

General Description

The MY13N65F is N-channel Enhanced VDMOSFETs, obtained by the self-aligned planar Technology which reduce the conduction loss, improve switching performance and enhance the avalanche energy.

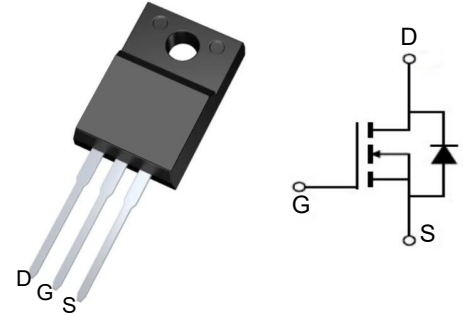


Features

V_{DSS}	650	V
I_D	13	A
P_D ($T_C = 25\text{ }^\circ\text{C}$)	45	W
$R_{DS(ON)}$ (at $V_{GS} = 10\text{V}$)	0.6	Ω

Application

- High efficiency switch mode power supplies
- Power factor correction
- Electronic lamp ballast



Package Marking and Ordering Information

Product ID	Pack	Marking	Qty(PCS)
MY13N65F	TO-220F	MY13N65F	1000

Absolute Maximum Ratings ($T_C = 25\text{ }^\circ\text{C}$ unless otherwise noted)

Symbol	Parameters	Ratings	Unit
V_{DSS}	Drain-Source Voltage	650	V
V_{GS}	Gate-Source Voltage-Continuous	± 30	V
I_D	Drain Current-Continuous (Note 2)	13	A
I_{DM}	Drain Current-Single Plused (Note 1)	39	A
P_D	Power Dissipation (Note 2)	45	W
T_j	Max.Operating junction temperature	150	$^\circ\text{C/W}$

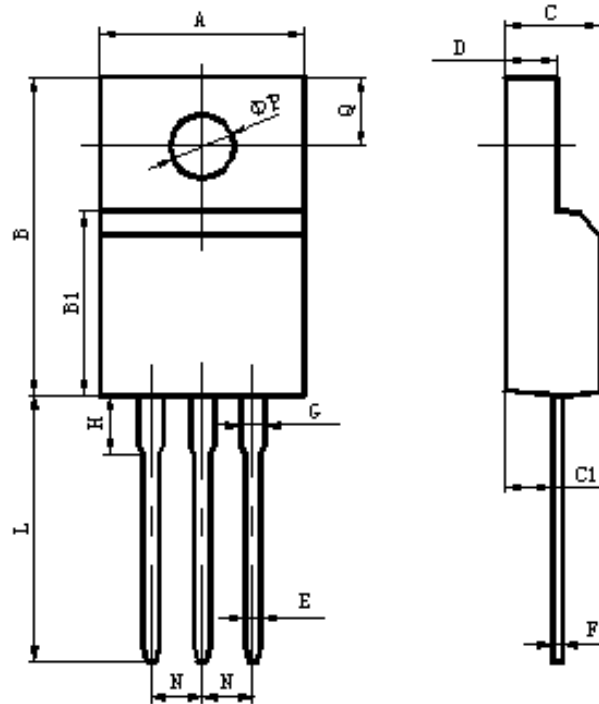
Electrical Characteristics ($T_c=25\text{ }^\circ\text{C}$, unless otherwise noted)

Symbol	Parameters	Min	Typ	Max	Units	Conditions
Static Characteristics						
B_{VDSS}	Drain-Source Breakdown Voltage Current (Note 1)	650	--	--	mA	$I_D=250\mu\text{A}$ $V_{GS}=0\text{V}$, $T_J=25^\circ\text{C}$
$V_{GS(th)}$	Gate Threshold Voltage	2.0	--	4.0	V	$V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$
$R_{DS(on)}$	Drain-Source On-Resistance	--	0.6	--	Ω	$V_{GS}=10\text{V}$, $I_D=6.5\text{A}$
I_{GSS}	Gate-Body Leakage Current	--	--	± 100	nA	$V_{GS}=\pm 30\text{V}$, $V_{DS}=0$
I_{DSS}	Zero Gate Voltage Drain Current	--	--	1	μA	$V_{DS}=650\text{V}$, $V_{GS}=0$
gfs	Forward Transconductance	--	5.0	--	S	$V_{DS}=40\text{V}$, $I_D=6.5\text{A}$
Switching Characteristics						
$T_{d(on)}$	Turn-On Delay Time	--	10	--	ns	$V_{DS}=325\text{V}$, $I_D=7\text{A}$, $R_G=25\Omega$ (Note 2)
T_r	Rise Time	--	5	--	ns	
$T_{d(off)}$	Turn-Off Delay Time	--	55	75	ns	
T_f	Fall Time	--	4.5	10	ns	
Q_g	Total Gate Charge	--	29	45	nC	$V_{DS}=480$, $V_{GS}=10\text{V}$, $I_D=13\text{A}$ (Note 2)
Q_{gs}	Gate-Source Charge	--	6.5	--	nC	
Q_{gd}	Gate-Drain Charge	--	12.5	--	nC	
Dynamic Characteristics						
C_{iss}	Input Capacitance	--	1660	--	pF	$V_{DS}=25\text{V}$, $V_{GS}=0$, $f=1\text{MHz}$
C_{oss}	Output Capacitance	--	55	--	pF	
C_{rss}	Reverse Transfer Capacitance	--	4	--	pF	
I_S	Continuous Drain-Source Diode Forward Current (Note 2)	--	--	13	A	
V_{SD}	Diode Forward On-Voltage	--	--	1.3	V	$I_S=13\text{A}$, $V_{GS}=0$
$R_{th(j-c)}$	Thermal Resistance, Junction to Case	--	--	3.65	$^\circ\text{C/W}$	

Note 1: Repetitive Rating : Pulse width limited by maximum junction temperature

Note 2: Pulse test: PW $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

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
ϕP	2.90	3.30