

-60V, 4mΩ typ., -150A P-Channel MOSFET

General Description

The 6006 utilizes advanced SGT technology, which provides excellent RDS(ON) for high-current switching applications.

Features

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

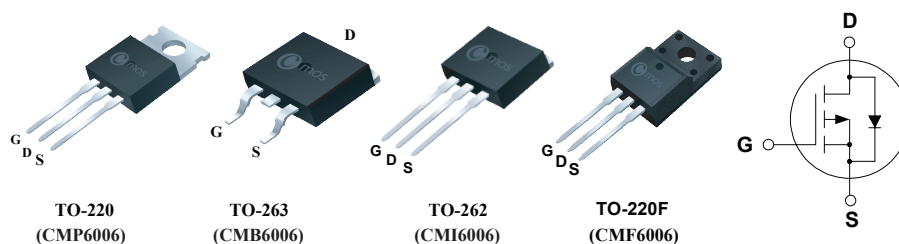
Product Summary

BVDSS	R _{DS(on)} max.	ID
-60V	5mΩ	-150A

Applications

- Motor Control
- Switching Application

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



Absolute Maximum Ratings

Symbol	Parameter	220/263/262	220F	Units
V _{DS}	Drain-Source Voltage	-60		
V _{GS}	Gate-Source Voltage	±20		V
I _D @T _C =25°C	Continuous Drain Current	-150	-150*	A
I _D @T _C =100°C	Continuous Drain Current	-105	-105*	A
I _{DM}	Pulsed Drain Current	-600	-600*	A
EAS	Single Pulse Avalanche Energy (Note 1)	1960		mJ
P _D @T _C =25°C	Total Power Dissipation	300	45	W
T _{STG}	Storage Temperature Range	-55 to 175		°C
T _J	Operating Junction Temperature Range	-55 to 175		°C

* Drain current limited by maximum junction temperature.

Thermal Data

Symbol	Parameter	220/263/262	220F	Unit
R _{θJA}	Thermal Resistance Junction-ambient Max. (Note 2)	40	40	°C/W
R _{θJC}	Thermal Resistance Junction-case Max.	0.50	3.33	°C/W

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 =-250μA	-60	---	---	V
R _{DS(on)}	Static Drain-Source On-Resistance	V _{GS} =-10V , I _D =-30A	---	4	5	mΩ
		V _{GS} =-4.5V , I _D =-20A	---	5.3	7	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D = -250μA	-1.0	---	-2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-60V , V _{GS} =0V	---	---	-1	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} = -10V , I _D = -20A	---	56	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2.6	---	Ω
Q _g	Total Gate Charge	V _{DS} =-48V , V _{GS} =-10V , I _D =-100A	---	300	---	nC
Q _{gs}	Gate-Source Charge		---	35	---	
Q _{gd}	Gate-Drain Charge		---	85	---	
T _{d(on)}	Turn-On Delay Time	V _{DS} =-30V , V _{GS} = -10V , R _G =0Ω I _D =-50A	---	28	---	ns
T _r	Rise Time		---	35	---	
T _{d(off)}	Turn-Off Delay Time		---	275	---	
T _f	Fall Time		---	100	---	
C _{iss}	Input Capacitance	V _{DS} =-25V , V _{GS} =0V , f=1MHz	---	7150	---	pF
C _{oss}	Output Capacitance		---	2550	---	
C _{rss}	Reverse Transfer Capacitance		---	110	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	-150	A
I _{SM}	Pulsed Source Current		---	---	-600	A
V _{SD}	Diode Forward Voltage	V _{GS} =0V , I _F =-30A	---	-0.84	-1.5	V

