MY34N20F

200V N-Channel Enhancement Mode MOSFET

MAOYUANWEI semiconductor

General Description

The MY34N20F is silicon N-channel Enhanced VDMOSFETs, is obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy. The transistor can be used in various power switching circuit for system miniaturization and higher efficiency.

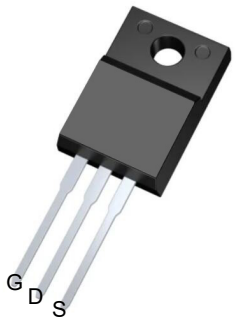
RoHS Compliant

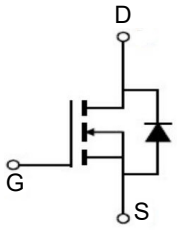
Features

V_{DSS}	200	V
I_D	34	A
P_D(T_C= 2 5℃)	158	W
$R_{DS(ON)}$(atV_{GS} = 10V)	60	mΩ

Application

- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)





Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY34N20F	TO-220F	MY34N20F	1000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Value	Unit
VDSS	Drain-Source Voltage	200	V
ID	Drain Current -continuous	40	A
IDM	Drain Current -pulse	112	A
VGSS	Gate-Source Voltage	±30	V
EAS	Single Pulsed Avalanche Energy	588	mJ
IAR	Avalanche Current	28	A
EAR	Repetitive Avalanche Current	15.8	mJ
dv/dt	Peak Diode Recovery dv/dt	5.5	V/ns
PD TC=25℃	Power Dissipation	158	W
TJ，TSTG	Operating and Storage Temperature Range	-55～+150	℃
TL	Maximum Lead Temperature for Soldering Purposes	300	℃
Rth(j-c)	Thermal Resistance, Junction to Case	0.79	℃/W
Rth(j-A)	Thermal Resistance, Junction to Ambient	62.5	℃/W

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

Symbol	Parameter	Tests conditions	Min	Typ	Max	Units
BV_{DSS}	Drain-Source Voltage	I_D=250μA, V_{GS}=0V	200	-	-	V
IDSS	Zero Gate Voltage Drain Current	V_{DS}=200V, V_{GS}=0V,T_C=25℃	-	-	1	μA
IGSSF	Gate-body leakage current, forward	V_{DS}=0V, V_{GS} =30V	-	-	100	nA
IGSSR	Gate-body leakage current, reverse	V_{DS}=0V, V_{GS} =-30V	-	-	-100	nA
VGS(th)	Gate Threshold Voltage	V_{DS} = V_{GS} , I_D=250μA	2.0	3.0	4.0	V
RDS(ON)	Static Drain-Source On-Resistance	V_{GS} =10V , I_D=14.0A	-	60	75	mΩ
g_{fs}	Forward Transconductance	V_{DS} = 40V , I_D=14.0A	-	25	-	S
C_{iss}	Input capacitance	V_{DS}=25V, V_{GS} =0V, f=1.0MHz	-	2400	-	pF
C_{oss}	Output capacitance		-	430	-	pF
C_{rss}	Reverse transfer capacitance		-	55	-	pF
t_d(on)	Turn-On delay time	V_{DD}=100V,I_D=34A,R_G=25Ω V_{GS} =10V	-	40	-	ns
t_r	Turn-On rise time		-	280	-	ns
t_d(off)	Turn-Off delay time		-	125	-	ns
t_f	Turn-Off Fall time		-	115	-	ns
Q_g	Total Gate Charge	V_{DS} =160V , I_D=34A V_{GS} =10V	-	60	-	nC
Q_{gs}	Gate-Source charge		-	17	-	nC
Q_{gd}	Gate-Drain charge		-	27	-	nC
IS	Continuous Body Diode Current	T_C = 25 ºC	-	-	31	A
ISM	Pulsed Diode Forward Current		-	-	124	A
VSD	Body Diode Voltage	V_{GS}=0V, I_S=34A	-		1.4	V
trr	Reverse recovery time	V_{GS}=0V, I_S=34A dI_F/dt=100A/μs		150		ns
Q_{rr}	Reverse recovery charge			0.95		μC

Note :

1、The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.

