

Silicon N-Channel Power MOSFET

Description

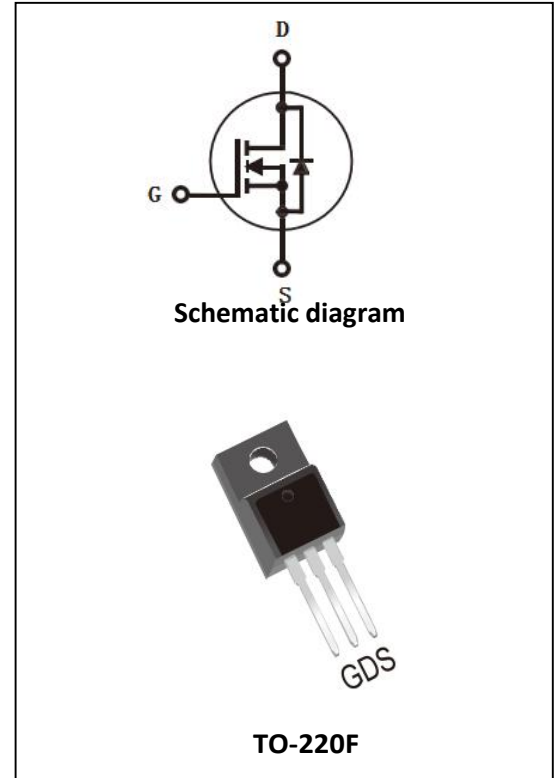
The MPF10N65 uses advanced trench technology and design to provide excellent $R_{DS(ON)}$ with low gate charge. It can be used in a wide variety of applications.

General Features

- ① $V_{DS}=10A$, $I_D=650V$
- ② $R_{DS(on)}(typ)=0.6\Omega@V_{GS}=10V, I_D=4.0A$
- ③ Low C_{rss} : $18.5pF@25V$
- ④ Fast switching
- ⑤ Improved dv/dt capability

Application

- ① Switch Mode Power Supply (SMPS)
- ② Uninterruptible Power Supply (UPS)
- ③ Power Factor Correction (PFC)



Package Marking and Ordering Information

Ordering Codes	Package	Product Code	Packing
MPF10N65	TO-220F	MPF10N65	Tube

Electronic Characteristics ($T_c=25^\circ C$)

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Drain-source Breakdown Voltage	BVD_{SS}	$V_{GS}=0V, I_D=250\mu A$	650			V
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	3.0		4.0	V
Drain-source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V, T_j=25^\circ C$			1	μA
		$V_{DS}=520V, V_{GS}=0V, T_j=125^\circ C$			100	μA
Gate-body Leakage Current($V_{DS}=0$)	I_{GSS}	$V_{GS}=\pm 30V$			± 100	nA
Static Drain-source On Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=4.0A$		0.6	0.7	Ω
Input Capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=25V, F=1.0MHz$		1110		pF
Onput Capacitance	C_{oss}			106		pF
Reverse Transfer Capacitance	C_{rss}			13		pF

Turn-On Delay Time	Td(on)	V _{DD} =325V, I _D =10A R _G =25Ω		39		ns
Turn-On Rise Time	Tr			10		ns
Turn-Off Delay Time	Td(off)			152		ns
Turn-Off Fall Time	Tf			42		ns
Total Gate Charge	Qg	I _D =10A, V _{DS} =520V V _{GS} =10V		37		nC
Gate-to-Source Charge	Qgs			5		nC
Gate-to-Drain Charge	Qgd			24		nC
Continuous Diode Forward Current	I _s				10	A
Diode Forward Voltage	VSD	T _j =25℃, I _s =12.0A V _{GS} =0V III			1.4	V
Reverse Recovery Time	Trr	T _j =25℃, I _f =12.0A di/dt=100A/μS III		601		ns
Reverse Recovery Charge	Qrr			2.3		uC

Notes:

1. Repetitive rating:Pulse width limited by maximum junction temperature
2. Starting T_j=25℃, VDD=50V, L=10mH, R_G=25Ω, I_{AS}=9.0A
3. PulseTest:Pulse width≤300μs, Duty cycle≤2%

