

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

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

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-25	A
I_{DM}	Pulsed Drain Current	-75	A
I_{AS}	Avalanche Current	-25	A
$P_D@T_C=25^\circ C$	Total Power Dissipation	50	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62.5	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	1.5	$^\circ C/W$

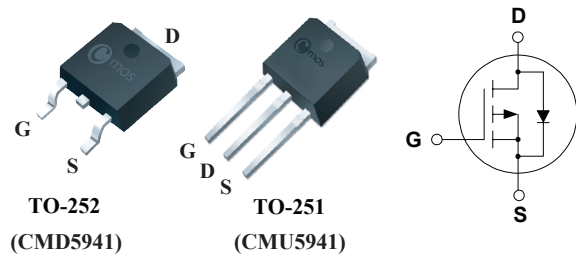
Product Summary

BVDSS	RDSON	ID
-100V	135m Ω	-25A

Applications

- Inverters
- Motor drive
- DC / DC converter

TO-252/251 Pin Configuration



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	$V_{GS}=0V, I_D=-250\mu A$	-100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-20A$	---	---	135	$m\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=-250\mu A$	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-85V, V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
gfs	Forward Transconductance	$V_{DS}=-10V, I_D=-23A$	---	19	---	S
Q_g	Total Gate Charge	$I_D=-20A$	---	65	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-50V$	---	10	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-10V$	---	16	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-50V$	---	20	---	ns
T_r	Rise Time	$I_D=-10A$	---	100	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_L=5.6\Omega$	---	280	---	
T_f	Fall Time	$V_{GS}=-10V$	---	150	---	
C_{iss}	Input Capacitance	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$	---	4500	---	pF
C_{oss}	Output Capacitance		---	250	---	
C_{riss}	Reverse Transfer Capacitance		---	180	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_S=-20A$	---	55	---	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=-100A/\mu s$	---	140	---	nC
V_{SD}	Diode Forward Voltage	$V_{GS}=0V, I_S=-15A$	---	---	-1.3	V

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