2、The EAS data shows Max. rating . L=0.1mH, I_{AS}=34A, V_{DD}=50V, R_G=25 Ω,Starting T_J=25℃

3、The test condition is Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

4、The power dissipation is limited by 150℃ junction temperature

5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Electrical Characteristics

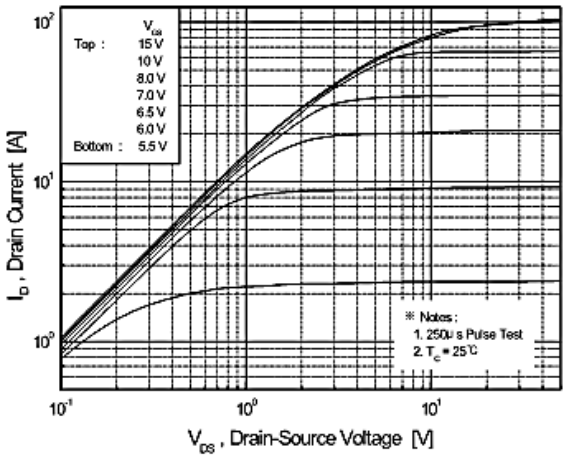


Figure 1. On-Region Characteristics

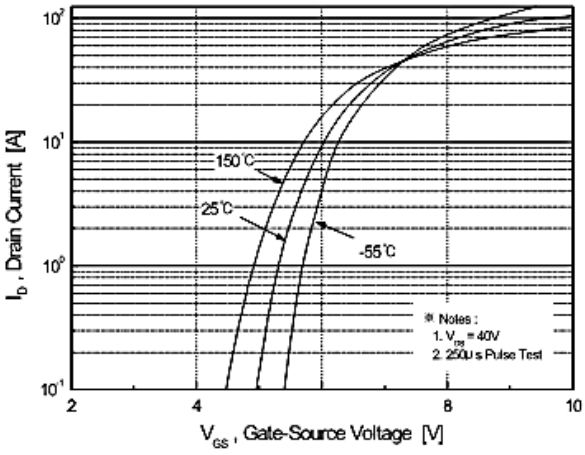


Figure 2. Transfer Characteristics

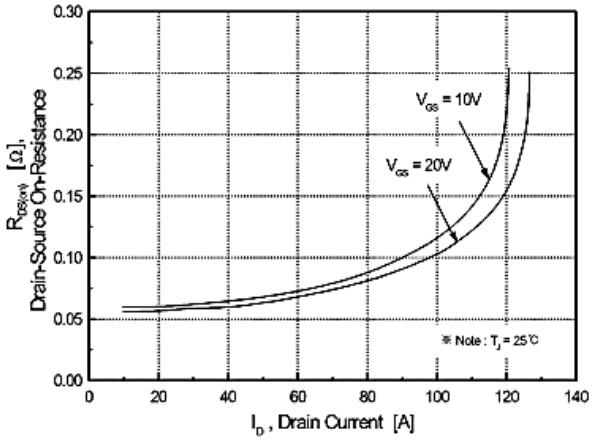


Figure 3. On-Resistance Variation vs. Drain Current and Gate Voltage

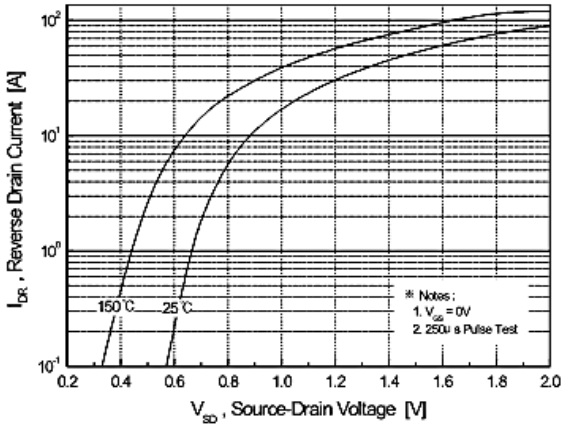


Figure 4. Body Diode Forward Voltage Variation vs. Source Current and Temperature