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

Figure 1. Output Characteristics ($T_J = 25^\circ\text{C}$)

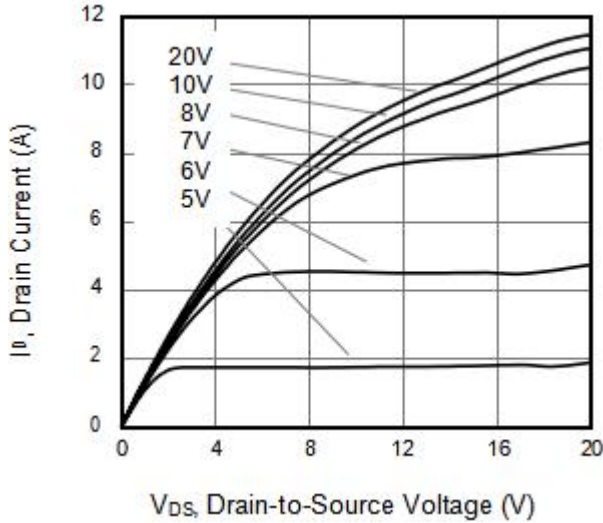


Figure 2. Body Diode Forward Voltage

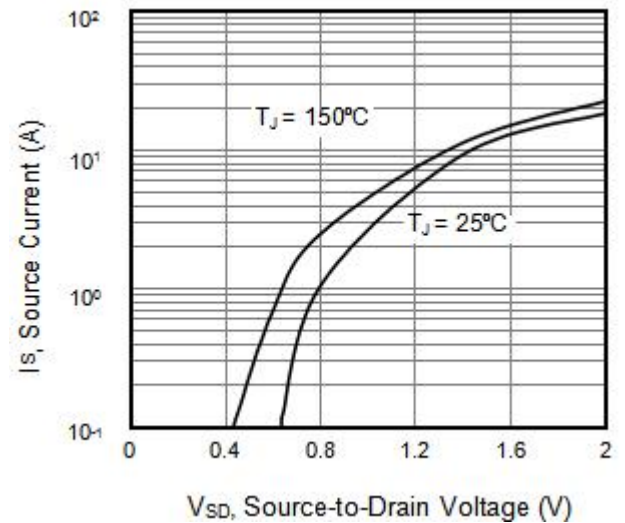


Figure 3. Drain Current vs. Temperature

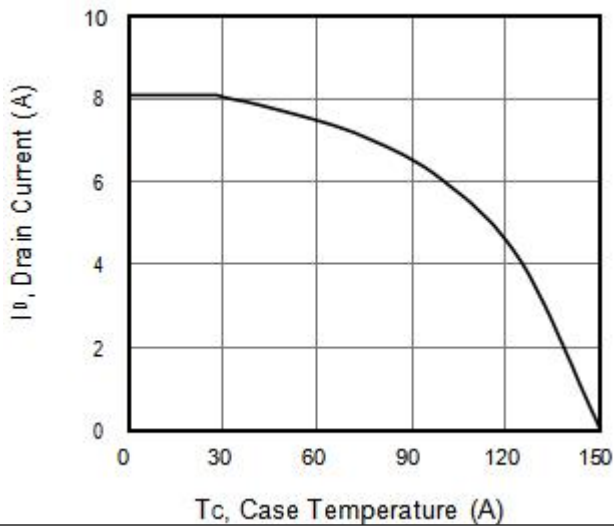


Figure 4. BV_{DSS} Variation vs. Temperature

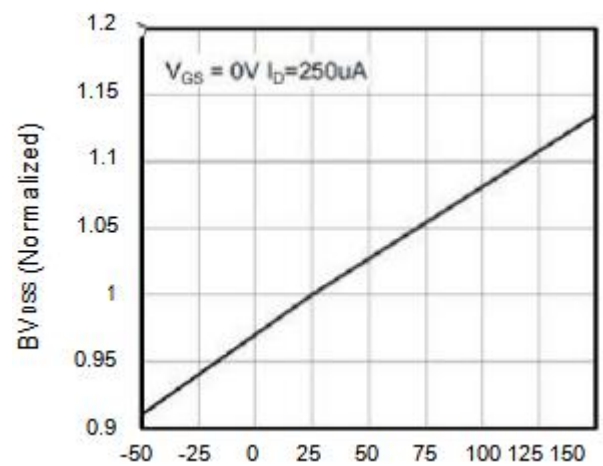


