80V, 2.8mΩ typ., 180A N-Channel MOSFET

General Description

This N−Channel MOSFET is produced by using Cmos's advanced trench technology process that has been tailored to minimize the on−state resistance while maintaining superior switching performance.

Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
80V	3.1mΩ	180A

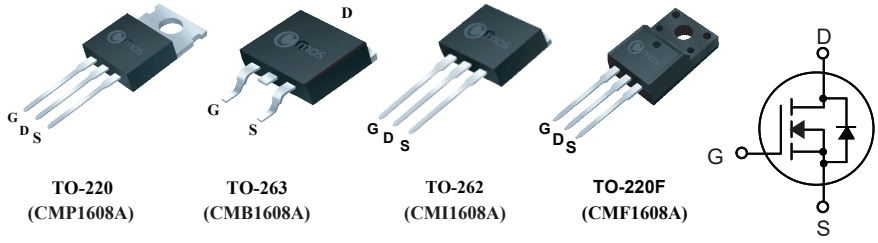
Applications

- Battery management
- Uninterruptible Power Supply

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

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



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V_{DS}	Drain-Source Voltage	80		V
V_{GS}	Gate-Source Voltage	±20		V
I_D@T_C=25℃	Continuous Drain Current	180	180*	A
I_D@T_C=100℃	Continuous Drain Current	126	126*	A
I_{DM}	Pulsed Drain Current	720	720*	A
EAS	Single Pulse Avalanche Energy (Note 1)	2415		mJ
P_D@T_C=25℃	Total Power Dissipation	300	45	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.(min. footprint)	84	84	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case Max.	0.42	2.78	℃/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	80	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=10V , I_D=80A	---	2.8	3.1	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =250μA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V , V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D =20A	---	46	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	1.3	---	Ω
Q_g	Total Gate Charge	V_{DD} =40V , I_D=50A V_{GS}=10V	---	172	---	nC
Q_{gs}	Gate-Source Charge		---	39	---	
Q_{gd}	Gate-Drain Charge		---	68	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS}=40V R_{G_ext} =2.7Ω , V_{GS}=10V	---	30	---	ns
T_r	Rise Time		---	113	---	
$T_{d(off)}$	Turn-Off Delay Time		---	81	---	
T_f	Fall Time		---	116	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	8050	---	pF
C_{oss}	Output Capacitance		---	1050	---	
C_{rss}	Reverse Transfer Capacitance		---	800	---	

Diode Characteristics

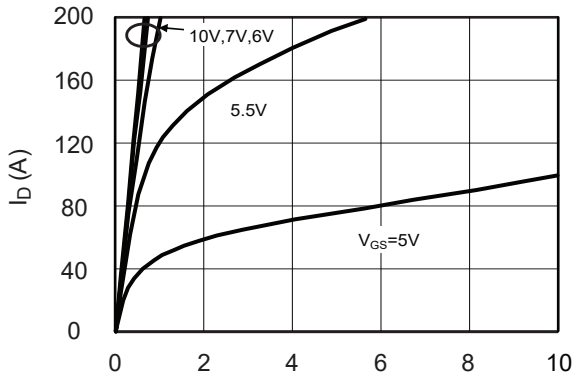
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Diode continuous forward current	V_G=V_D=0V , Force Current	---	---	180	A
$I_{S,pulse}$	Diode pulse current		---	---	720	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_F=30A , Tj=25 ℃	---	0.76	1.4	V

Note :

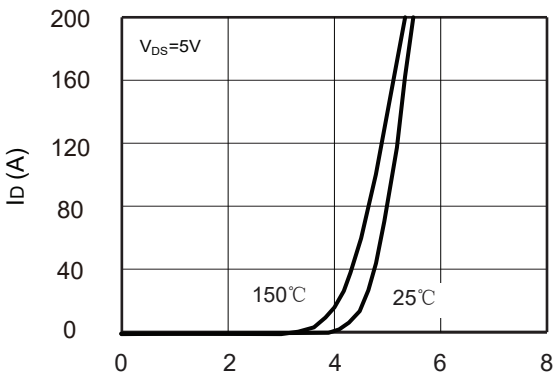
1.The EAS data shows Max. rating .The test condition is V_{DS}=50V , V_{GS}=10V , L=1mH , I_{AS}=69.5A.

