

100V, 3.4mΩ typ., 180A N-Channel MOSFET

General Description

The 044N10B uses advanced SGT technology to provide excellent $R_{DS(ON)}$. This device is ideal for high-frequency switching and synchronous rectification.

Features

- Low On-Resistance
- Fast Switching
- 100% avalanche tested
- RoHS Compliant

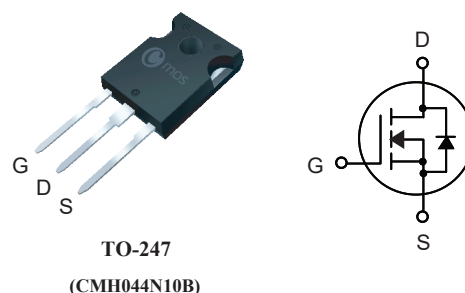
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	4.2mΩ	180A

Applications

- Motor Control
- Synchronous Rectification for power supply
- Ideal for boost converters

TO-247 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(Package limit)	180	A
$I_D@T_C=100^\circ\text{C}$	Continuous Drain Current(Silicon limit)	126	A
I_{DM}	Pulsed Drain Current	720	A
EAS	Single Pulse Avalanche Energy ¹	1458	mJ
$P_D@T_C=25^\circ\text{C}$	Total Power Dissipation	370	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	°C/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	0.34	°C/W

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=50A$	---	3.4	4.2	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=80V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=20A$	---	38	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.5	---	Ω
Q_g	Total Gate Charge	$I_D=20A$	---	74	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=50V$	---	24	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	18	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DS}=50V$	---	25	---	ns
T_r	Rise Time	$I_D=60A$	---	47	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=1.6\Omega$	---	50	---	
T_f	Fall Time	$V_{GS}=10V$	---	15	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7200	---	pF
C_{oss}	Output Capacitance		---	2400	---	
C_{rss}	Reverse Transfer Capacitance		---	200	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	180	A
I_{SM}	Pulsed Source Current		---	---	720	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=50A$, $T_J=25^{\circ}\text{C}$	---	0.85	1.3	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_{AS}=54A$.

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

