CMF044N10B

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

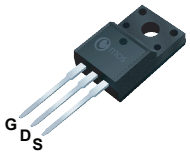
Product Summary

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

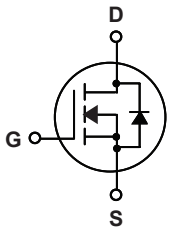
Applications

- Motor Contro
- Synchronous Rectification for power supply
- Ideal for boost convertersl

TO-220F Pin Configuration



TO-220F
(CMF044N10B)



Type	Package	Marking
CMF044N10B	TO-220F	CMF044N10B

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℃	Continuous Drain Current(Package limit)	120	A
I_D@T_C=100℃	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℃	Total Power Dissipation	40	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-ambient	---	62	℃/W
$R_{\theta JC}$	Thermal Resistance Junction-case	---	3.13	℃/W

Electrical Characteristics (T_J=25℃ , unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=250uA	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 =250uA	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=80V, V_{GS}=0V	---	---	1	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS} = ±20V , V_{DS}=0V	---	---	±100	nA
gfs	Forward Transconductance	V_{DS}=10V , I_D=25A	---	36	---	S
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	2.1	---	Ω
Q_g	Total Gate Charge	I_D=20A V_{DD}=50V V_{GS}=10V	---	74	---	nC
Q_{gs}	Gate-Source Charge		---	24	---	
Q_{gd}	Gate-Drain Charge		---	18	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DS} =50V I_D=60A R_G=1.6Ω V_{GS} =10V	---	25	---	ns
T_r	Rise Time		---	47	---	
$T_{d(off)}$	Turn-Off Delay Time		---	50	---	
T_f	Fall Time		---	15	---	
C_{iss}	Input Capacitance	V_{DS}=25V , V_{GS}=0V , f=1MHz	---	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℃	---	0.84	1.3	V

Note :

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

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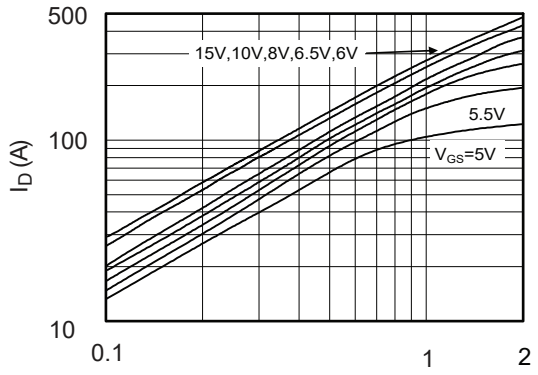
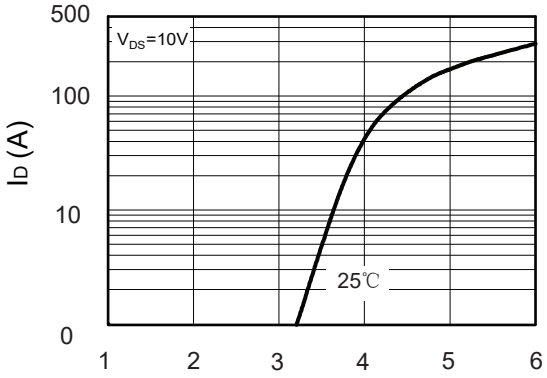
Cmos assumes no liability for customers' product design or applications.
Cmos reserver the right to improve product design ,functions and reliability wihtout notice.Please refer to the latest version of specification.

