

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology. This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for electronic lamp ballast based on complimentary half bridge.

Features

- Fast switching
- 100% avalanche tested
- RoHS Compliant

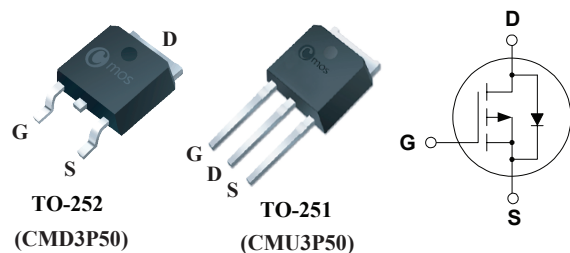
Product Summary

BVDSS	RDSON	ID
-500V	9.8Ω	-2A

Applications

- Power switching application
- Uninterruptible power supply
- Hard switched and high frequency circuits

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-500	V
V_{GS}	Gate-Source Voltage	±30	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current	-2	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	-1.3	A
I_{DM}	Pulsed Drain Current	-8	A
EAS	Single Pulse Avalanche Energy ¹	126	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	45	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	---	50	°C/W
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	---	2.7	°C/W

Electrical Characteristics ($T_J=25^\circ\text{C}$, unless otherwise noted)

P-Channel Power MOSFET

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=-250\mu A$	-500	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=-10V$, $I_D=-1A$	---	8.3	9.8	Ω
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=-250\mu A$	-2	---	-4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=-500V$, $V_{GS}=0V$, $T_J=25^\circ\text{C}$	---	---	-1	μA
		$V_{DS}=-400V$, $V_{GS}=0V$, $T_J=125^\circ\text{C}$	---	---	-10	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 30V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=-20V$, $I_D=-1A$	---	2	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3.3	---	Ω
Q_g	Total Gate Charge	$V_{DD}=-400V$, $I_D=-1.5A$ $V_{GS}=-10V$	---	12	---	nC
Q_{gs}	Gate-Source Charge		---	2	---	
Q_{gd}	Gate-Drain Charge		---	6	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=-250V$, $R_G=25\Omega$, $I_D=-1.5A$	---	10	---	ns
T_r	Rise Time		---	25	---	
$T_{d(off)}$	Turn-Off Delay Time		---	27	---	
T_f	Fall Time		---	30	---	
C_{iss}	Input Capacitance	$V_{DS}=-25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	320	---	pF
C_{oss}	Output Capacitance		---	25	---	
C_{rss}	Reverse Transfer Capacitance		---	5	---	

Diode Characteristics

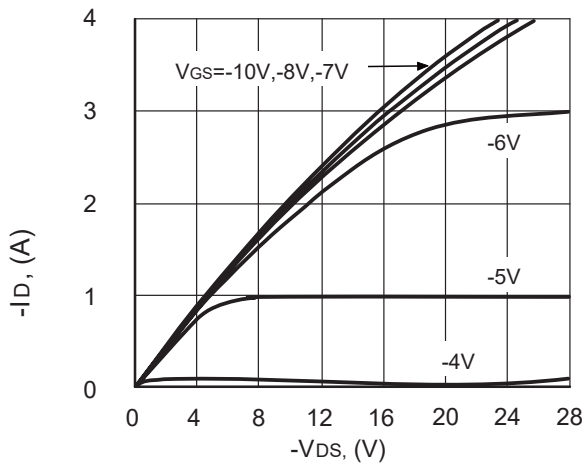
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	-2	A
I_{SM}	Pulsed Source Current		---	---	-8	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_F=-2A$	---	---	-5	V

Notes:

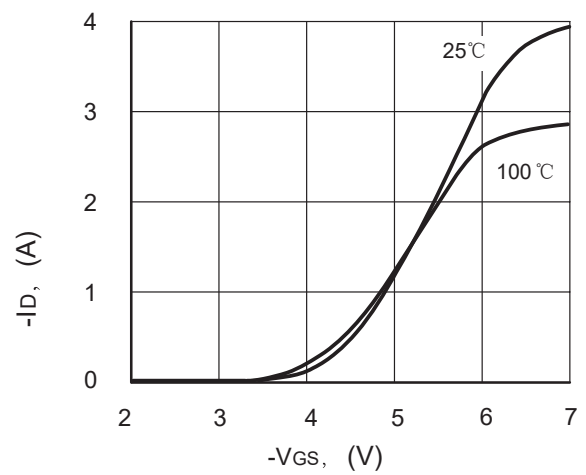
1.The EAS data shows Max. rating .The test condition is $V_{DS}=-100V$, $V_{GS}=-10V$, $L=30\text{mH}$, $I_{AS}=-2.9A$.

