

General Description

The 30N10 uses advanced trench technology and design to provide excellent RDS(ON).

This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- Low On-Resistance
- Mounting Information Provided for the DPAK Package
- 100% avalanche tested
- RoHS Compliant

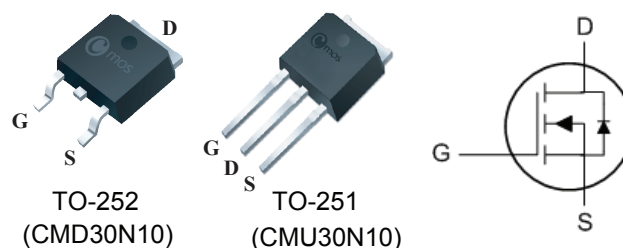
Product Summary

BVDSS	RDS(ON)	ID
100V	35mΩ	30A

Applications

- LED controller
- Power Supplies
- DC-DC Converters

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ\text{C}$	Continuous Drain Current	30	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current	20	A
I_{DM}	Pulsed Drain Current	90	A
EAS	Single Pulse Avalanche Energy ¹	128	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	60	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ\text{C}$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient (Steady-State)	---	62	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance Junction -Case (Steady-State)	---	2.6	$^\circ\text{C}/\text{W}$

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=15A$	---	---	35	$m\Omega$
		$V_{GS}=4.5V$, $I_D=10A$	---	---	45	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	1	---	3	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=100V$, $V_{GS}=0V$, $T_J=25^{\circ}\text{C}$	---	---	1	μA
		$V_{DS}=100V$, $V_{GS}=0V$, $T_J=55^{\circ}\text{C}$	---	---	5	
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=5V$, $I_D=10A$	---	19	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2	---	Ω
Q_g	Total Gate Charge	$V_{DD}=80V$, $I_D=30A$ $V_{GS}=0$ to $10V$	---	25	---	nC
Q_{gs}	Gate-Source Charge		---	5	---	
Q_{gd}	Gate-Drain Charge		---	4	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=20V$, $V_{GS}=10V$, $I_D=30A$ $R_G=3.5\Omega$	---	6	---	ns
T_r	Rise Time		---	5	---	
$T_{d(off)}$	Turn-Off Delay Time		---	20	---	
T_f	Fall Time		---	3	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	1500	---	pF
C_{oss}	Output Capacitance		---	380	---	
C_{rss}	Reverse Transfer Capacitance		---	45	---	

Diode Characteristics

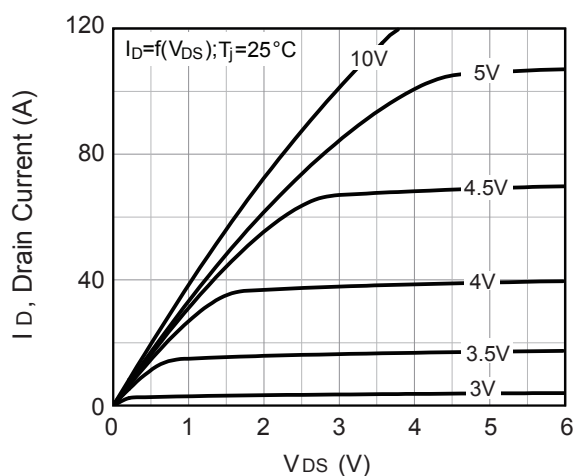
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	30	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=15A$, $T_J=25^{\circ}\text{C}$	---	---	1.2	V

Note :

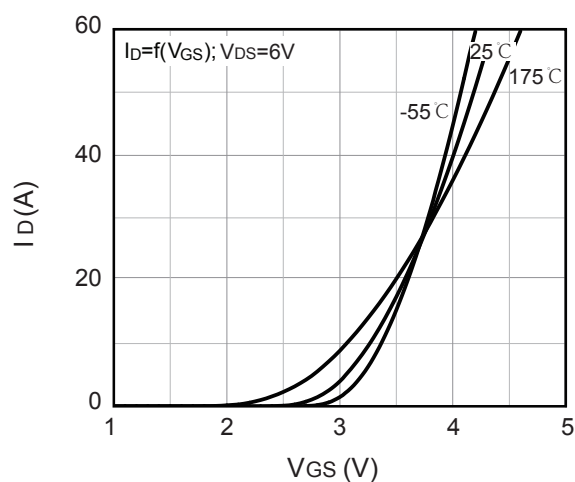
1.The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1mH$, $I_D=16A$

