P-Channel Silicon MOSFET

General Description

The 5952A uses advanced trench technology and design to provide excellent RDS(ON) with low gate charge. It can be used in a wide variety of applications.

Product Summary

BVDSS	RDSON	ID
-120V	46mΩ	-30A

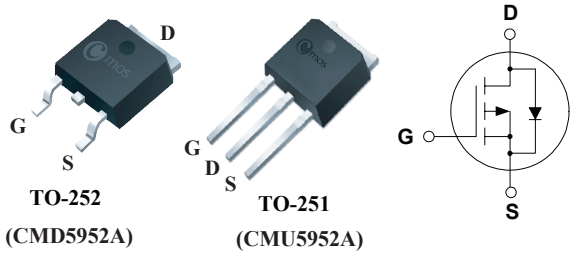
Features

- P-Channel
- Low ON-resistance.
- Fast Switching
- 100% avalanche tested

Applications

- Inverters
- Motor drive
- DC / DC converter

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-120	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Continuous Drain Current	-30	A
I_D@T_C=100℃	Continuous Drain Current	-21	A
I_{DM}	Pulsed Drain Current	-120	A
EAS	Single Pulse Avalanche Energy[1]	435	mJ
P_D@T_C=25℃	Total Power Dissipation	100	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.25	℃/W

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	-120	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V, I_D=-6A	---	39	46	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250 uA	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-120V , 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=-12A	---	23	---	S
Q_g	Total Gate Charge	I_D=-15A V_{DS}=-50V V_{GS}=-10V	---	80	---	nC
Q_{gs}	Gate-Source Charge		---	19	---	
Q_{gd}	Gate-Drain Charge		---	15	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-50V I_D=-15A R_G=9.1Ω V_{GS}=-10V	---	10	---	ns
T_r	Rise Time		---	41	---	
$T_{d(off)}$	Turn-Off Delay Time		---	260	---	
T_f	Fall Time		---	90	---	
C_{iss}	Input Capacitance	V_{DS}=-25V, V_{GS}=0V , f=1MHz	---	4800	---	pF
C_{oss}	Output Capacitance		---	300	---	
C_{rss}	Reverse Transfer Capacitance		---	220	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-30	A
I_{SM}	Pulsed Source Current		---	---	-120	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-12A	---	-0.85	-1.2	V

Notes:

1.The EAS data shows Max. rating .The test condition is V_{DS}=-50V , V_{GS}=-10V , L=0.5mH , I_{AS}=-41.6A.

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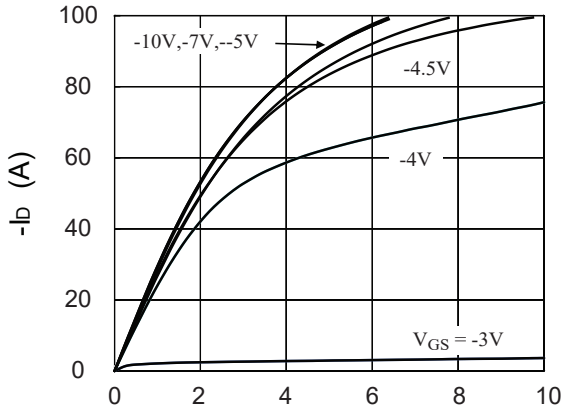
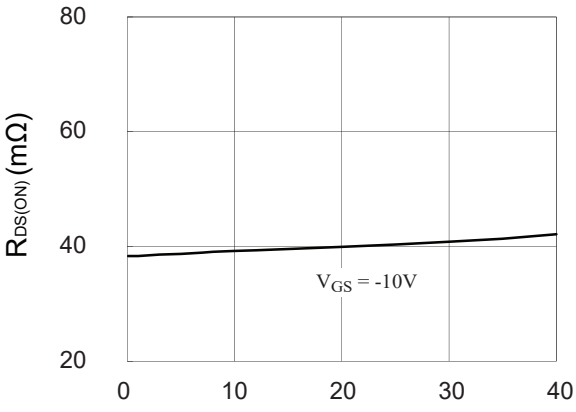
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.

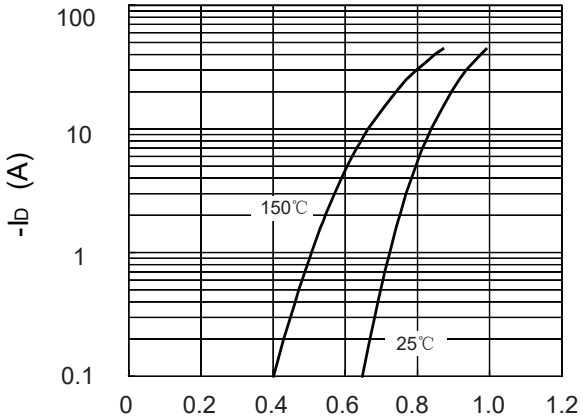
Typical Characteristics



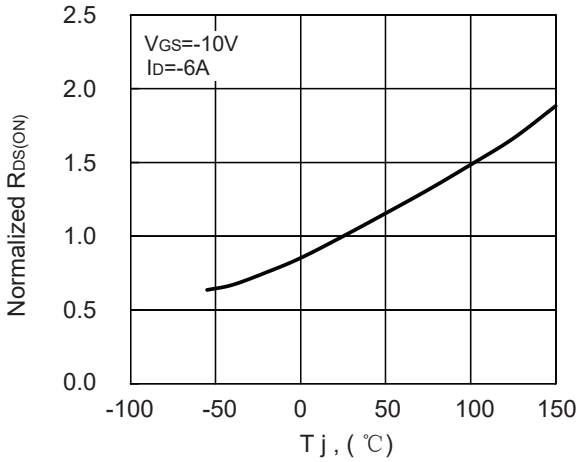
Output Characteristics



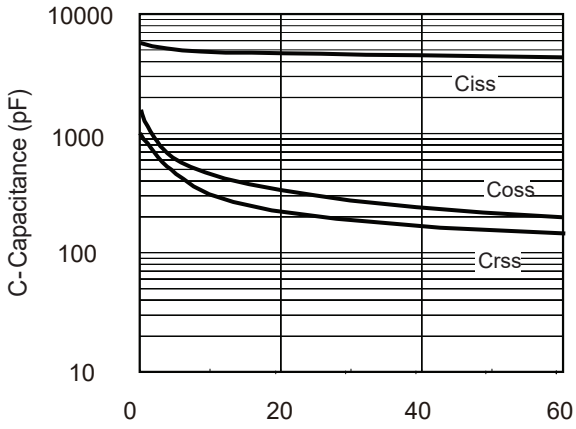
On-Resistance v.s. Drain Current



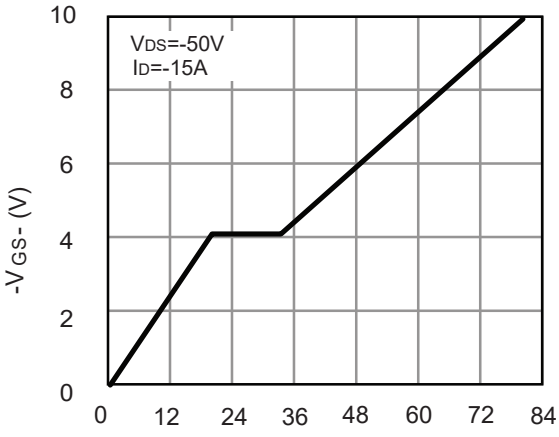
Body-Diode Characteristics



Normalized On-Resistance v.s. Junction Temperature



Capacitance Characteristics



Gate-Charge Characteristics