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.

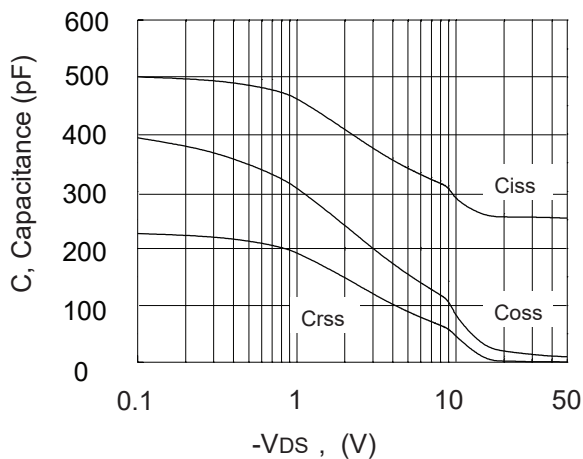
Typical Characteristics



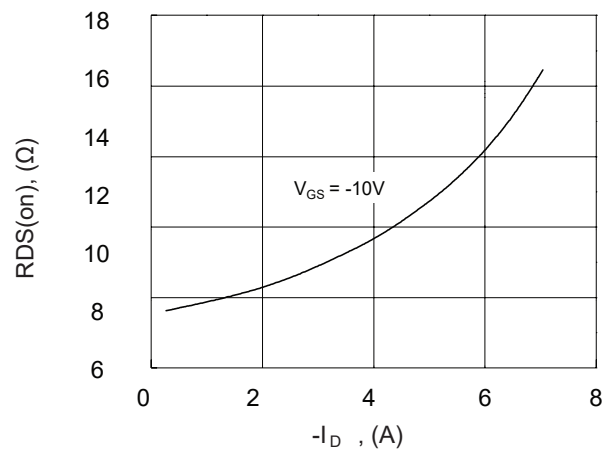
Typical Output Characteristics



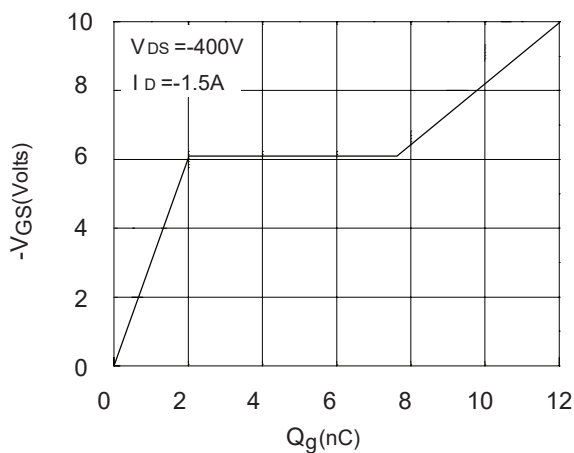
Transfer characteristics



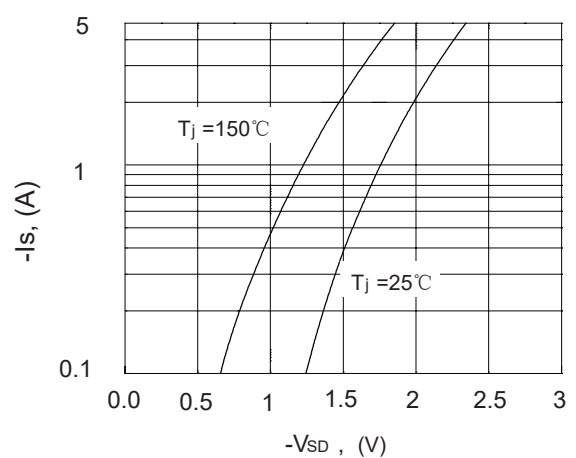
Capacitance Characteristics



On-Resistance vs. Drain Current



Gate Charge Characteristics



Body-Diode Characteristics