

General Description

These miniature surface mount MOSFETs utilize a high cell density trench process to provide low $r_{DS(on)}$ and to ensure minimal power loss and heat dissipation. Typical applications are DC-DC converters and power management in portable and battery-powered products such as computers, printers, PCMCIA cards, cellular and cordless telephones.

Features

- Advanced high cell density Trench technology
- Fast switching speed
- Lower On-resistance
- 100% EAS Guaranteed
- Simple Drive Requirement

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-30	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current	-19	A
$I_D@T_C=100^\circ C$	Continuous Drain Current	-12	A
I_{DM}	Pulsed Drain Current ¹	-57	A
I_{AS}	Avalanche Current	-19	A
$P_D@T_C=25^\circ C$	Total Power Dissipation ²	30	W
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 150	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ²	---	71.4	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case	---	1.67	$^\circ C/W$

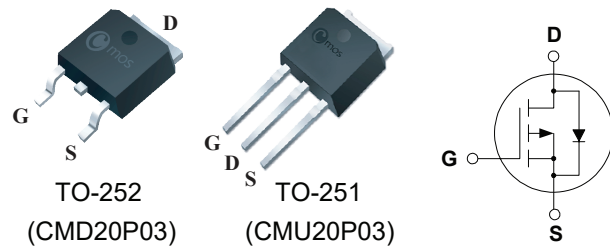
Product Summary

BVDSS	RDSON	ID
-30V	42m Ω	-19A

Applications

- DC-DC Converters
- Desktop PCs
- LED controller

TO-252/251 Pin Configuration



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	-30	---	---	V
ΔBV _{DSS} /ΔT _J	BVDSS Temperature Coefficient	Reference to 25°C, I _D =-250uA	---	-15	---	MV/°C
R _{DS(ON)}	Static Drain-Source On-Resistance	V _{GS} =-10V, I _D =-10A	---	---	42	mΩ
		V _{GS} =-4.5V, I _D =-5A	---	---	68	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =-250uA	-1	---	-3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =-24V, V _{GS} =0V, T _J =25°C	---	---	-10	uA
		V _{DS} =-24V, V _{GS} =0V, T _J =125 °C	---	---	-100	
I _{GSS}	Gate-Source Leakage Current	V _{GS} =±20V, V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =-8V, I _D =-9.5A	---	13	---	S
Q _g	Total Gate Charge	V _{DS} =-24V, V _{GS} =-5.0V, I _D =-19A	---	15	21	nC
Q _{gs}	Gate-Source Charge		---	3.4	---	
Q _{gd}	Gate-Drain Charge		---	9.7	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =-15V, V _{GS} =-5.0V, R _G =3.3Ω I _D =-19A	---	16	---	ns
T _r	Rise Time		---	125	---	
T _{d(off)}	Turn-Off Delay Time		---	25	---	
T _f	Fall Time		---	68	---	
C _{iss}	Input Capacitance	V _{DS} =-25V, V _{GS} =0V, f=1MHz	---	700	---	pF
C _{oss}	Output Capacitance		---	110	---	
C _{rss}	Reverse Transfer Capacitance		---	80	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V, Force Current	---	---	-19	A
I _{SM}	Pulsed Source Current		---	---	-57	A
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V, I _S =-19A, T _J =25°C	---	---	-3.4	V

Note :

- 1.Pulse width limited by Max. junction temperature.
- 2.When surface mounted to an FR-4 board using the 0.5 sq.in. drain pad size.
- 3.Reflects typical values. Cpk = Absolute Value of Spec (Spec-AVG/3.516 uA).

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