

### 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.

### Features

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

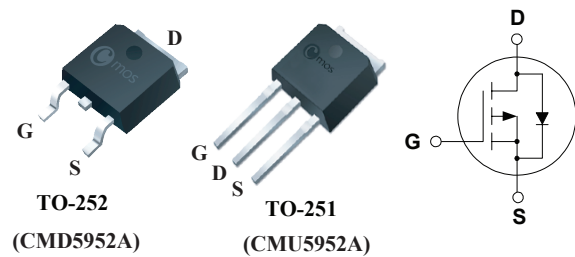
### Product Summary

BVDSS	RDSON	ID
-120V	46mΩ	-30A

### 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	$\pm 20$	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-30	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	-21	A
$I_{DM}$	Pulsed Drain Current	-120	A
EAS	Single Pulse Avalanche Energy <sup>1</sup>	435	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	100	W
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ C$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ C$

### Thermal Data

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

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	-120	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-6A$	---	39	46	m $\Omega$
		$V_{GS}=-4.5V, I_D=-6A$	---	66	85	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2	---	-4	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=-120V, V_{GS}=0V$	---	---	-1	$\mu A$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	$\pm 100$	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	$V_{DD}=-50V$ $I_D=-15A$ $R_G=9.1\Omega$ $V_{GS}=-10V$	---	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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Typical Characteristics