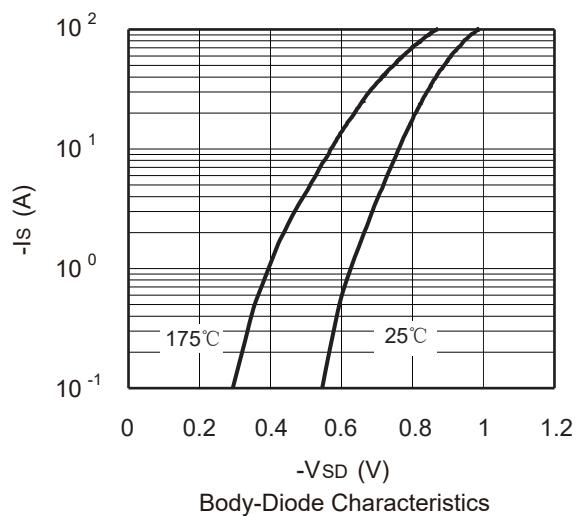
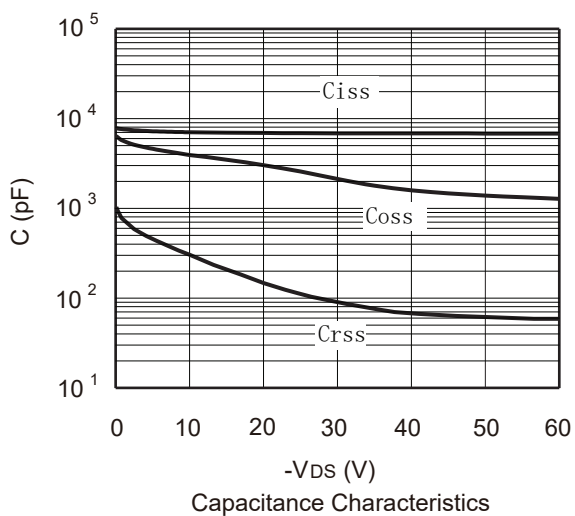
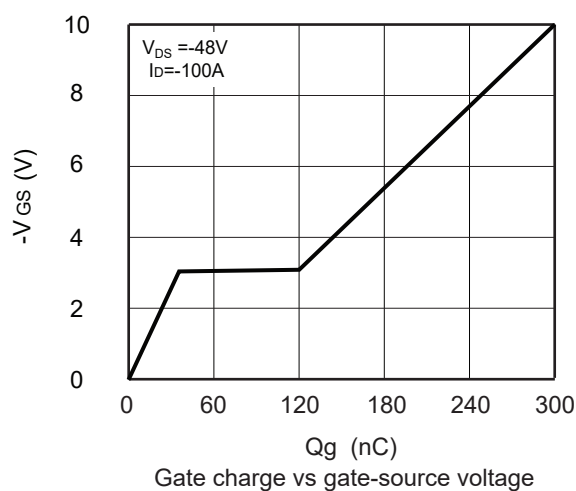
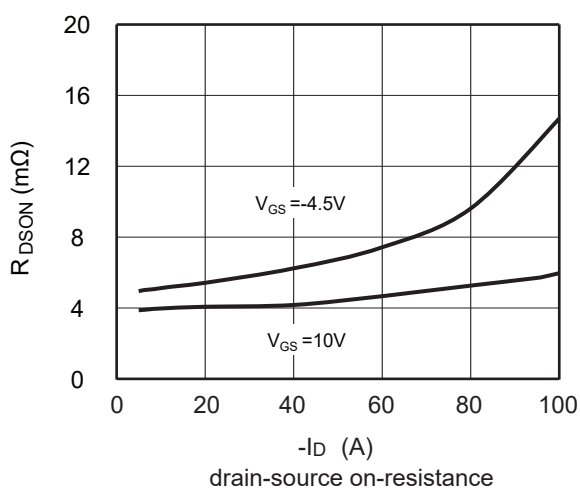
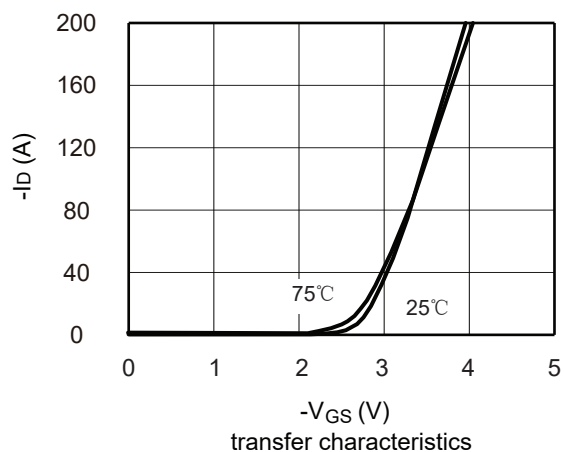
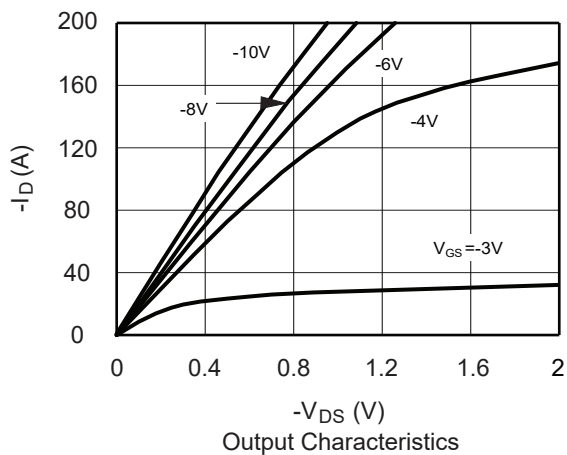
Note :

