

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

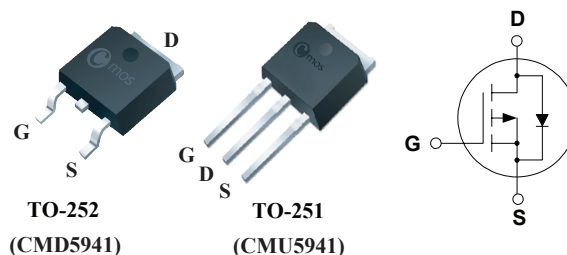
Product Summary

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 $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1\text{mH}$, $I_{AS}=-18.5A$.

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