

P-Channel Enhancement Mode MOSFET

General Description

The 70P06 uses advanced trench technology and design to provide excellent RDS(ON). It can be used in a wide variety of applications.

Features

- Fast switching
- 100% avalanche tested
- Lower On-resistance
- RoHS Compliant

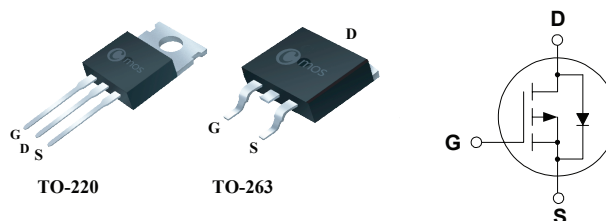
Product Summary

BVDSS	R _{DS(on)} max.	ID
-60V	15mΩ	-70A

Applications

- Inverters
- Motor drive
- DC / DC converter

TO-220/TO-263 Pin Configuration



Type	Package	Marking
CMP70P06	TO-220	CMP70P06
CMB70P06	TO-263	CMB70P06

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-60	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-70	A
I _D @T _C =100°C	Continuous Drain Current	-56	A
I _{DM}	Pulsed Drain Current	-280	A
EAS	Single Pulse Avalanche Energy ¹	435	mJ
P _D @T _C =25°C	Total Power Dissipation	130	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.96	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-20A$	---	---	15	m Ω
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-10A$	---	---	24	m Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-55V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-20A$	---	26	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	70	---	Ω
Q_g	Total Gate Charge	$I_D=-25A$	---	89	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-30V$	---	13	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-10V$	---	20	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-30V$, $I_{DS}=-1A$	---	16	---	ns
T_r	Rise Time	$R_L=30\Omega$	---	12	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=6\Omega$	---	120	---	
T_f	Fall Time	$V_{GEN}=-10V$	---	61	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	5800	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-70	A
I_{SM}	Pulsed Source Current		---	---	-280	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-10A$, $T_J=25^{\circ}\text{C}$	---	---	-1.2	V

Notes:

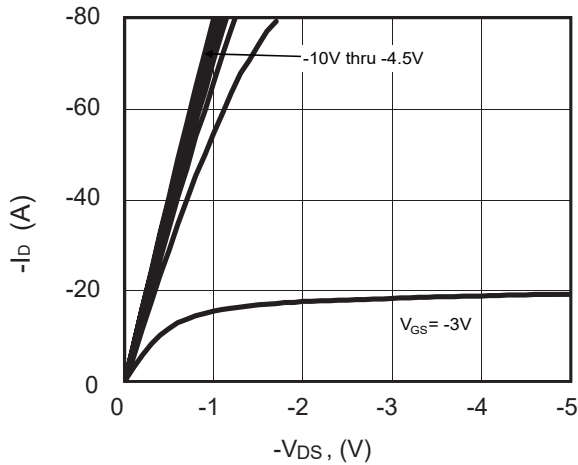
1.The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_D=29.5A$

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

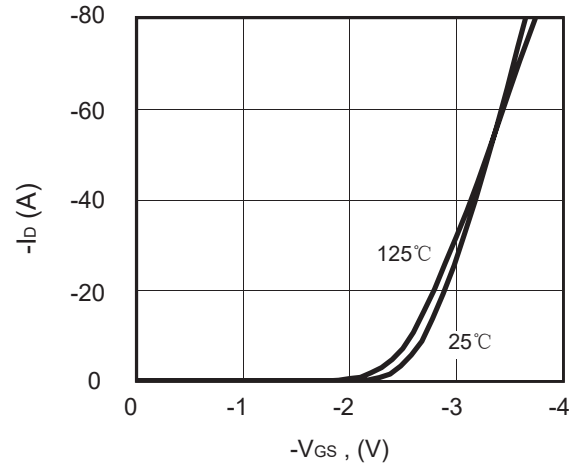
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Cmos reserves the right to improve product design ,functions and reliability without notice.Please refer to the latest version of specification.