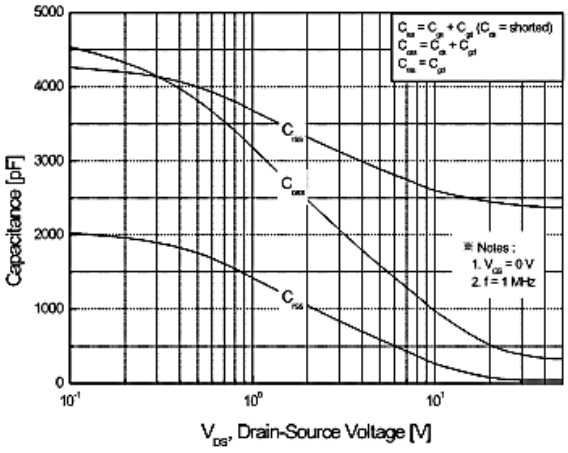


Figure 5. Capacitance Characteristics

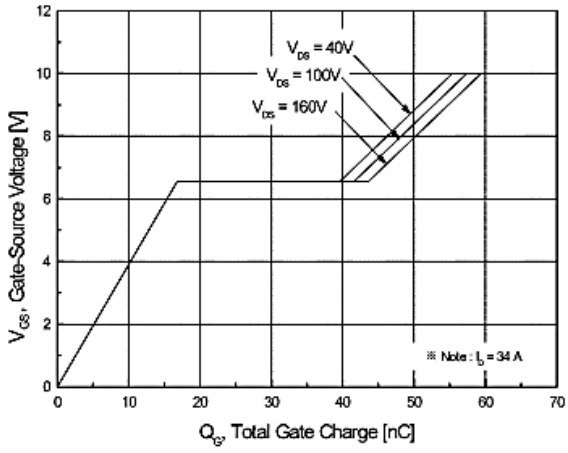


Figure 6. Gate Charge Characteristics

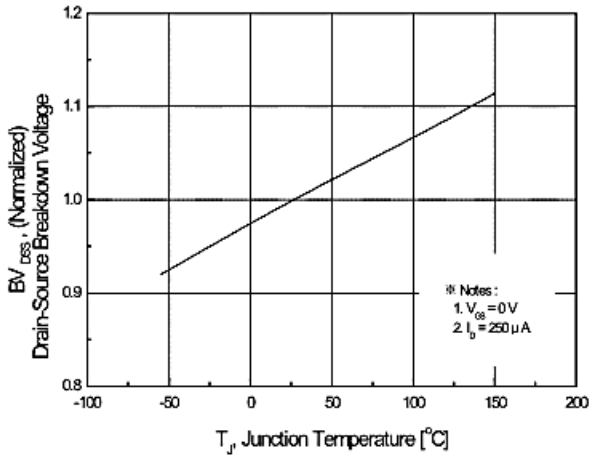


Figure 7. Breakdown Voltage Variation vs. Temperature

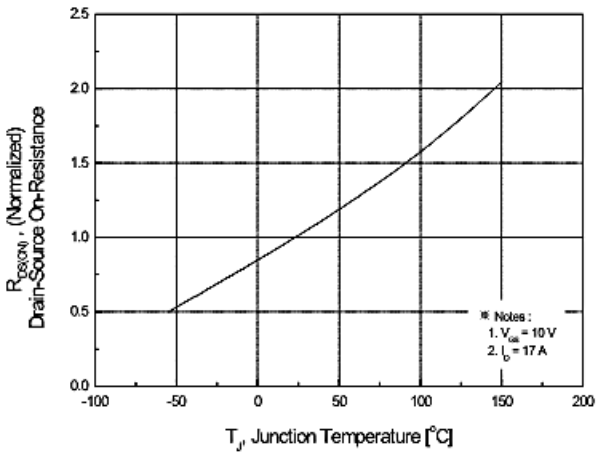


Figure 8. On-Resistance Variation vs. Temperature

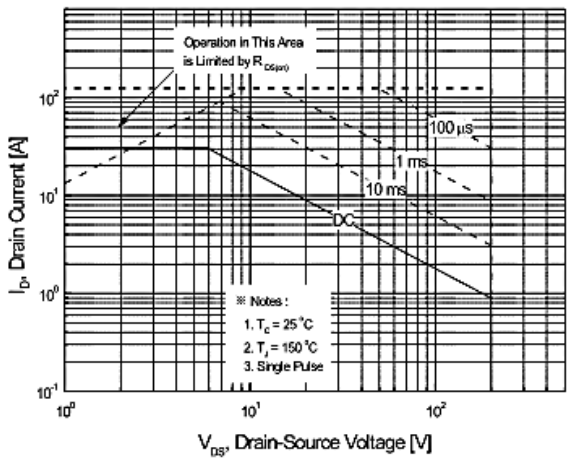


Figure 9. Maximum Safe Operating Area

