

General Description

The 5941 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

- Low ON-resistance
- 100% avalanche tested
- Simple Drive Requirements
- RoHS Compliant

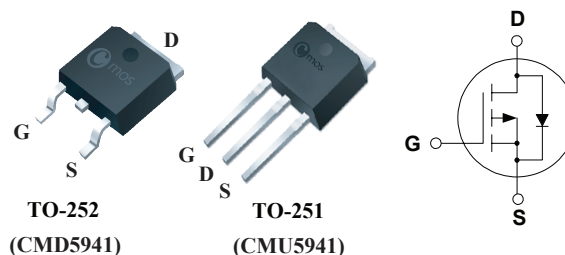
Product Summary

BVDSS	RDS(on) max.	ID
-100V	125mΩ	-25A

Applications

- Inverters
- Motor drive
- DC / DC converter

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	-100	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current	-25	A
I _D @T _C =100°C	Continuous Drain Current	-17	A
I _{DM}	Pulsed Drain Current	-100	A
EAS	Single Pulse Avalanche Energy ¹	171	mJ
P _D @T _C =25°C	Total Power Dissipation	50	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	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	---	2.5	°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	$V_{GS}=0V$, $I_D=-250\mu A$	-100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-4.5V$, $I_D=-20A$	---	103	125	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-85V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	-1	uA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	13	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	100	---	Ω
Q_g	Total Gate Charge	$V_{DS}=-50V$, $I_D=-20A$ $V_{GS}=-10V$	---	65	---	nC
Q_{gs}	Gate-Source Charge		---	10	---	
Q_{gd}	Gate-Drain Charge		---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-50V$, $V_{GS}=-10V$ $I_D=-10A$, $R_L=5.6\Omega$	---	20	---	ns
T_r	Rise Time		---	100	---	
$T_{d(off)}$	Turn-Off Delay Time		---	280	---	
T_f	Fall Time		---	150	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2800	---	pF
C_{oss}	Output Capacitance		---	95	---	
C_{rss}	Reverse Transfer Capacitance		---	50	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-25	A
I_{SM}	Pulsed Source Current		---	---	-100	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-10A$	---	-0.88	-1.3	V

Note :

