

100V, 3.5mΩ typ., 120A 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

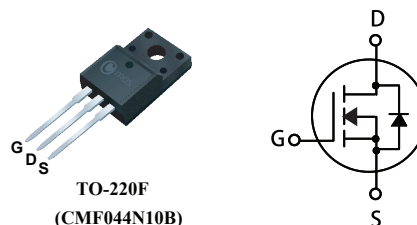
Product Summary

BVDSS	$R_{DS(on)}$ max.	ID
100V	4.2mΩ	120A

Applications

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

TO-220F Pin Configuration



Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-Source Voltage	±20	V
$I_D@T_C=25^{\circ}C$	Continuous Drain Current(Package limit)	120	A
$I_D@T_C=100^{\circ}C$	Continuous Drain Current(Silicon limit)	108	A
I_{DM}	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy ¹	1296	mJ
$P_D@T_C=25^{\circ}C$	Total Power Dissipation	40	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	---	3.13	°C/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	$V_{GS}=10V$, $I_D=50A$	---	3.5	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	$V_{DS}=10V$, $I_D=25A$	---	36	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.1	---	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	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	7100	---	pF
C_{oss}	Output Capacitance		---	2200	---	
C_{rss}	Reverse Transfer Capacitance		---	230	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	120	A
I_{SM}	Pulsed Source Current		---	---	480	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=40A$, $T_J=25^{\circ}\text{C}$	---	0.84	1.3	V

Note :

1.The EAS data shows Max. rating . The test condition is $V_{DD}=50V$, $V_{GS}=10V$, $L=0.5\text{mH}$, $I_{AS}=72A$.

This product has been designed and qualified for the consumer market.

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

Typical Characteristics

