CMD70P06/CMU70P06

-60V, 13mΩ typ., -70A P-Channel MOSFET

General Description

The 70P06 uses advanced trench technology and design to provide excellent RDS(ON).This is suitable device for most of the synchronous buck converter applications .

Product Summary

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

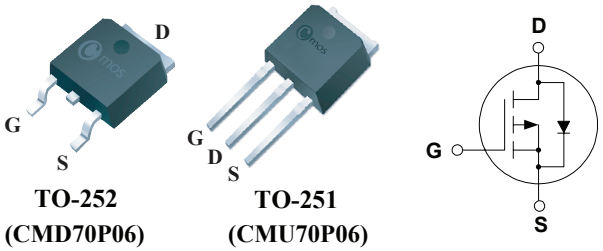
Applications

- DC-DC converters
- Motor control

Features

- P-Channel MOSFET
- Low ON-resistance
- 100% avalanche tested
- RoHS Compliant

TO-252/251 Pin Configuration



Absolute Maximum Ratings (T_A=25 ℃ Unless Otherwise Noted)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-70	A
I_D@T_C=100℃	Continuous Drain Current	-45.5	A
I_{DM}	Pulsed Drain Current	-280	A
EAS	Single Pulse Avalanche Energy[1]	420	mJ
P_D@T_C=25℃	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.83	℃/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	-60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-20A	---	13	15	mΩ
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-4.5V , I_D=-10A	---	16	24	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1	---	-3	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
gfs	Forward Transconductance	V_{DS}=-10V, I_D=-20A	---	33	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	130	---	Ω
Q_g	Total Gate Charge	I_D=-25A V_{DS}=-30V V_{GS}=-10V	---	89	---	nC
Q_{gs}	Gate-Source Charge		---	13	---	
Q_{gd}	Gate-Drain Charge		---	20	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V, I_{DS}=-1A R_L=30Ω R_G=6Ω V_{GEN}=-10V	---	16	---	ns
T_r	Rise Time		---	12	---	
$T_{d(off)}$	Turn-Off Delay Time		---	120	---	
T_f	Fall Time		---	61	---	
C_{iss}	Input Capacitance	V_{DS}=-25V ,V_{GS}=0V , f=1MHz	---	5550	---	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℃	---	---	-1.2	V

Note :

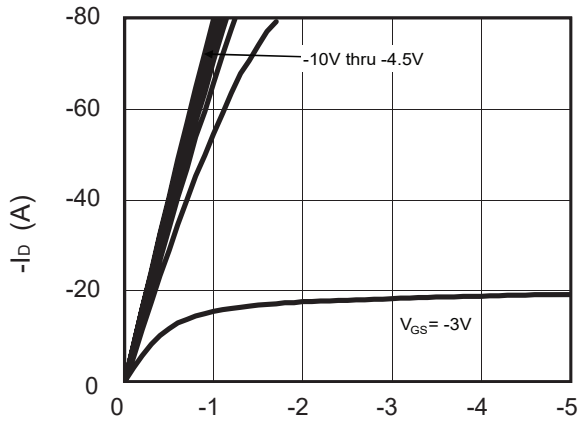
1.The EAS data shows Max. rating . The test condition is V_{DD}=-40V , V_{GS}=-10V , L=1mH , I_{AS}=-29A.