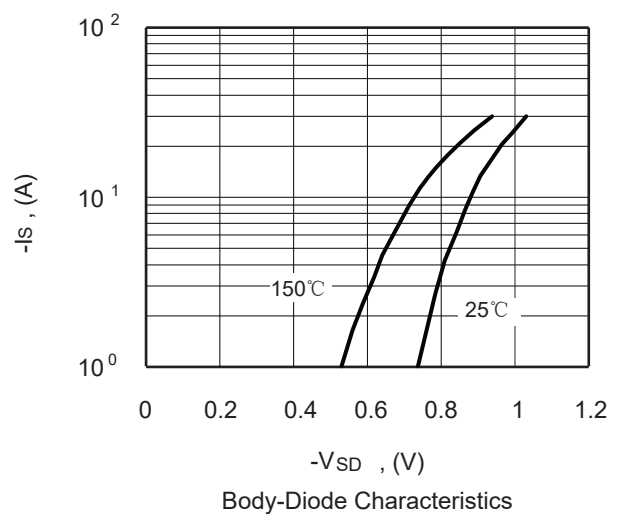
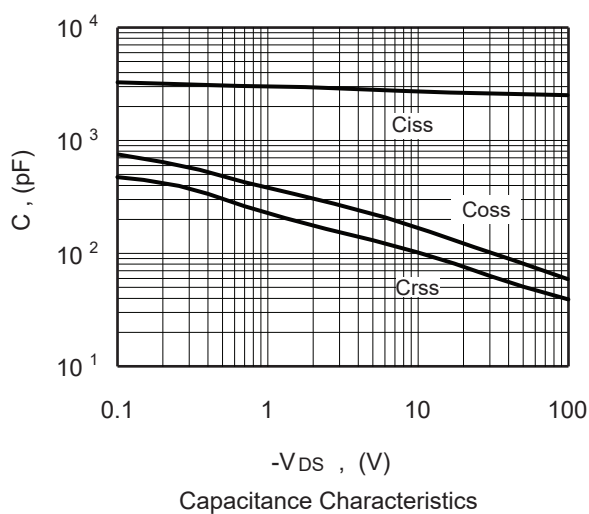
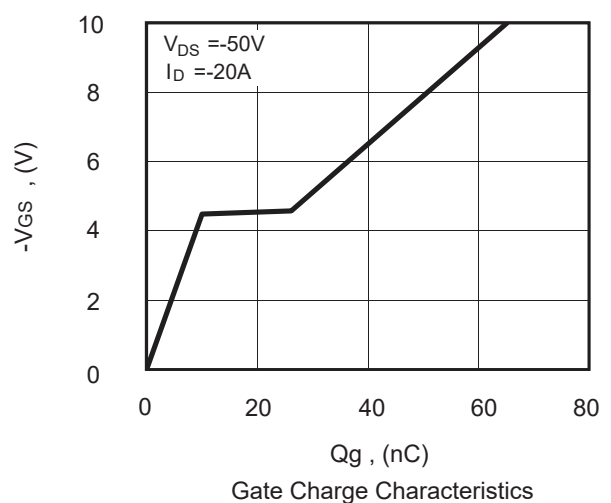
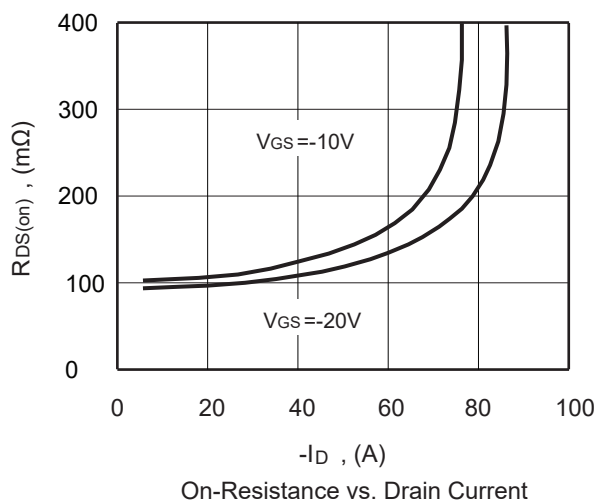
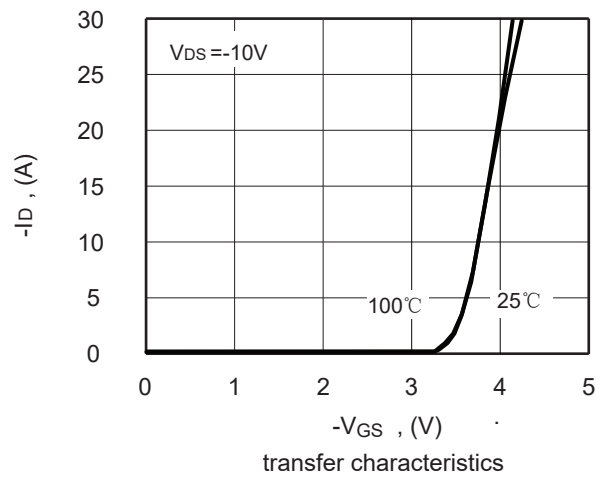
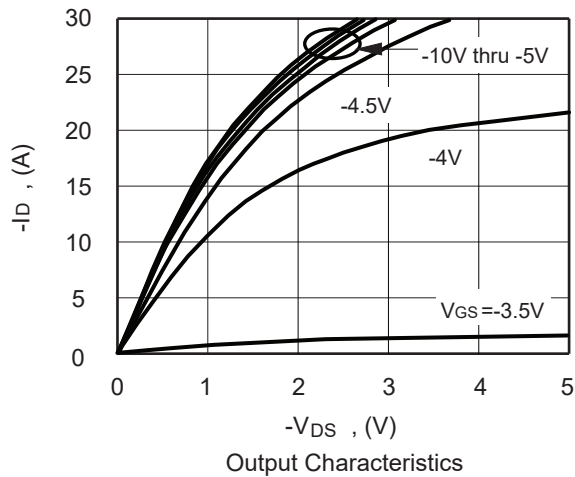
1.The EAS data shows Max. rating . The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-18.5A$.