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

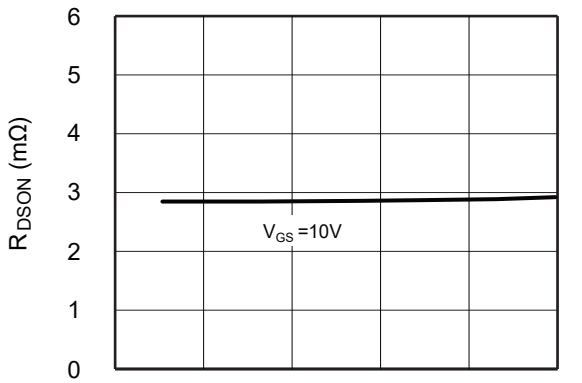
Typical Characteristics



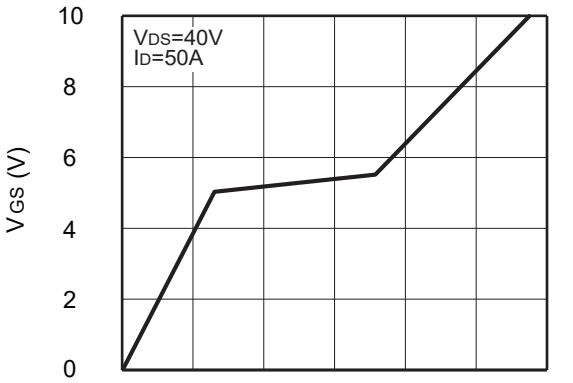
Output Characteristics



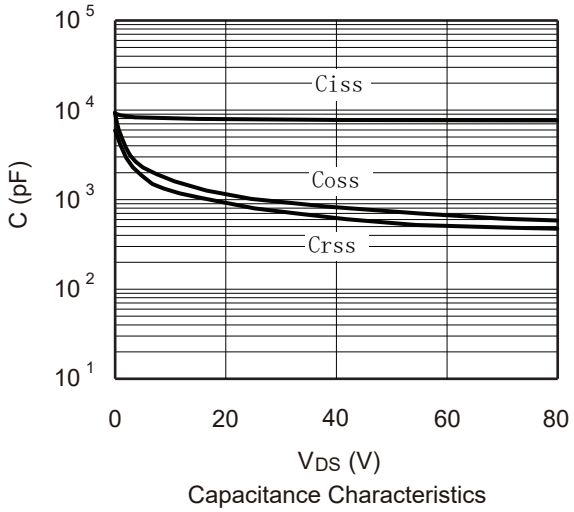
transfer characteristics



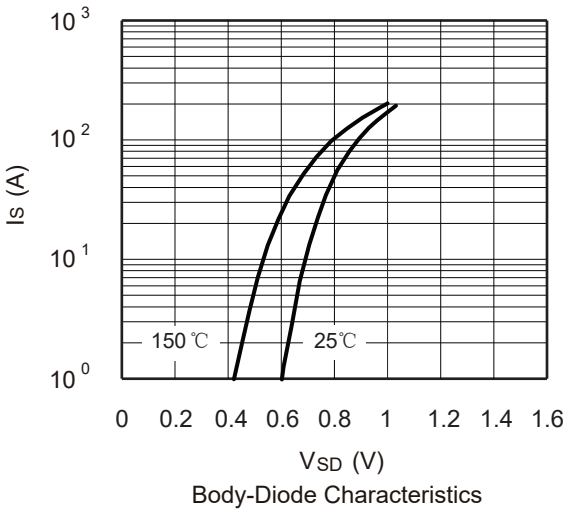
On-Resistance vs. Drain Current



Gate charge vs gate-source voltage



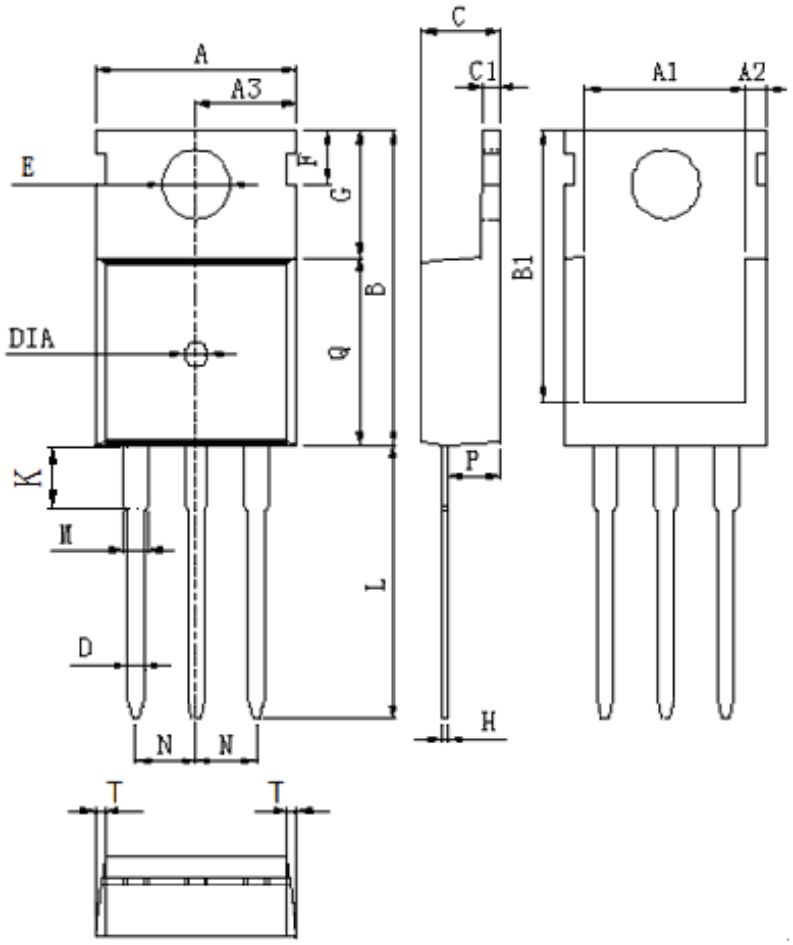
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

