

General Description

This Power MOSFET is produced using Cmos's advanced planar stripe DMOS technology. These devices are well suited for high efficiency switched mode power supplies, active power factor correction, electronic lamp ballasts based on half bridge topology.

Features

- 100% Avalanche Tested
- Improved dv/dt capability
- RoHS Compliant

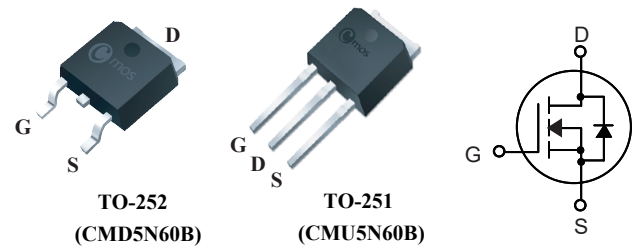
Product Summary

BVDSS	RDSON	ID
600V	2.8Ω	4A

Applications

- Power Supply
- PFC
- Ballast

TO-252/251 Pin Configuration



Absolute Maximum Ratings

$T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source Voltage	600	V
I_D	Drain Current - Continuous ($T_C = 25^\circ\text{C}$)	4	A
	- Continuous ($T_C = 100^\circ\text{C}$)	2.5	A
I_{DM}	Drain Current - Pulsed ^a	16	A
V_{GSS}	Gate-Source Voltage	± 30	V
E_{AS}	Single Pulsed Avalanche Energy ^b	270	mJ
E_{AR}	Repetitive Avalanche Energy ^a	4.9	mJ
dv/dt	Peak Diode Recovery dv/dt ^c	4.5	V/ns
P_D	Power Dissipation ($T_C = 25^\circ\text{C}$)	50	W
T_J, T_{STG}	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	300	$^\circ\text{C}$

Thermal Characteristics

Symbol	Parameter	Value	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case Max.	2.5	$^\circ\text{C}/\text{W}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient Max.	110	$^\circ\text{C}/\text{W}$

Electrical Characteristic

 $T_C = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
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Off Characteristics

BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0\text{ V}, I_D = 250\text{ }\mu\text{A}$	600	--	--	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 600\text{ V}, V_{GS} = 0\text{ V}$	--	--	1	μA
		$V_{DS} = 480\text{ V}, T_C = 125^\circ\text{C}$	--	--	10	
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	$V_{DS} = V_{GS}, I_D = 250\text{ }\mu\text{A}$	3.0	--	5.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS} = 10\text{ V}, I_D = 2.5\text{ A}$	--	2.5	2.8	Ω
g_{FS}	Forward Transconductance	$V_{DS} = 30\text{ V}, I_D = 2.5\text{ A}^d$	--	4	--	S

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS} = 25\text{ V}$	--	680	--	pF
C_{oss}	Output Capacitance	$V_{GS} = 0\text{ V}$	--	55	--	pF
C_{rss}	Reverse Transfer Capacitance	$f = 1.0\text{ MHz}$	--	6	--	pF

Switching Characteristics

$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 300\text{ V}$	--	10	--	ns
t_r	Turn-On Rise Time	$I_D = 4.5\text{ A}$	--	42	--	ns
$t_{d(off)}$	Turn-Off Delay Time	$R_G = 25\Omega$	--	40	--	ns
t_f	Turn-Off Fall Time		--	50	--	ns
Q_g	Total Gate Charge	$V_{DS} = 480\text{ V}$	--	15	--	nC
Q_{gs}	Gate-Source Charge	$I_D = 4.5\text{ A}$	--	2.8	--	nC
Q_{gd}	Gate-Drain Charge	$V_{GS} = 10\text{ V}$	--	7	--	nC

Drain-Source Diode Characteristics and Maximum Ratings

I_S	Maximum Continuous Drain-Source Diode Forward Current		--	--	4	A
I_{SM}	Maximum Pulsed Drain-Source Diode Forward Current		--	--	16	A
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS} = 0\text{ V}, I_S = 4.5\text{ A}$	--	--	1.4	V
t_{rr}	Reverse Recovery Time	$V_{GS} = 0\text{ V}, I_S = 4.5\text{ A}$	--	300	--	ns
Q_{rr}	Reverse Recovery Charge	$di/dt = 100\text{ A}/\mu\text{s}$	--	2	--	μC

Notes:

- Repetitive Rating: Pulse width limited by maximum junction temperature
- The EAS data shows Max. rating . The test condition is $V_{DD}=100\text{ V}$, $V_{GS}=10\text{ V}$, $L=15\text{ mH}$, $I_{AS}=6\text{ A}$.
- $I_{SD} \leq 4.5\text{ A}$, $di/dt \leq 200\text{ A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$
- Pulse Test: Pulse width $\leq 300\text{ }\mu\text{s}$, Duty cycle $\leq 2\%$
- Essentially independent of operating temperature

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