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

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice.

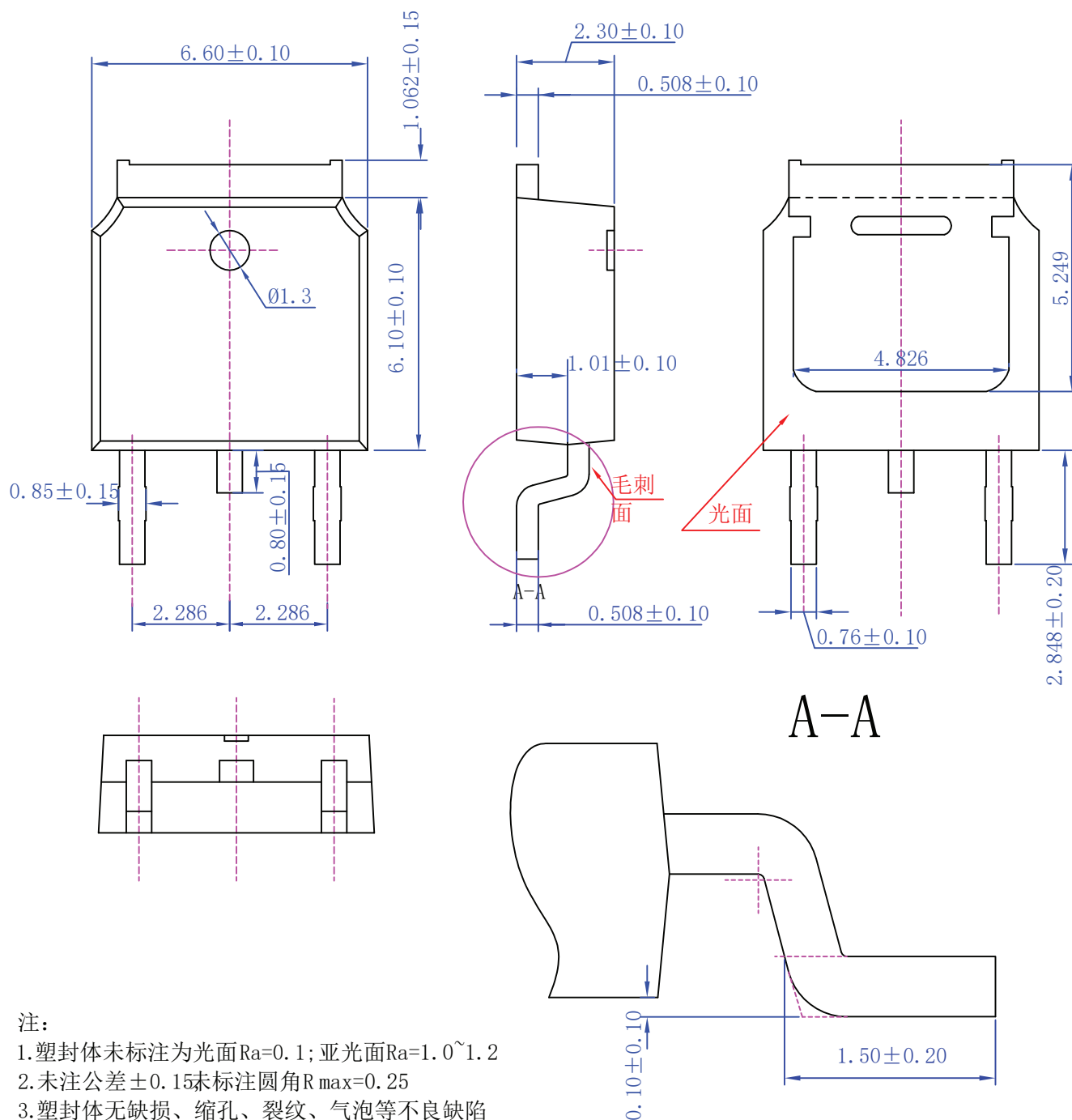
Typical Characteristics



Package Dimension

TO-252

Unit :mm



Package Dimension

TO-251A

Unit :mm