Figure 5. Transfer Characteristics

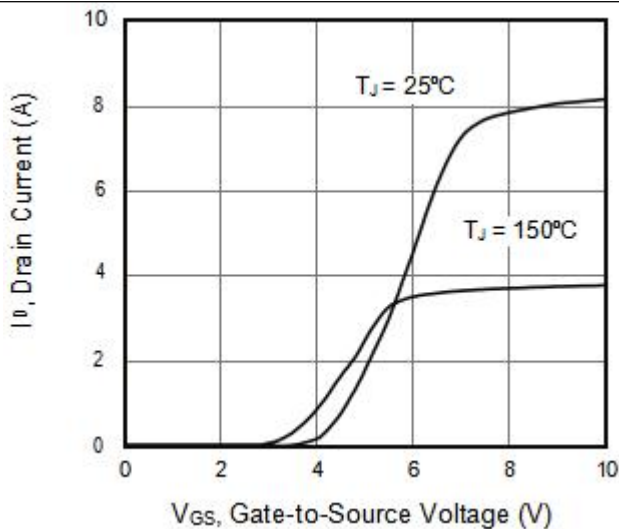


Figure 6. On-Resistance vs. Temperature

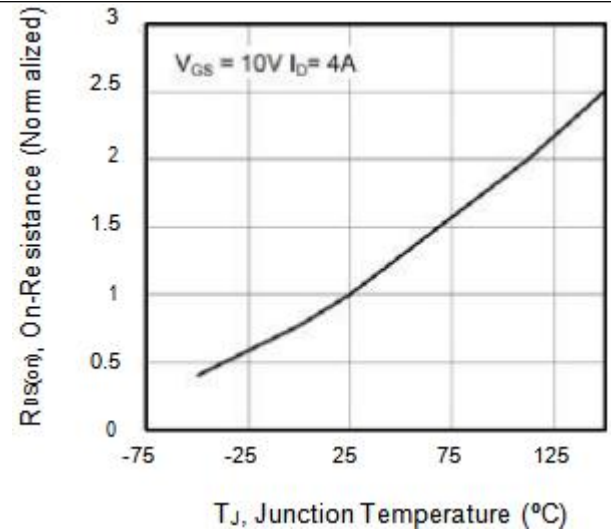


Figure 7. Capacitance

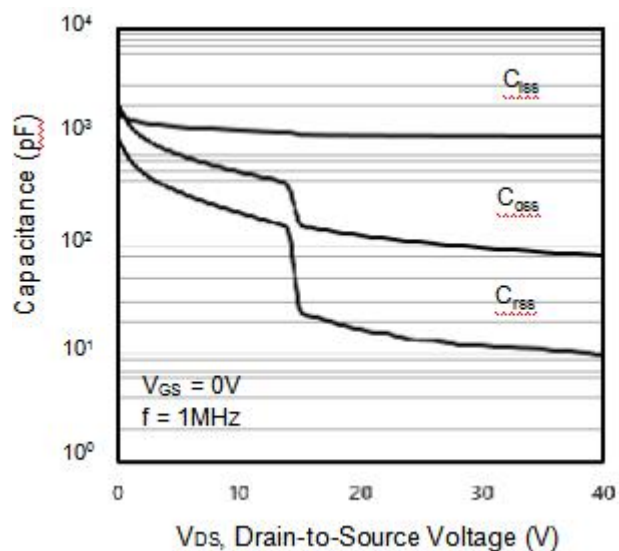


Figure 8. Gate Charge

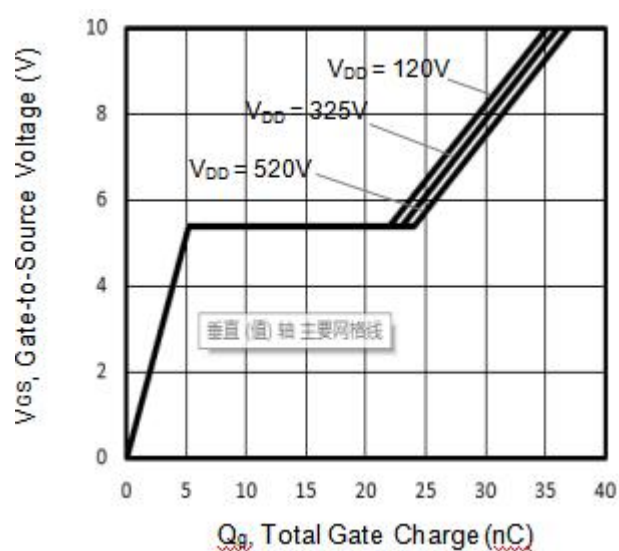


Figure 9. Transient Thermal Impedance

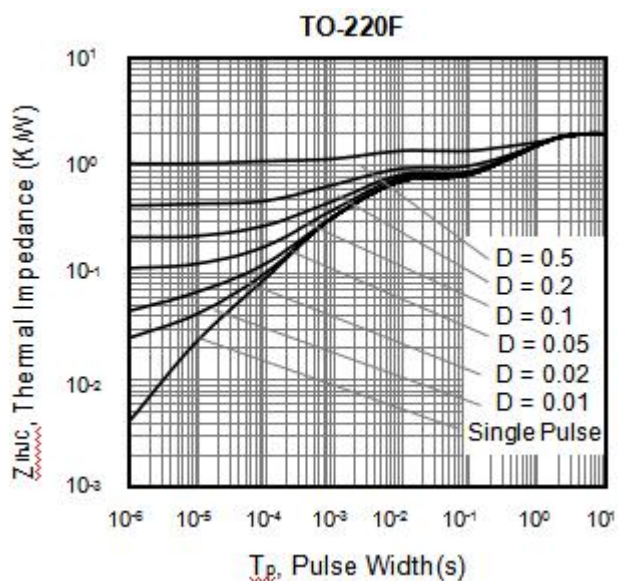


