

General Description

The 30N06AL combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$. This device is ideal for boost converters and synchronous rectifiers for consumer, telecom, industrial power supplies and LED backlighting.

Features

- N-channel-Enhancement mode
- Lower On-resistance
- 100% Avalanche Tested
- RoHS Compliant

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	± 20	V
$I_D@T_C=25^\circ C$	Continuous Drain Current ¹	30	A
$I_D@T_C=100^\circ C$	Continuous Drain Current ¹	20	A
I_{DM}	Pulsed Drain Current ²	80	A
EAS	Single Pulse Avalanche Energy ³	69	mJ
$P_D@T_C=25^\circ C$	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ C$
T_J	Operating Junction Temperature Range	-55 to 175	$^\circ C$

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ¹	---	50	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction -Case ¹	---	2.2	$^\circ C/W$

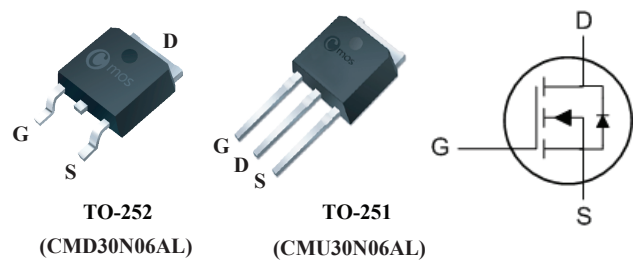
Product Summary

BVDSS	RDSON	ID
60V	40m Ω	30A

Applications

- DC-DC & DC-AC Converters
- Motor Control, Audio Amplifiers
- High Current, High Speed Switching
- Solenoid And Relay Drivers

TO-252/251 Pin Configuration



Electrical Characteristics (T_J=25°C , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
B _V DSS	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250μA	60	---	---	V
R _{DS(ON)}	Static Drain-Source On-Resistance ²	V _{GS} =10V , I _D =15A	---	---	40	mΩ
		V _{GS} =4.5V , I _D =15A	---	---	50	
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250μA	1	---	3	V
I _{DSS}	Drain-Source Leakage Current	V _{DS} =60V , V _{GS} =0V , T _J =25°C	---	---	1	μA
		V _{DS} =60V , V _{GS} =0V , T _J =55°C	---	---	10	
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA
g _{fs}	Forward Transconductance	V _{DS} =5V , I _D =20A	---	34	---	S
R _g	Gate Resistance	V _{DS} =0V , V _{GS} =0V , f=1MHz	---	4.7	---	Ω
Q _g	Total Gate Charge	V _{DS} =30V , V _{GS} =10V , I _D =20A	---	28	---	nC
Q _{gs}	Gate-Source Charge		---	7.9	---	
Q _{gd}	Gate-Drain Charge		---	8.8	---	
T _{d(on)}	Turn-On Delay Time	V _{DD} =30V , V _G =10V , R _G =4.7Ω I _D =26A	---	10	---	ns
T _r	Rise Time		---	20	---	
T _{d(off)}	Turn-Off Delay Time		---	27	---	
T _f	Fall Time		---	14	---	
C _{iss}	Input Capacitance	V _{DS} =15V , V _{GS} =0V , f=1MHz	---	1100	---	pF
C _{oss}	Output Capacitance		---	180	---	
C _{rss}	Reverse Transfer Capacitance		---	65	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current ¹	V _G =V _D =0V , Force Current	---	---	30	A
I _{SM}	Pulsed Source Current ²		---	---	80	A
V _{SD}	Diode Forward Voltage ²	V _{GS} =0V , I _S =30A , T _J =25°C	---	---	1.3	V

Note :

- 1.The data tested by surface mounted on a 1 inch² FR-4 board with 20Z copper.
- 2.The data tested by pulsed , pulse width ≤ 300us , duty cycle ≤ 2%.
- 3.The EAS data shows Max. rating . The test condition is V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=28A.

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