

General Description

The 5943 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

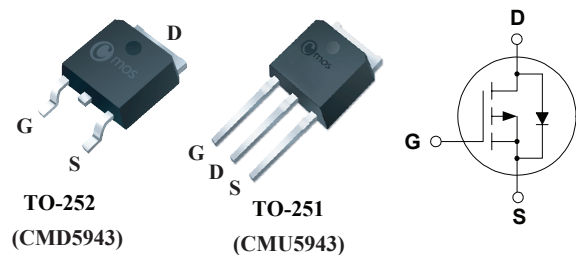
Product Summary

BVDSS	RDSON	ID
-100V	110mΩ	-20A

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
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	-20	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	-12	A
I_{DM}	Pulsed Drain Current	-80	A
EAS	Single Pulse Avalanche Energy ¹	162	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	50	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	75	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-case	---	2.5	$^\circ\text{C/W}$

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	$V_{GS}=-10V$, $I_D=-10A$	---	87	110	$m\Omega$
		$V_{GS}=-4.5V$, $I_D=-8A$	---	94	130	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-1	---	-3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-100V$, $V_{GS}=0V$	---	---	-1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-10V$, $I_D=-10A$	---	20	---	S
Q_g	Total Gate Charge	$I_D=-20A$	---	92	---	nC
Q_{gs}	Gate-Source Charge	$V_{DS}=-50V$	---	24	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=-10V$	---	25	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=-20V$	---	20	---	ns
T_r	Rise Time	$I_D=-1A$	---	25	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_{GS}=6\Omega$	---	120	---	
T_f	Fall Time	$V_{GS}=-10V$	---	125	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3800	---	pF
C_{oss}	Output Capacitance		---	120	---	
C_{rss}	Reverse Transfer Capacitance		---	100	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
t_{rr}	Reverse Recovery Time	$I_S=-20A$	---	85	---	ns
Q_{rr}	Reverse Recovery Charge	$dI/dt=-100A/\mu s$	---	255	---	nC
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=-10A$	---	---	-1.3	V

Note :

1. The test condition is $V_{DD}=-30V$, $V_{GS}=-10V$, $L=1mH$, $I_{AS}=-18A$.

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.