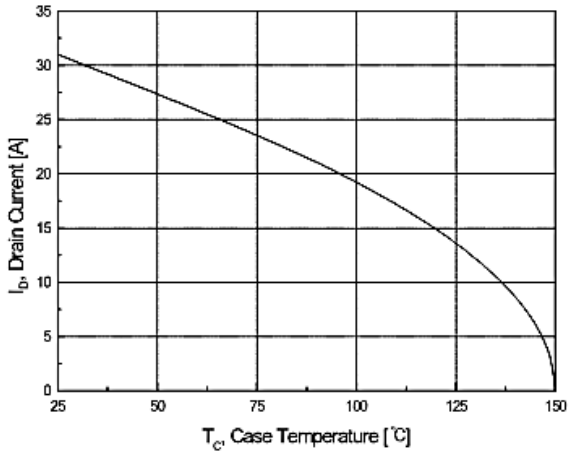


Figure 10. Maximum Drain Current vs. Case Temperature

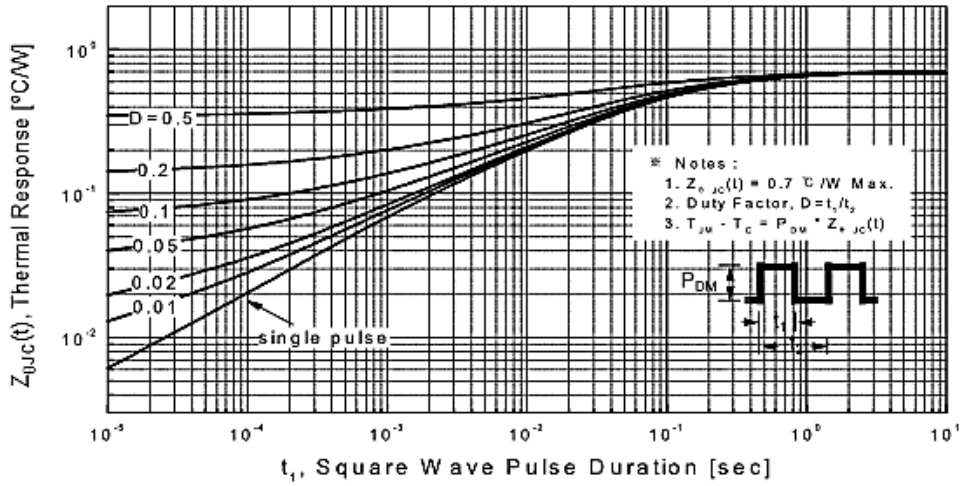
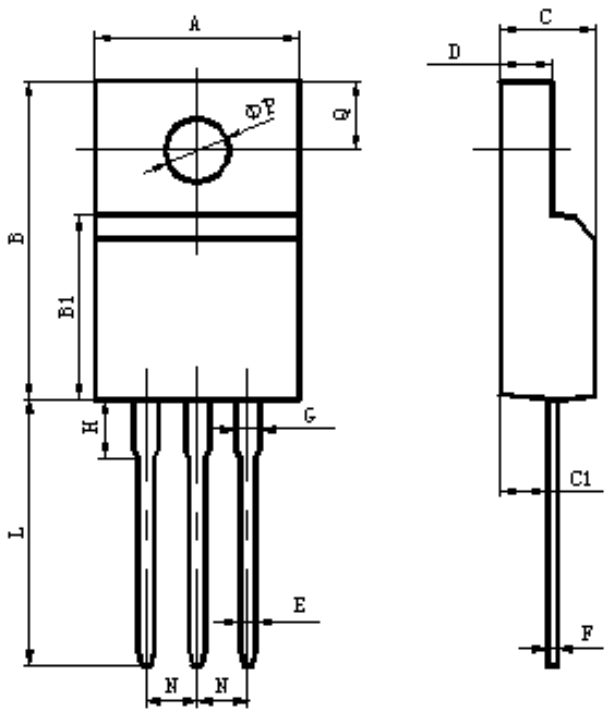


Figure 11. Transient Thermal Response Curve

Package Mechanical Data-TO-220F Single



Items	Values(mm)	
	MIN	MAX
A	9.60	10.4
B	15.4	16.2
B1	8.90	9.50
C	4.30	4.90
C1	2.10	3.00
D	2.40	3.00
E	0.60	1.00
F	0.30	0.60
G	1.12	1.42
H	3.40	3.80
	2.40	2.90
L*	12.0	14.0
N	2.34	2.74
Q	3.15	3.55
Φ P	2.90	3.30