

General Description

These N-Channel enhancement mode power field effect transistors are produced using Cmos's proprietary, planar stripe, DMOS technology. These devices are well suited for high efficiency switched mode power supplies, electronic lamp ballasts based on half bridge topology.

Features

- Fast switching
- 100% avalanche tested
- Improved dv/dt capability
- RoHS Compliant

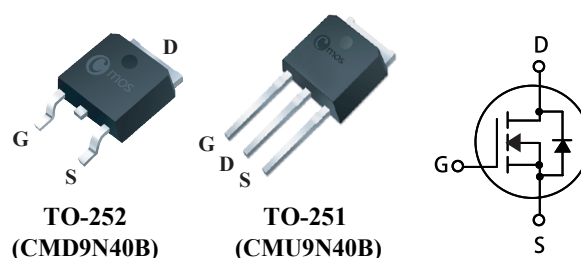
Product Summary

BVDSS	RDSON	ID
400V	0.92Ω	8A

Applications

- Power Supply
- PFC

TO-252/251 Pin Configuration



Absolute Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	400	V
V _{GS}	Gate-Source Voltage	±30	V
I _D @T _C =25°C	Continuous Drain Current	8	A
I _D @T _C =100°C	Continuous Drain Current	5	A
I _{DM}	Pulsed Drain Current	32	A
EAS	Single Pulse Avalanche Energy ¹	324	mJ
P _D @T _C =25°C	Total Power Dissipation	75	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient	---	62.5	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	1.67	°C/W

Electrical Characteristic (Tc=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	400	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 400\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	μA
I_{GSSF}	Gate-Body Leakage Current, Forward	$V_{GS} = +30\text{ V}, V_{DS} = 0\text{ V}$	--	--	100	nA
I_{GSSR}	Gate-Body Leakage Current, Reverse	$V_{GS} = -30\text{ V}, V_{DS} = 0\text{ V}$	--	--	-100	nA

On Characteristics

$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	2	--	4	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 10\text{ V}, I_D = 4.5\text{ A}$	--	0.81	0.92	Ω
g_{FS}	Forward Transconductance	$V_{DS} = 20\text{ V}, I_D = 4.5\text{ A}$	--	6	--	S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 25\text{ V}, V_{GS} = 0\text{ V},$ $f = 1.0\text{ MHz}$	--	970	--	pF
C_{oss}	Output Capacitance		--	70	--	pF
C_{rss}	Reverse Transfer Capacitance		--	3	--	pF

Switching Characteristics

$t_{d(on)}$	Turn-On Delay Time	$V_{DS} = 200\text{ V}, I_D = 5.5\text{ A},$ $R_G = 25\text{ }\Omega$	--	58	--	ns
t_r	Turn-On Rise Time		--	38	--	ns
$t_{d(off)}$	Turn-Off Delay Time		--	95	--	ns
t_f	Turn-Off Fall Time		--	30	--	ns
Q_g	Total Gate Charge	$V_{DS} = 320\text{ V}, I_D = 5.5\text{ A},$ $V_{GS} = 10\text{ V}$	--	14	--	nC
Q_{gs}	Gate-Source Charge		--	4.7	--	nC
Q_{gd}	Gate-Drain Charge		--	2.3	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

I _S	Maximum Continuous Drain-Source Diode Forward Current		--	--	8	A
I _{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	32	A
V _{SD}	Drain-Source Diode Forward Voltage	V _{GS} = 0 V, I _S = 9 A	--	0.9	1.4	V

Note :

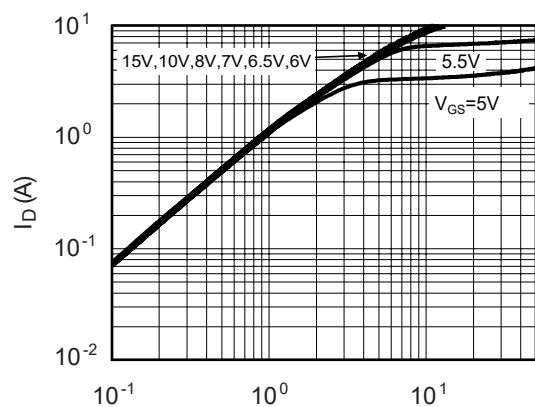
1.The EAS data shows Max. rating . The test condition is $V_{DD}=50\text{V}, V_{GS}=10\text{V}, L=8\text{mH}, I_{AS}=9\text{A}$.