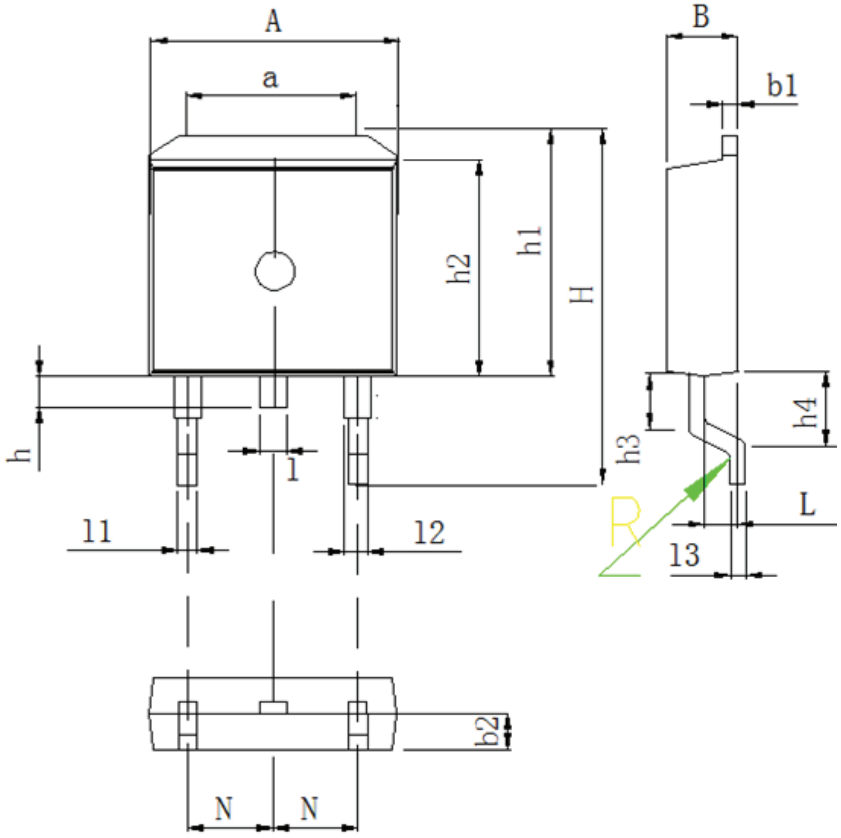
TO-220 Unit :mm



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

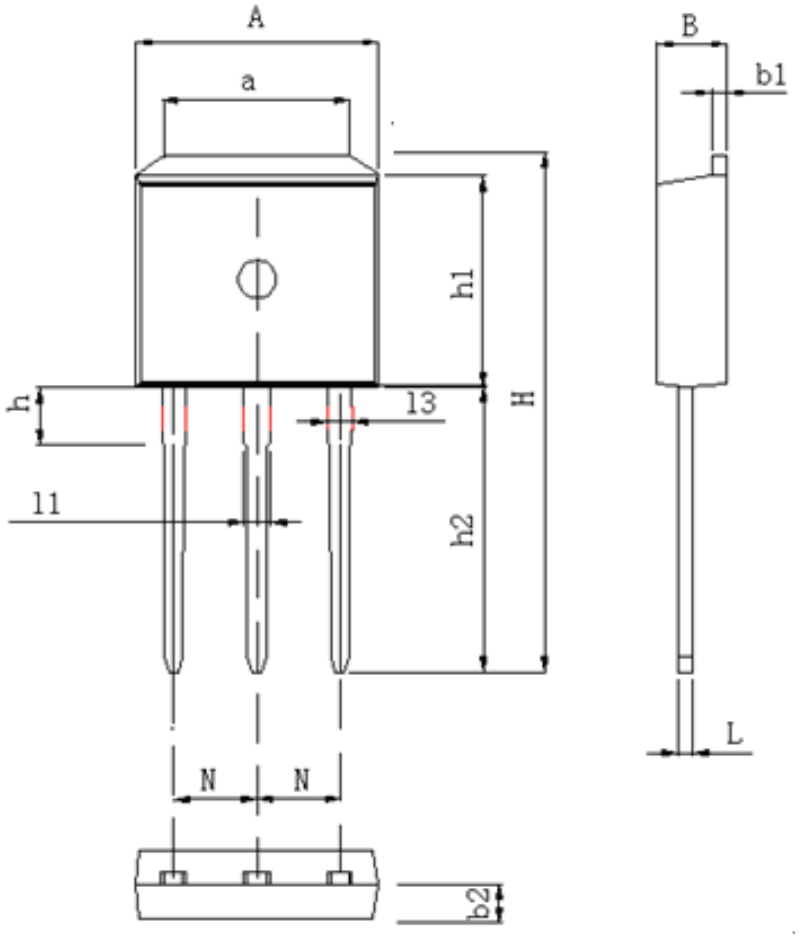
TO-263 Unit :mm



DIM	MILLIMETERS
