

General Description

The 80N06 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
- 100% avalanche rated
- RoHS Compliant

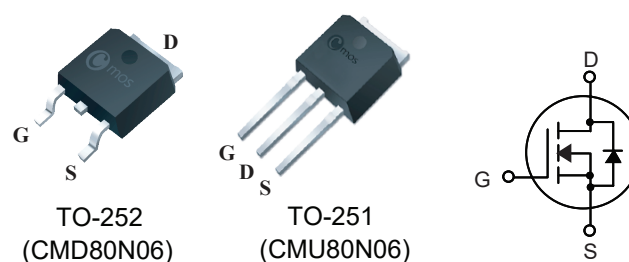
Product Summary

BVDSS	RDSON	ID
60V	8.3mΩ	80A

Applications

- DC-DC converters
- UPS
- SMPS

TO-252/251 Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Value	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	80	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current	50	A
I_{DM}	Pulsed Drain Current ¹	250	A
EAS	Single Pulse Avalanche Energy ²	480	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	150	W
T_{STG}	Storage Temperature Range	-55 to 175	°C
T_J	Operating Junction Temperature Range	-55 to 175	°C

Thermal Data

Symbol	Parameter	Value	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient ³	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	1	°C/W

N-Channel Enhancement Mode Field Effect Transistor

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	60	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=28A$	---	7.4	8.3	$m\Omega$
		$V_{GS}=6V$, $I_D=20A$	---	9	12	
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	± 100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	18	---	S
R_g	Gate Resistance	$f=1\text{MHz}$	---	5	---	Ω
Q_g	Total Gate Charge	$I_D=80A$	---	70	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=30V$	---	18	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	30	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V$	---	40	---	ns
T_r	Rise Time	$R_G=3.3\Omega$	---	120	---	
$T_{d(off)}$	Turn-Off Delay Time	$V_{GS}=10V$	---	100	---	
T_f	Fall Time	$I_D=80A$	---	60	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	3600	---	pF
C_{oss}	Output Capacitance		---	350	---	
C_{rss}	Reverse Transfer Capacitance		---	300	---	

Diode Characteristics

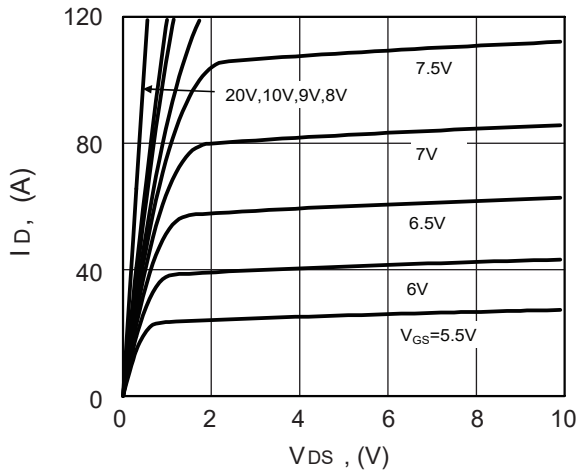
Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_{SD}=28A$	---	---	1.3	V

Note :

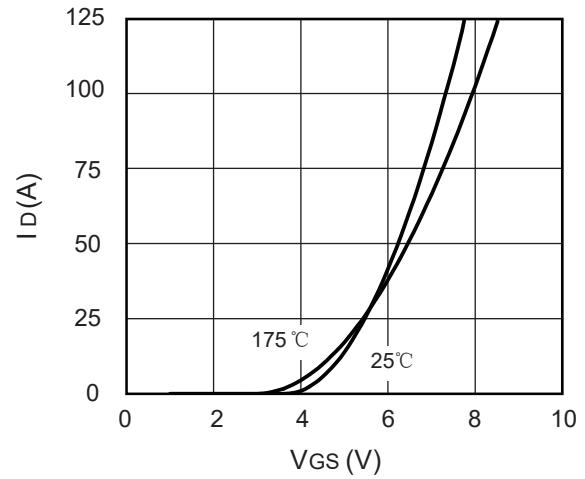
- 1.Pulse width limited by safe operating area.
- 2.The EAS data shows Max. rating . The test condition is $V_{DD}=30V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=31A$.
- 3.Surface mounted on 1 in² copper pad of FR4 board.