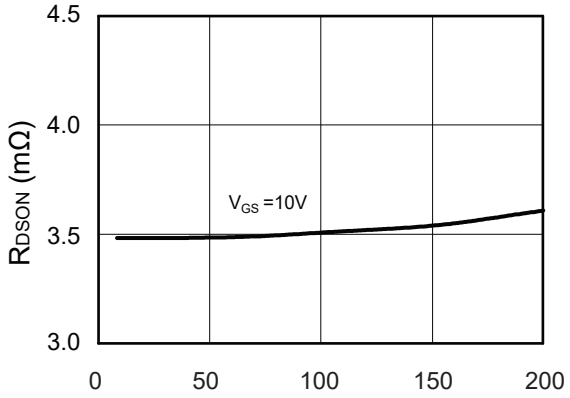
Typical Characteristics



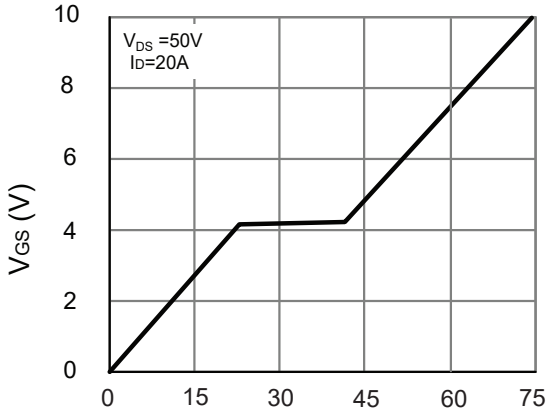
Output Characteristics



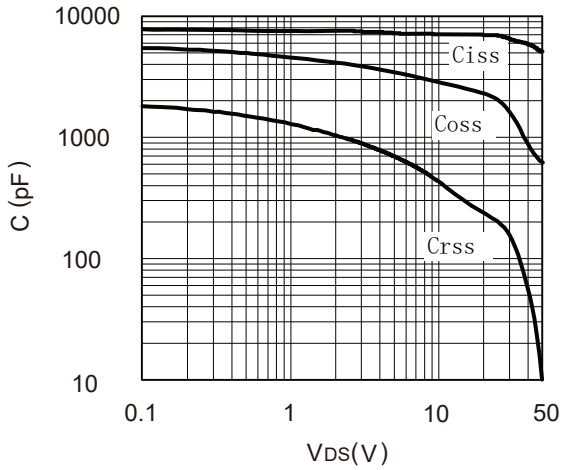
transfer characteristics



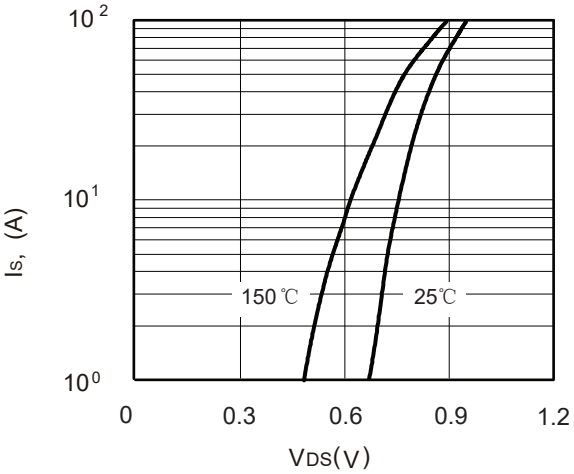
drain-source on-resistance



Gate charge vs gate-source voltage



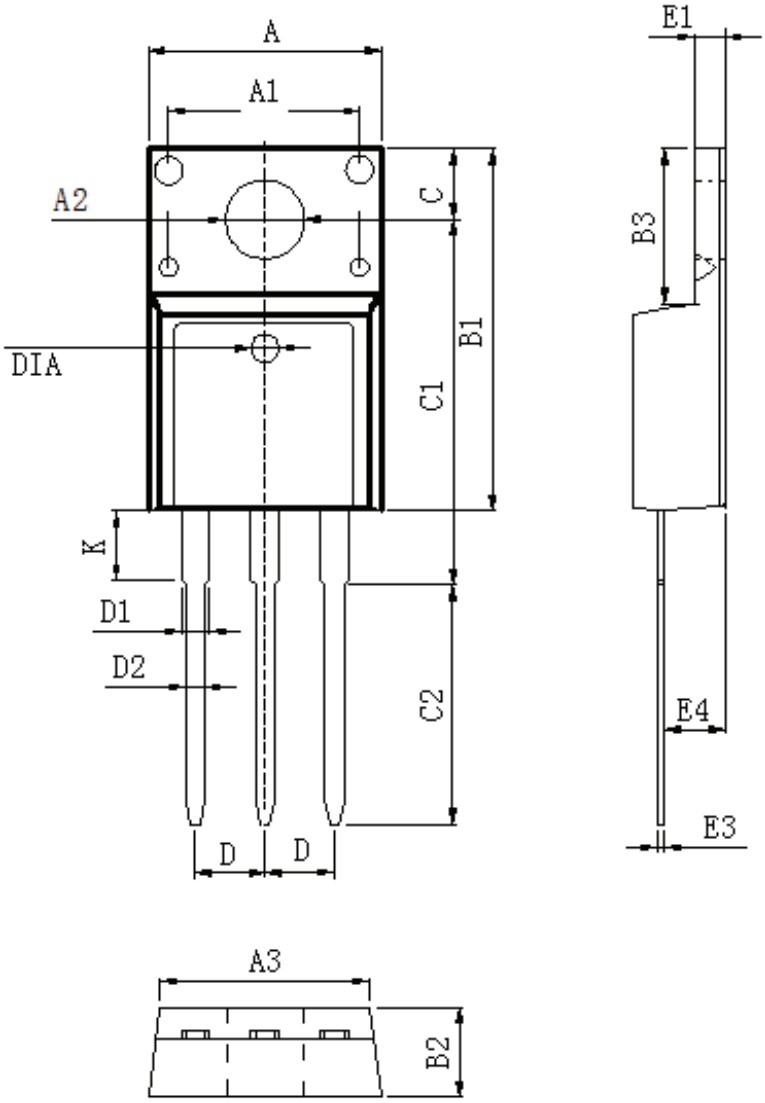
Capacitance Characteristics



Body-Diode Characteristics

Package Dimension

TO-220F Unit :mm



DIM	MILLIMETERS
A	10.16±0.3
A1	7.00±0.1
A2	3.3±0.2
A3	9.5±0.2
B1	15.87±0.3
B2	4.7±0.2
B3	6.68±0.4
C	3.3±0.2
C1	12.57±0.3
C2	10.02±0.5
D	2.54±0.05
D1	1.28±0.2
D2	0.8±0.1
K	3.1±0.3
E1	2.54±0.1
E3	0.5±0.1
E4	2.76±0.2
DIA	⊙1.5(deep 0.2)