2. Defined by design, not subject to production.

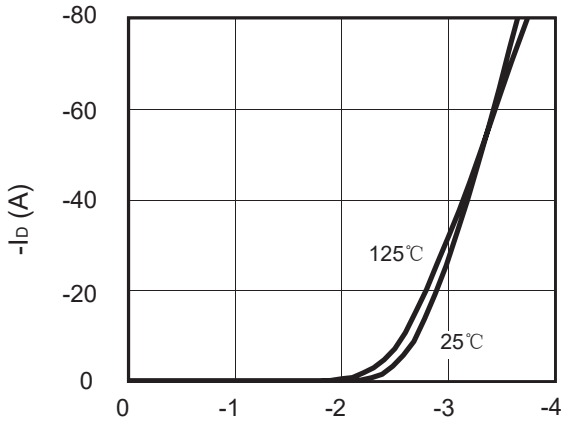
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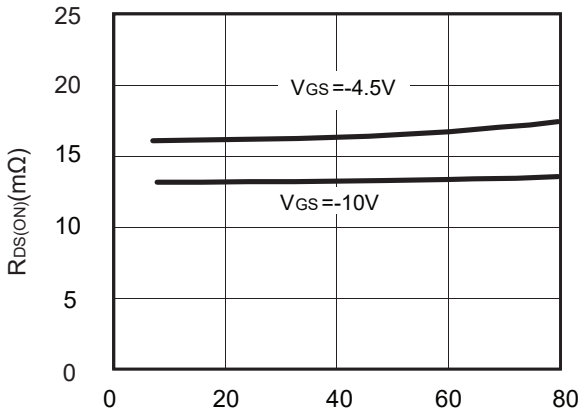
Typical Characteristics