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

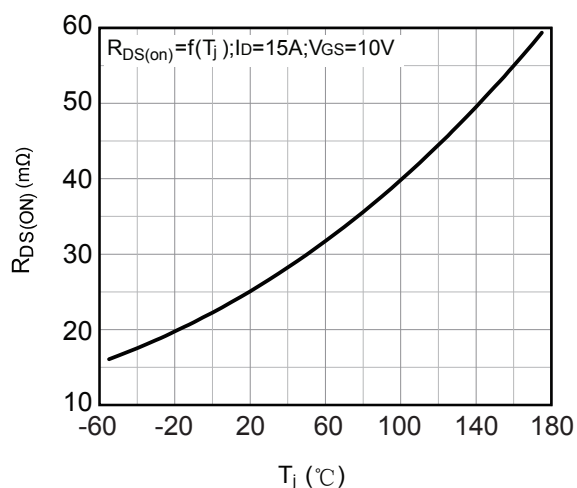
Typical Characteristics



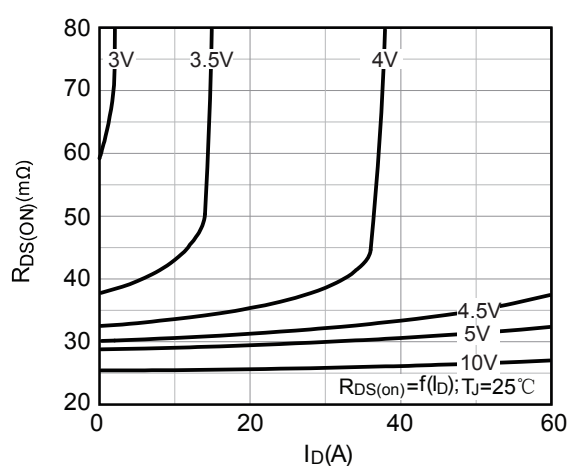
Typ. Output Characteristics



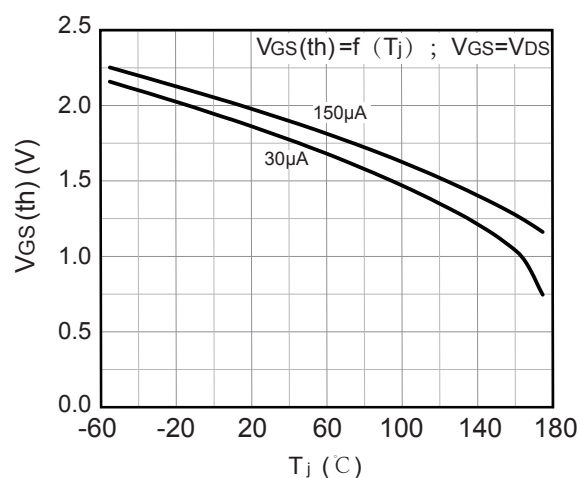
Typ. Transfer characteristics



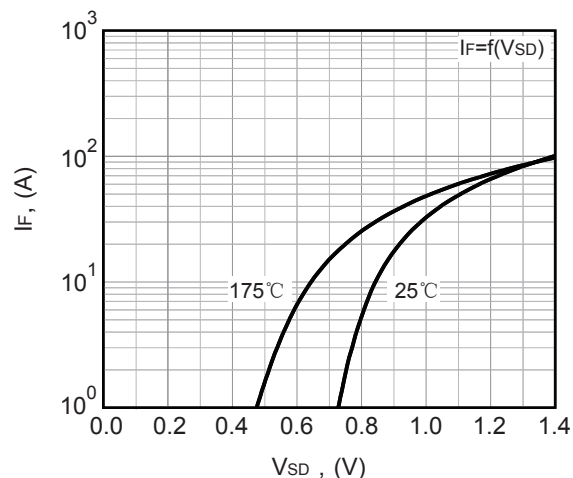
Typ. Drain-Source on-state resistance



Typ. Drain-source on-state resistance



Typ. gate threshold voltage



Typical Forward characteristics of reverse diode

Typical Characteristics