This product has been designed and qualified for the consumer market.

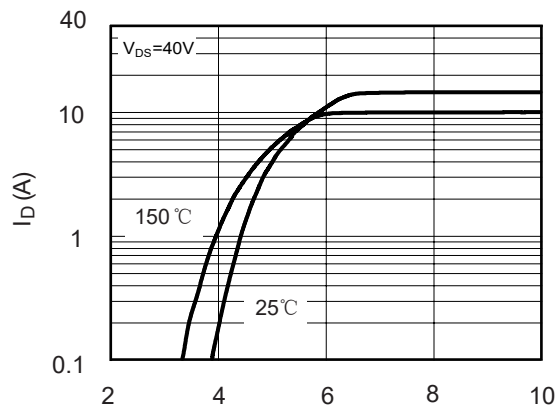
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Cmos reserves the right to improve product design, functions and reliability without notice.

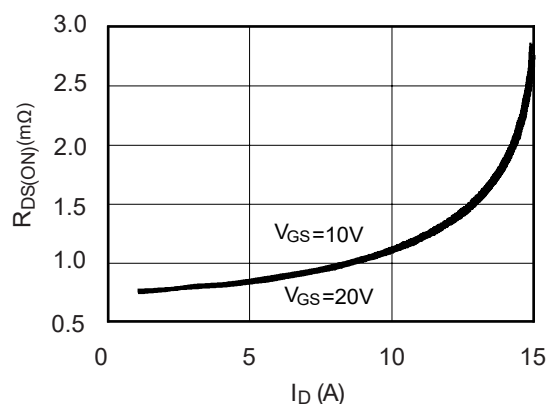
Typical Characteristics



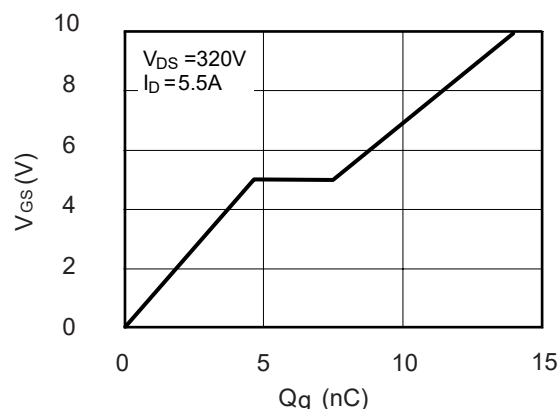
On-Region Characteristics



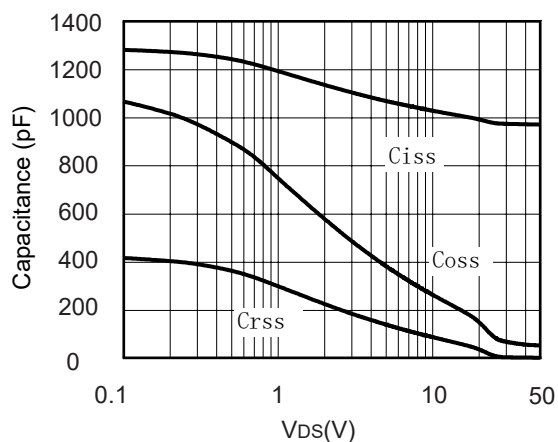
Transfer Characteristics



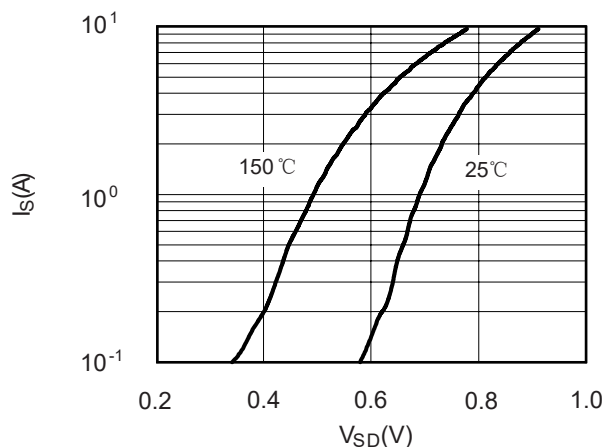
On-Resistance vs. Drain Current



Gate-Charge Characteristics



Break Down vs. Junction Temperature



Body-Diode Characteristics