- 1.The EAS data shows Max. rating . The test condition is V_{DD}=-50V , V_{GS}=-10V , L=5mH , I_{AS}=-28A.
2. Device mounted on FR-4 substrate PC board with 2oz copper in 1inch square cooling area.

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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.

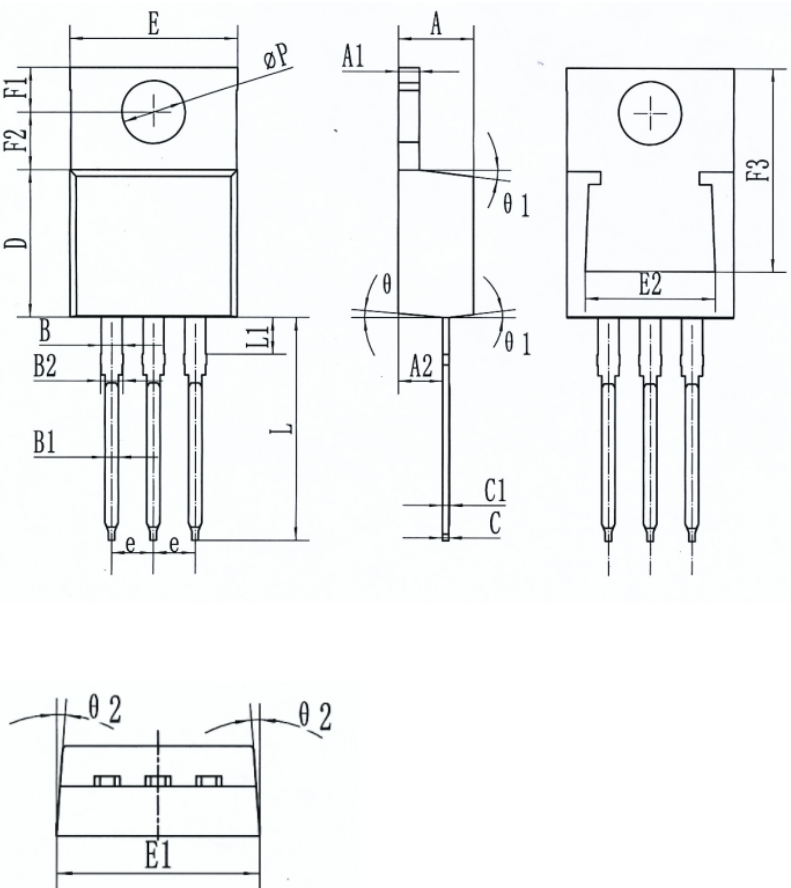
Typical Characteristics



Package Dimension

TO-220

Unit :mm



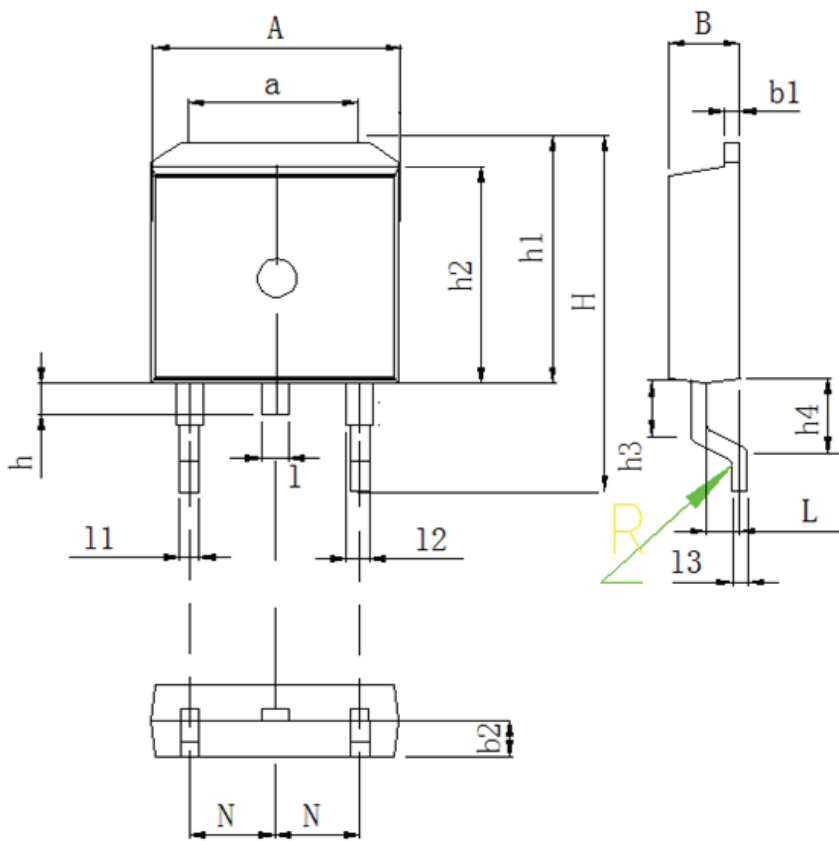
COMMON DIMENSIONS

SYMBOL	MM		
	MIN	NOM	MAX