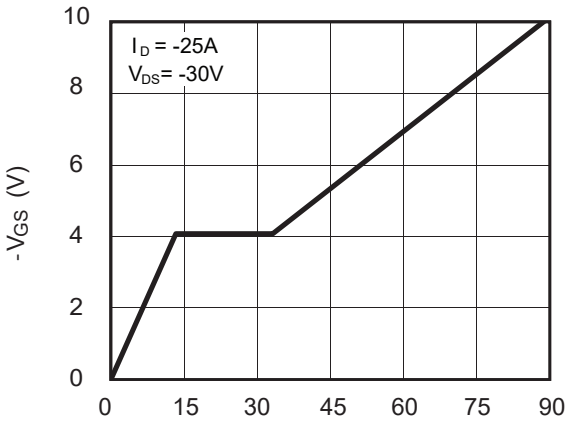
On-Region Characteristics



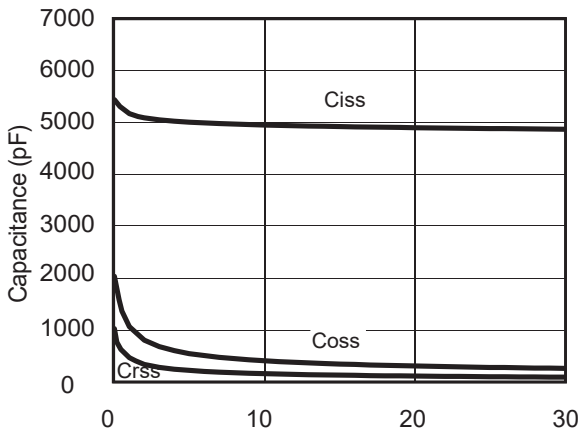
transfer characteristics



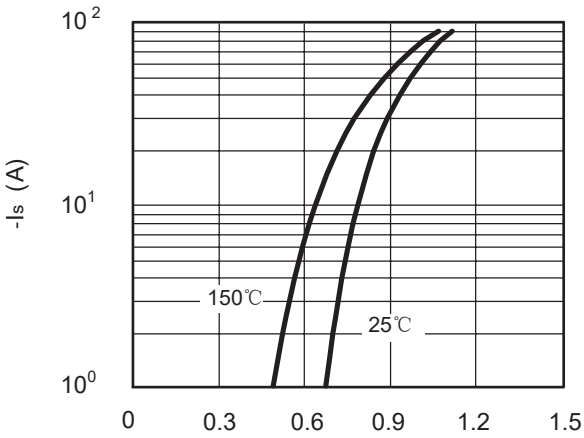
On-Resistance vs. Drain Current



Gate Charge Characteristics



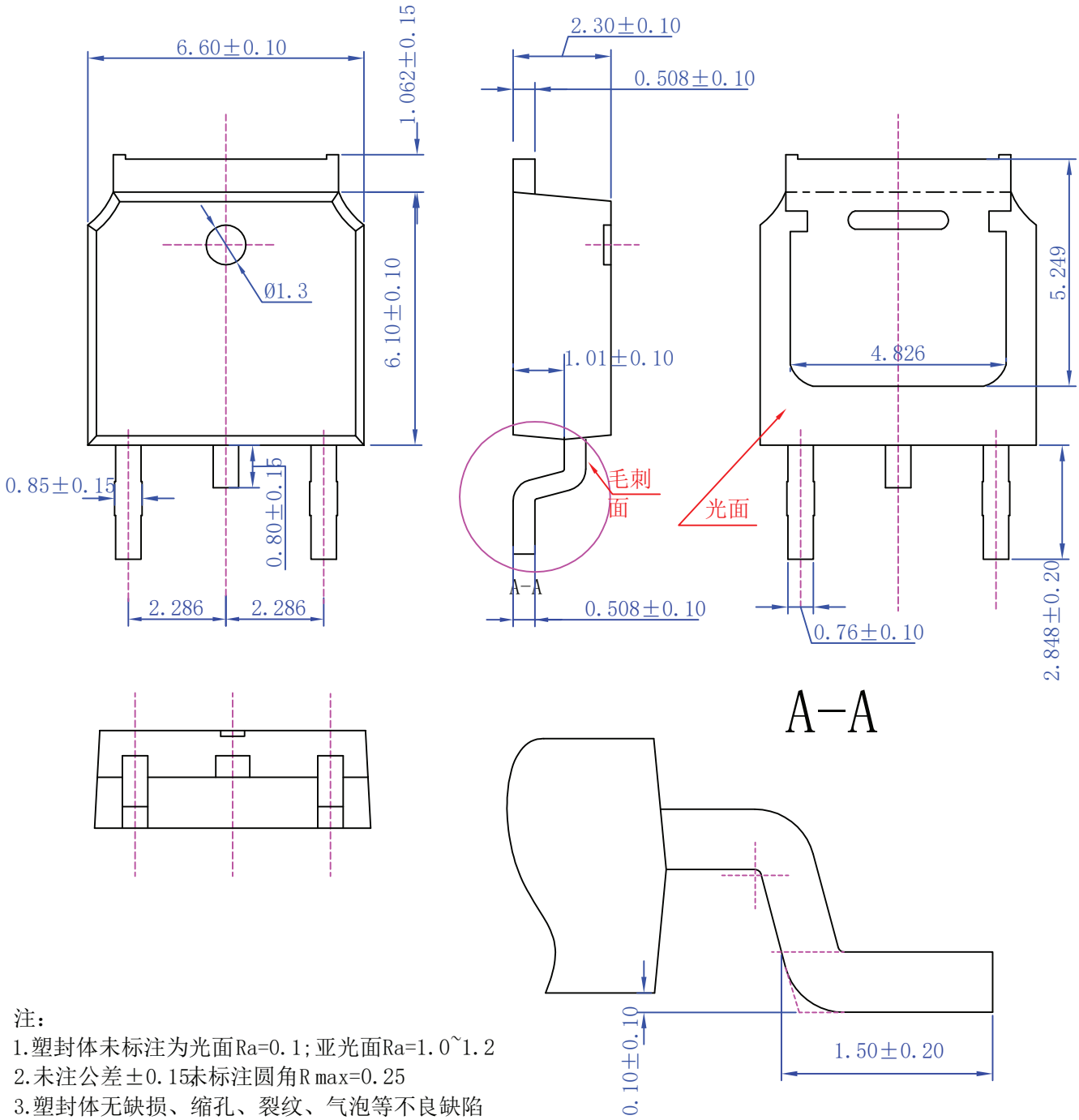
Capacitance Characteristics



Body Diode Forward Voltage Variation with Source Current and Temperature

Package Dimension

TO-252 Unit :mm



注：
1.塑封体未标注为光面Ra=0.1;亚光面Ra=1.0~1.2
2.未注公差±0.15未标注圆角R max=0.25
3.塑封体无缺损、缩孔、裂纹、气泡等不良缺陷
4.标注单位mm
5.顶针孔不允许凸出塑封体表面

Package Dimension

TO-251A Unit :mm

