

General Description

The 4003 uses advanced trench technology to provide excellent RDS(ON). The device well suited for high current applications.

Features

- P-Channel MOSFET
- Fast Switching
- Low ON-resistance
- 100% EAS Guaranteed
- RoHS Compliant

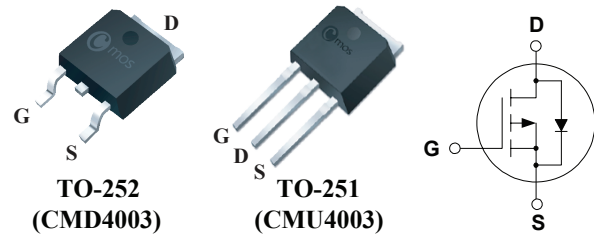
Product Summary

BVDSS	RDSON	ID
-40V	20mΩ	-27A

Applications

- DC/DC converters
- Inverter
- Power Supplies

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-40	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current ¹	-27	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current ¹	-21	A
I_{DM}	Pulsed Drain Current ²	-54	A
EAS	Single Pulse Avalanche Energy ³	64	mJ
I_{AS}	Avalanche Current	-27	A
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation ⁴	35	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 ¹	---	62	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case ¹	---	3.6	$^\circ\text{C}/\text{W}$

Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =-250uA	-40	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =-10V , I _D =-8A	---	14	20	mΩ
		V _{GS} =-4.5V , I _D =-5A	---	18	28	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1	---	-2.5	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-32V, V _{GS} =0V , T _J =25°C	---	---	-1	uA
		V _{DS} =-32V, V _{GS} =0V , T _J =55 °C	---	---	-5	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-10V , I _D =-10A	---	17	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	2	---	Ω
Q _g	Total Gate Charge	V _{DS} =-20V, V _{GS} =-4.5V , I _D =-1A	---	12	25	nC
Q _{gs}	Gate-Source Charge		---	3.4	---	
Q _{gd}	Gate-Drain Charge		---	3.3	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-20V, V _{GS} =-10V, R _G =3.3Ω I _D =-1A	---	24	---	ns
T _r	Rise Time		---	15	---	
T _{d(off)}	Turn-Off Delay Time		---	60	---	
T _f	Fall Time		---	8	---	
C _{iss}	Input Capacitance	V _{DS} =-15V, V _{GS} =0V , f=1MHz	---	2400	---	pF
C _{oss}	Output Capacitance		---	180	---	
C _{rss}	Reverse Transfer Capacitance		---	105	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ^{1 5}	V _G =V _D =0V , Force Current	---	---	-27	A
I _{SM}	Pulsed Source Current ^{2 5}		---	---	-54	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =-1.6A , T _J =25°C	---	---	-1.2	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2.The data tested by pulsed , pulse width ≅ 300us , duty cycle ≅ 2%
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=-20V,V_{GS}=-10V,L=0.5mH,I_{AS}=-17A
- 4.The power dissipation is limited by 150°C junction temperature
- 5.The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

This product has been designed and qualified for the counsumer market.
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability withtout notice.