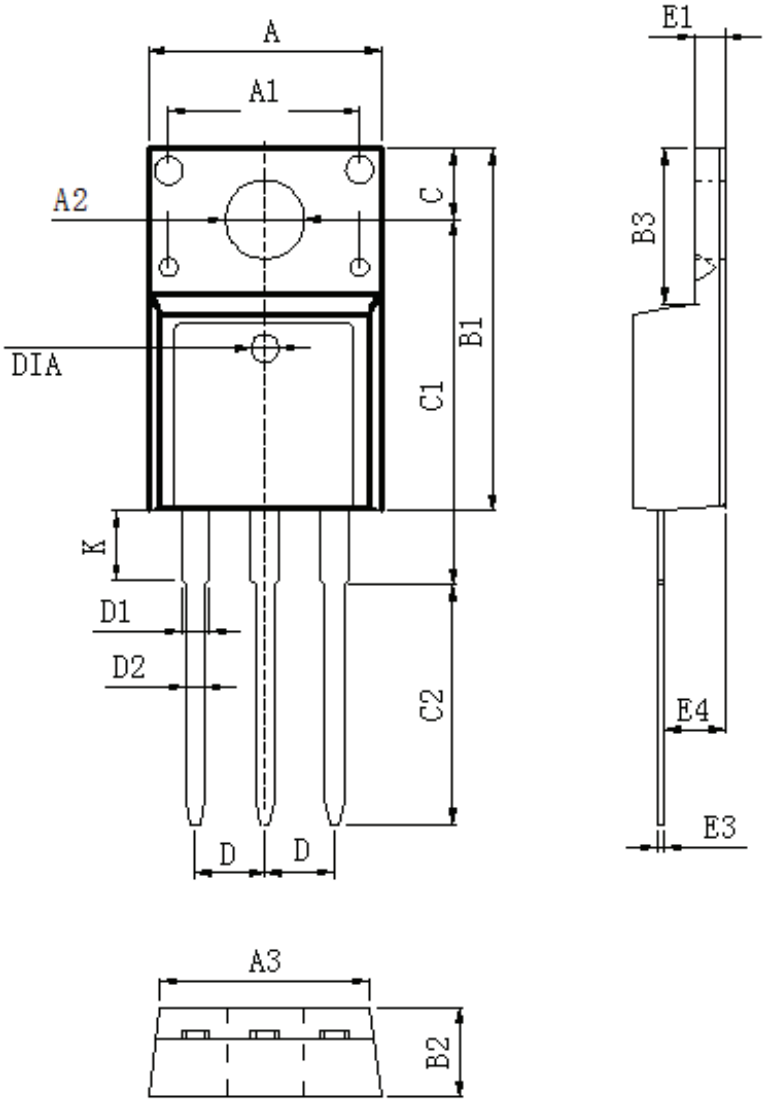


DIM	MILLIMETERS
A	9.98±0.2
a	7.4±0.4
B	4.5±0.2
b1	1.3±0.05
b2	2.4±0.2
H	23.9±0.3
h	3.1±0.2
h1	9.16±0.2
h2	13.2±0.2
L	0.5±0.1
l1	1.3±0.1
l2	0.8±0.1
N	2.45±0.1

300V, 16mΩ typ., 75A N-Channel Super Junction Power MOSFET

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)