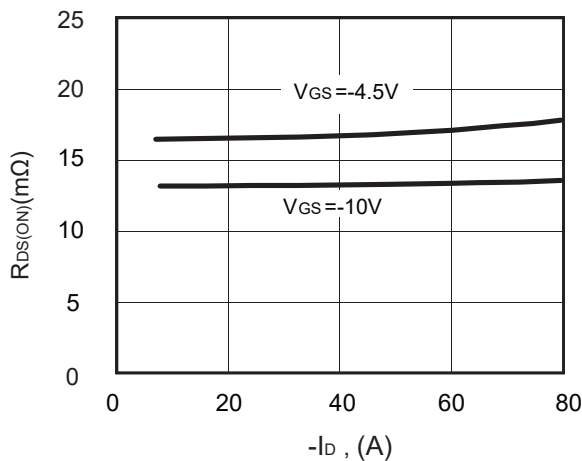
Typical Characteristics



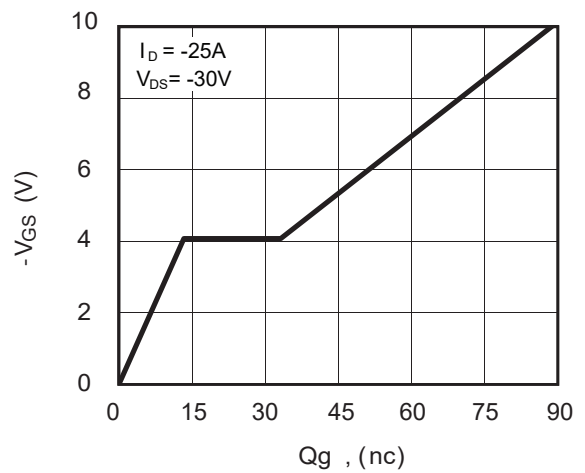
On-Region Characteristics



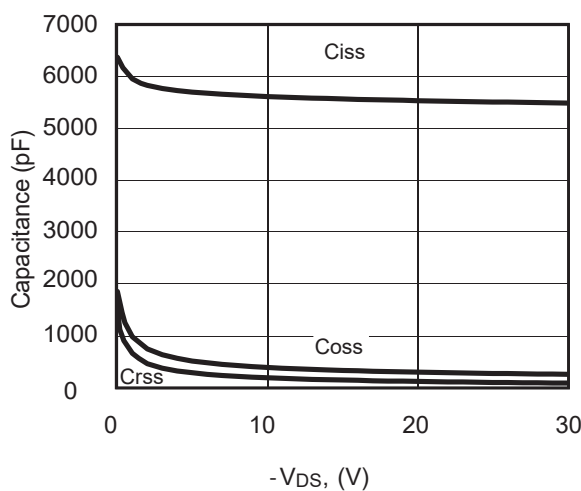
transfer characteristics



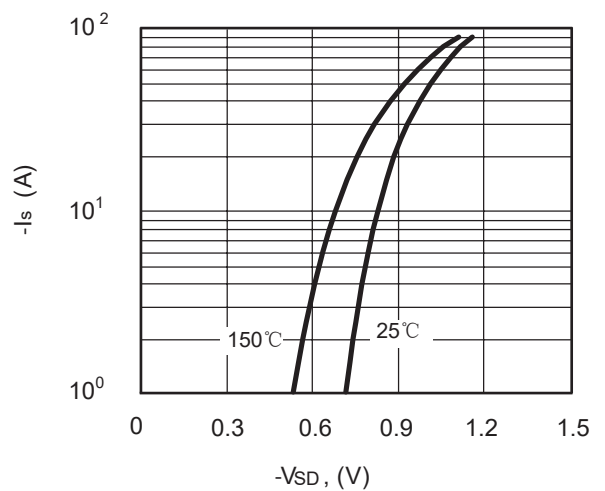
On-Resistance vs. Drain Current



Gate Charge Characteristics