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.

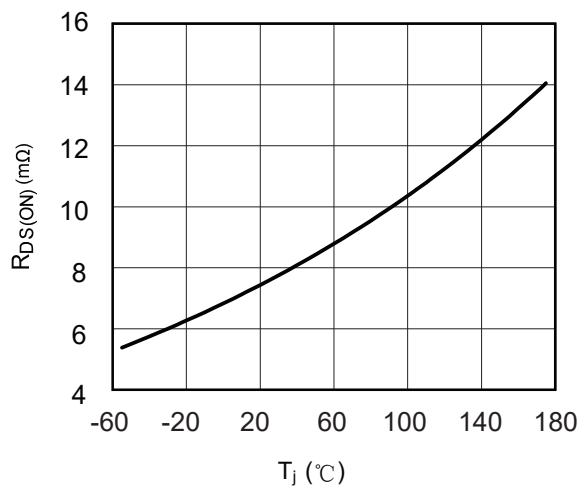
Typical Characteristics



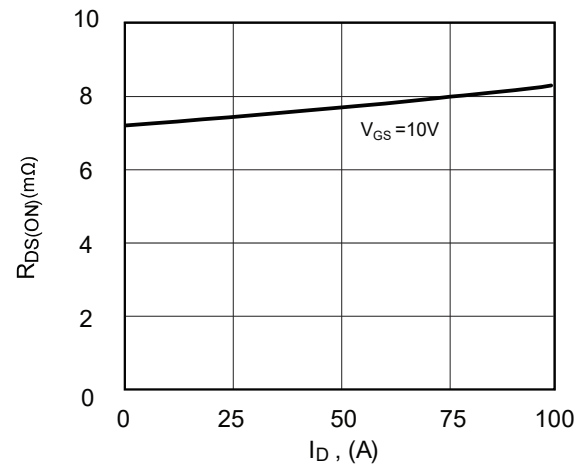
Output Characteristics



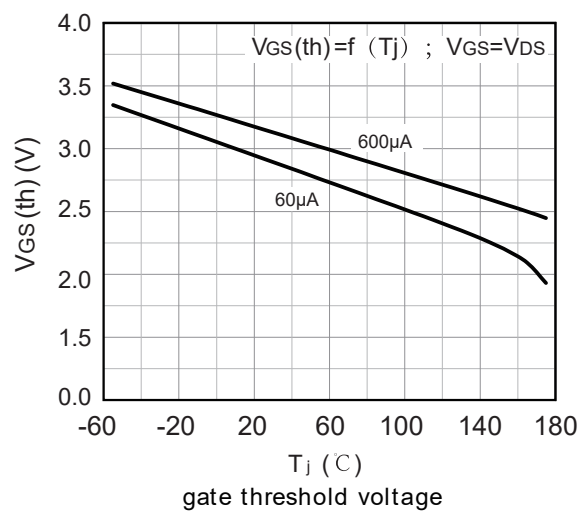
Transfer characteristics



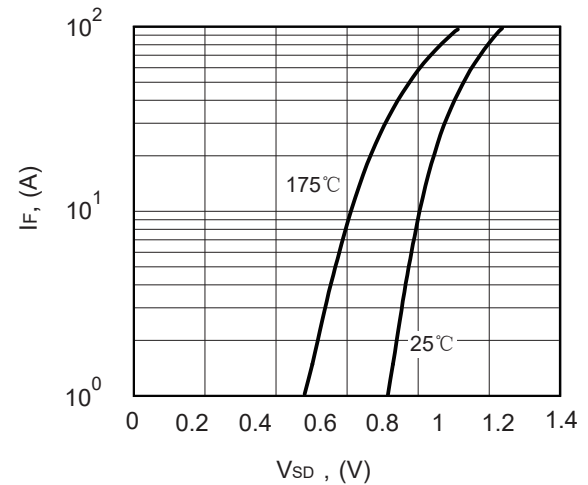
Drain-Source on-state resistance



Drain-source on-state resistance



gate threshold voltage



Forward characteristics of reverse diode

Typical Characteristics