Figure A : Gate Charge Test Circuit and Waveform

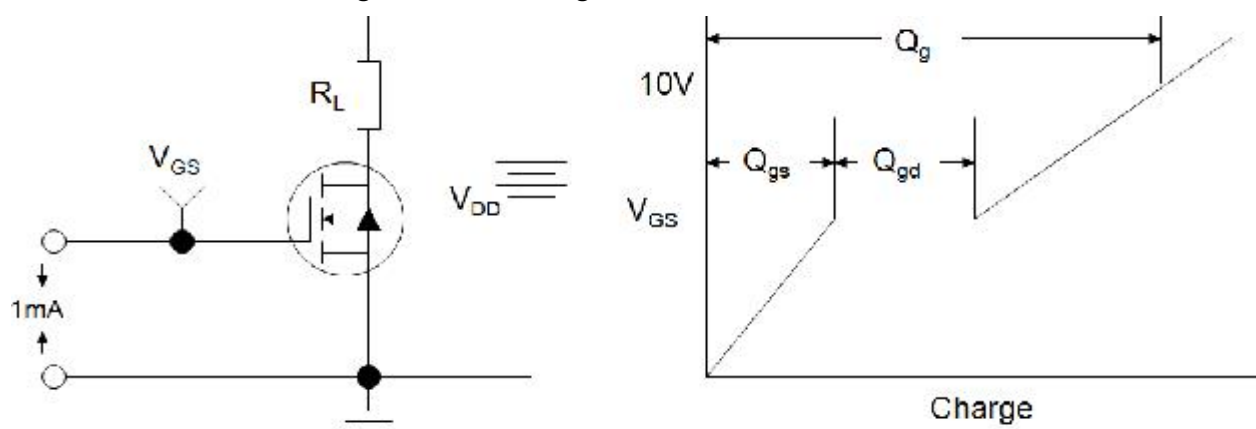


Figure B : Resistive Switching Test Circuit and Waveform

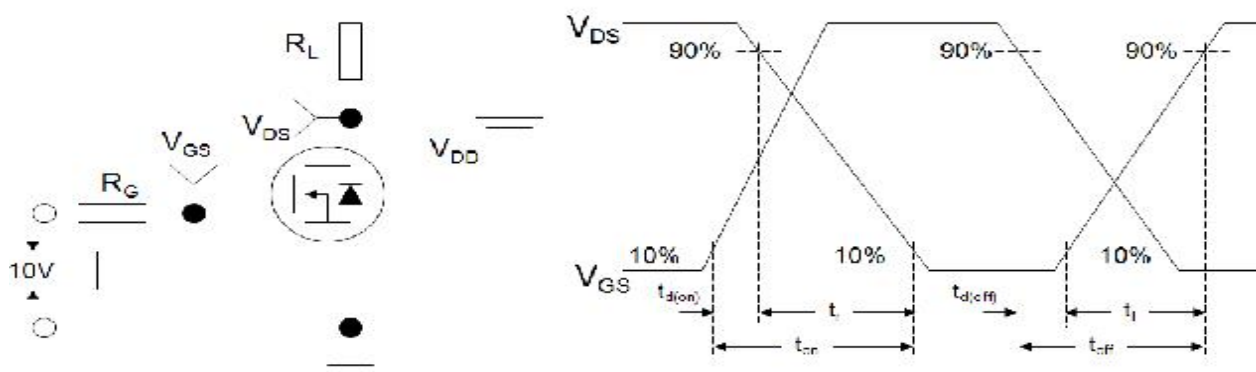
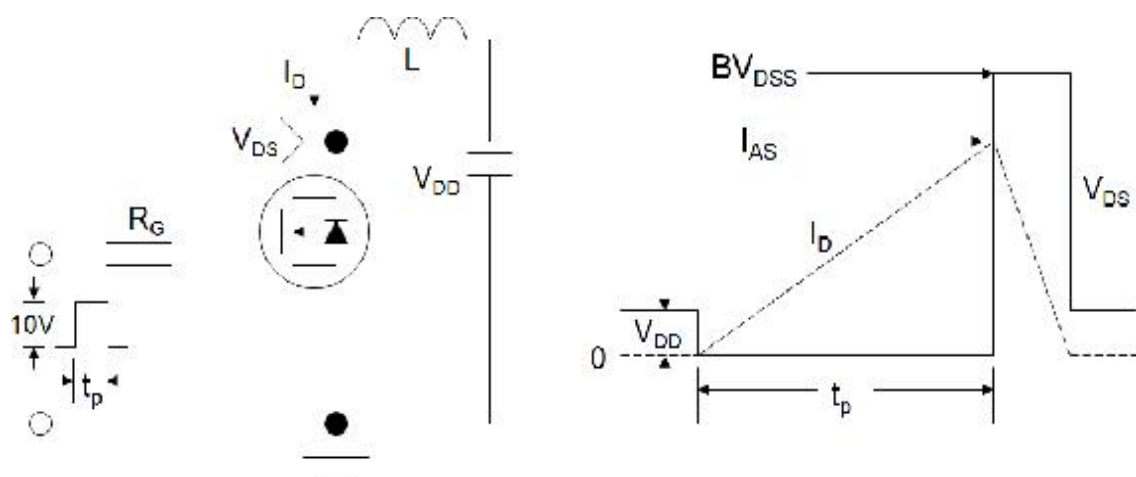
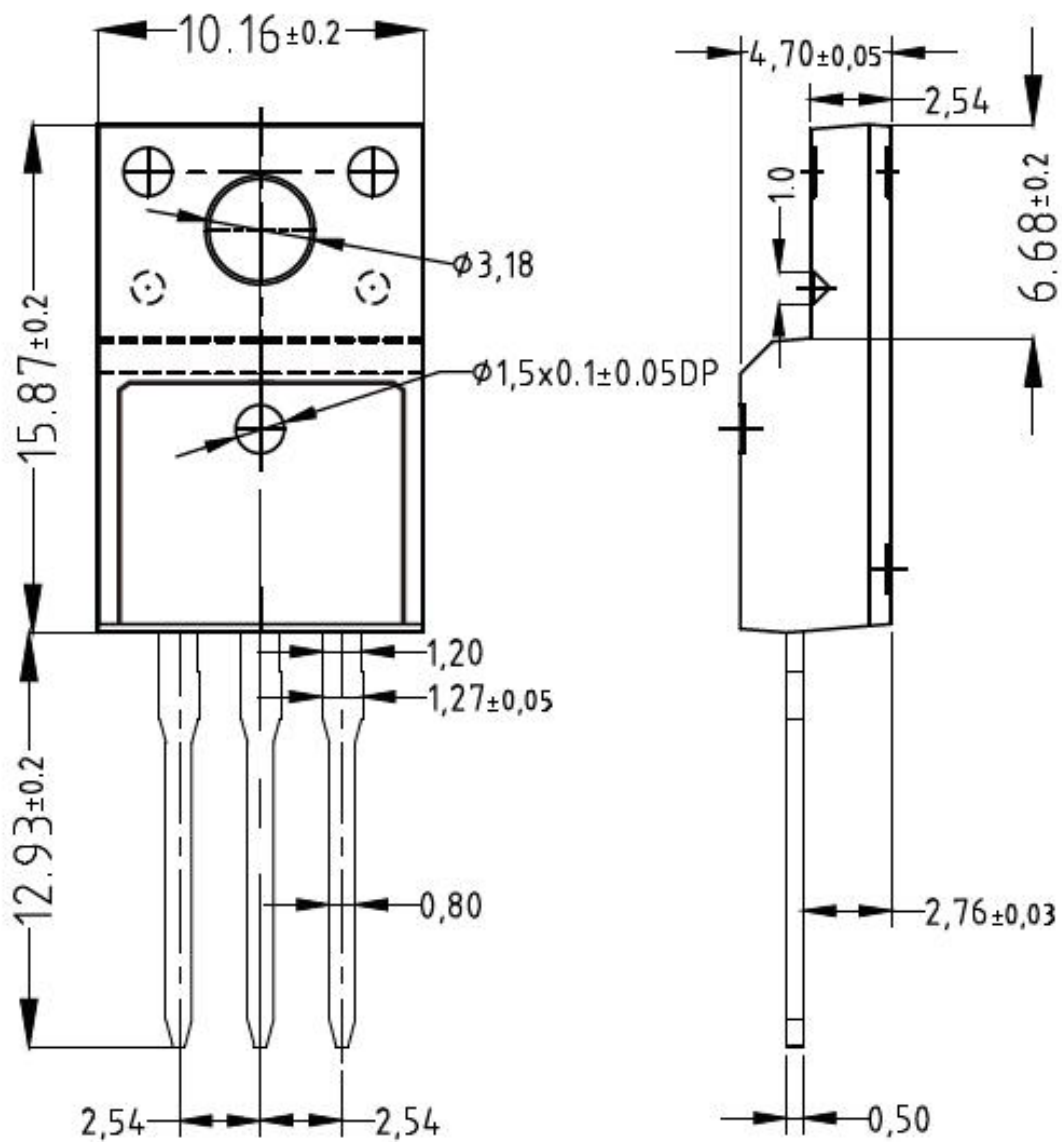
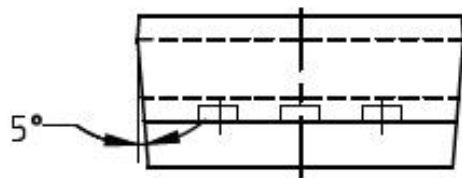


Figure C : Unclamped Inductive Switching Test Circuit and Waveform



Package Information





迈诺斯科技

MPF10N65

NOTE:

1. Exceeding the maximum ratings of the device in performance may cause damage to the device, even the permanent failure, which may affect the dependability of the machine. Please do not exceed the absolute maximum ratings of the device when circuit designing.
2. When installing the heat sink, please pay attention to the torsional moment and the smoothness of the heat sink.
3. MOSFETs is the device which is sensitive to the static electricity, it is necessary to protect the device from being damaged by the static electricity when using it.
4. Shenzhen Minos reserves the right to make changes in this specification sheet and is subject to change without prior notice.

CONTACT:

深圳市迈诺斯科技有限公司（总部）

地址：深圳市福田区华富街道田面社区深南中路4026号田面城市大厦22B-22C

邮编：518025

电话：0755-83273777