A	4.47	4.57	4.67
A1	1.22	1.27	1.32
A2	2.57	2.67	2.77
B	1.22	1.27	1.32
B1	0.71	0.81	0.91
B2	1.27	1.37	1.42
C	0.33	0.38	0.43
C1	0.42 REF		
D	8.80	9.00	9.20
E	10.00	10.20	10.40
E1	9.96	10.16	10.26
E2	7.70	7.90	8.10
e	2.54 BSC		
F1	2.64	2.74	2.84
F2	3.40	3.50	3.60
F3	12.20	12.40	12.60
L	13.36	13.56	13.76
L1	2.03	2.23	2.43
ϕP	3.75	3.85	3.95
θ	3°	5°	7°
$\theta 1$	5°	7°	9°
$\theta 2$	2°	4°	6°

Package Dimension

TO-263

Unit :mm

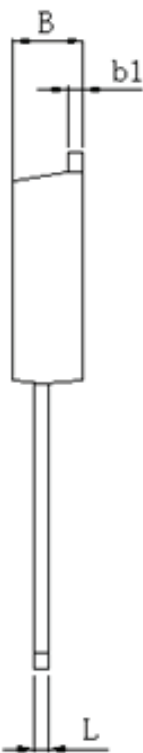
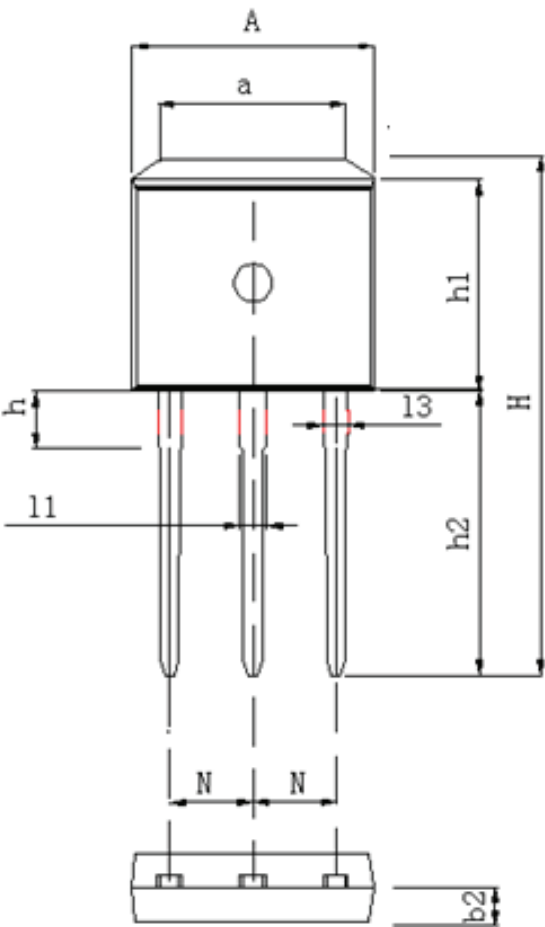