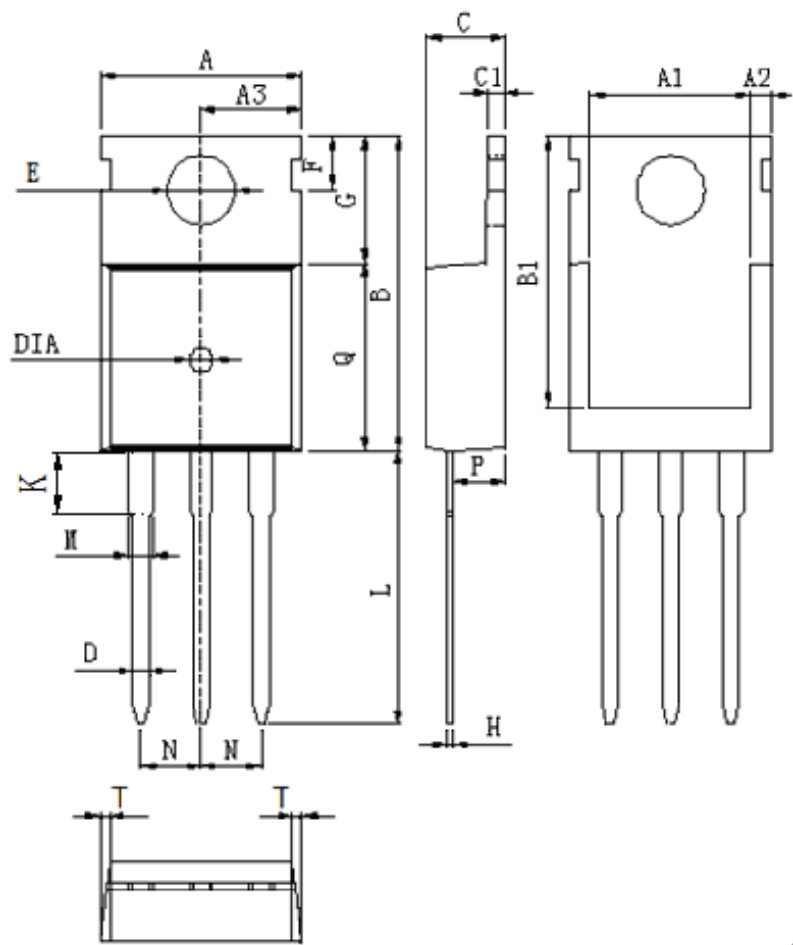
Capacitance Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature

Package Dimension

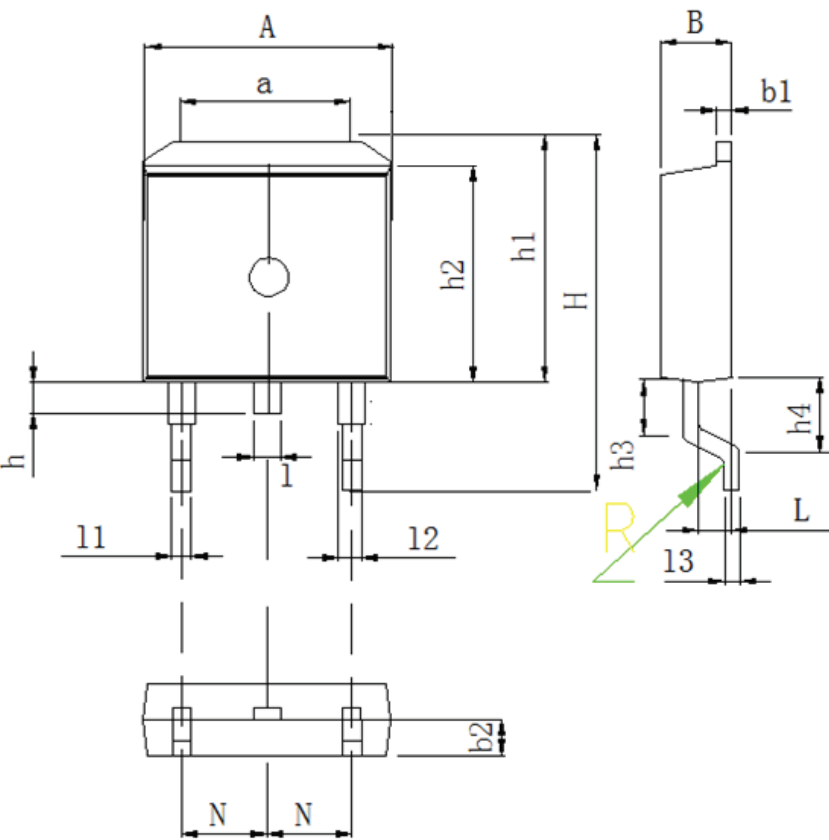
TO-220 Unit :mm



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
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±0.05