A	9.8±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

Package Dimension

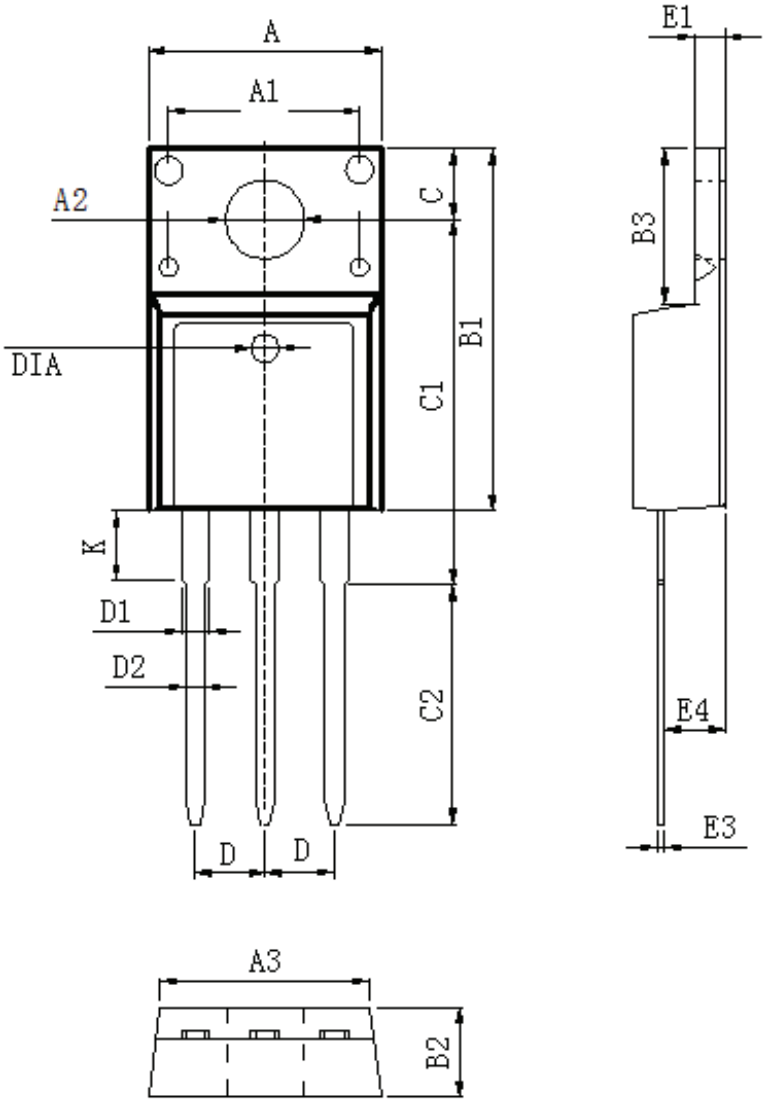
TO-262 Unit :mm



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

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)