DIM	MILLIMETERS
A	9.8 ± 0.2
a	7.4 ± 0.4
B	4.5 ± 0.2
b1	1.3 ± 0.05
b2	2.4 ± 0.2
H	15.5 ± 0.3
h	1.54 ± 0.2
h1	10.5 ± 0.2
h2	9.2 ± 0.1
h3	1.54 ± 0.2
h4	2.7 ± 0.2
L	2.4 ± 0.2
1	1.3 ± 0.1
11	0.8 ± 0.1
12	1.3 ± 0.1
13	0.5 ± 0.1
N	2.54 ± 0.1
R	$0.5R \pm 0.05$

Package Dimension

TO-262

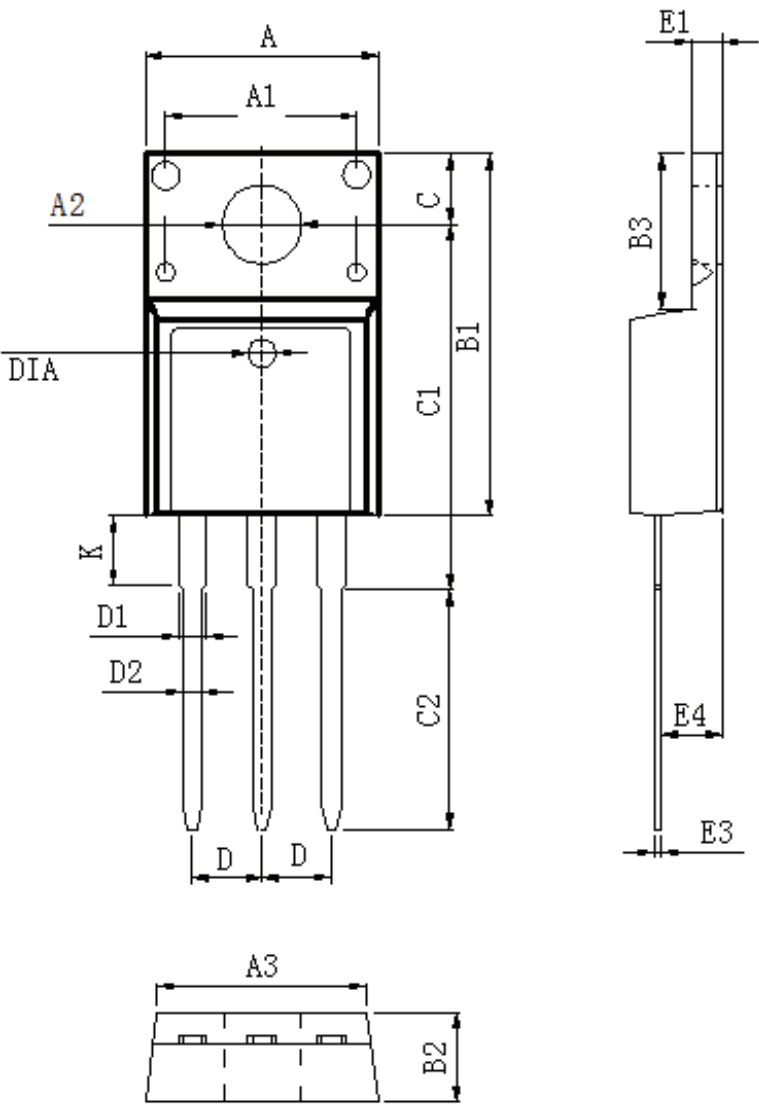
Unit :mm



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
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)