GOODWORK

7N65F

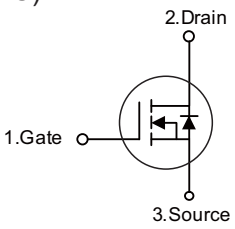
N-Channel Enhancement Mode MOSFET

Features

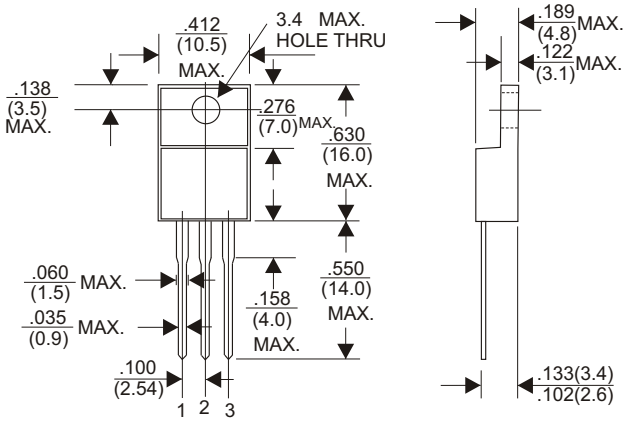
- 650V,7A
- $R_{DS(ON)}$ = 0.94Ω (Typ.) @ V_{GS} = 10V, I_D =3.5A
- Fast Switching
- Improved dv/dt Capability
- 100% Avalanche Tested

Application

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



ITO-220F (FULLYINSULATED)



Dimensions in inches and (millimeters)

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C unless otherwise specified)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	650	V
Gate-Source Voltage		V_{GSS}	±30	V
Avalanche Current (Note 2)		I_{AR}	7	A
Drain Current	Continuous	I_D	7	A
	Pulsed (Note 2)	I_{DM}	29.6	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	530	mJ
	Repetitive (Note 2)	E_{AR}	14.2	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	4.5	V/ns
Power Dissipation		P_D	48	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
2. Repetitive Rating : Pulse width limited by maximum junction temperature
3. L = 19.5mH, I_{AS} = 7A, V_{DD} = 50V, R_G = 25 Ω, Starting T_J = 25°C
4. I_{SD}≤7A, di/dt≤200A/μs, V_{DD}≤BV_{DSS}, Starting T_J = 25°C

7N65F

Electrical Characteristics (T_C=25℃ unless otherwise specified)

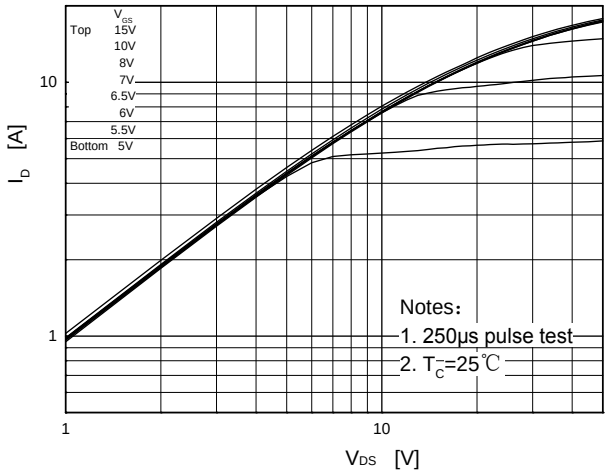
PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV_{DSS}	V_{GS} = 0V, I_D = 250μA	650			V
Drain-Source Leakage Current		I_{DSS}	V_{DS} = 650V, V_{GS} = 0V			1	μA
Gate- Source Leakage Current	Forward	I_{GSS}	V_{GS} = 30V, V_{DS} = 0V			100	nA
	Reverse		V_{GS} = -30V, V_{DS} = 0V			-100	nA
Breakdown Voltage Temperature Coefficient		$\triangle BV_{DSS}/\triangle T_J$	I_D=250μA,Referenced to 25°C		0.67		V/°C
ON CHARACTERISTICS							
Gate Threshold Voltage		$V_{GS(TH)}$	V_{DS} = V_{GS}, I_D = 250μA	2.0		4.0	V
Static Drain-Source On-State Resistance		$R_{DS(ON)}$	V_{GS} = 10V, I_D = 3.5A		0.94	1.2	Ω
DYNAMIC CHARACTERISTICS							
Input Capacitance		C_{ISS}	V_{DS}=25V, V_{GS}=0V, f=1.0 MHz			1400	pF
Output Capacitance		C_{OSS}				180	pF
Reverse Transfer Capacitance		C_{RSS}			16	21	pF
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		$t_{D(ON)}$	V_{DD} =325V, I_D =7.4A, R_G =25Ω (Note 1, 2)			70	ns
Turn-On Rise Time		t_R				170	ns
Turn-Off Delay Time		$t_{D(OFF)}$				140	ns
Turn-Off Fall Time		t_F				130	ns
SWITCHING CHARACTERISTICS							
Total Gate Charge		Q_G	V_{DS}=520V, I_D = 7A, V_{GS}=10 V (Note 1, 2)		29	38	nC
Gate-Source Charge		Q_{GS}			7		nC
Gate-Drain Charge		Q_{GD}			14.5		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS							
Drain-Source Diode Forward Voltage		V_{SD}	V_{GS} = 0V, I_S = 7A			1.4	V
Maximum Continuous Drain-Source Diode Forward Current		I_S				7	A
Maximum Pulsed Drain-Source Diode Forward Current		I_{SM}				29.6	A
Reverse Recovery Time		t_{rr}	V_{GS} = 0V, I_S = 7A, dI_F / dt = 100A/μs (Note 1)		320		ns
Reverse Recovery Charge		Q_{RR}			2.4		μC

Notes: 1. Pulse Test: Pulse width≤300μs, Duty cycle≤2%

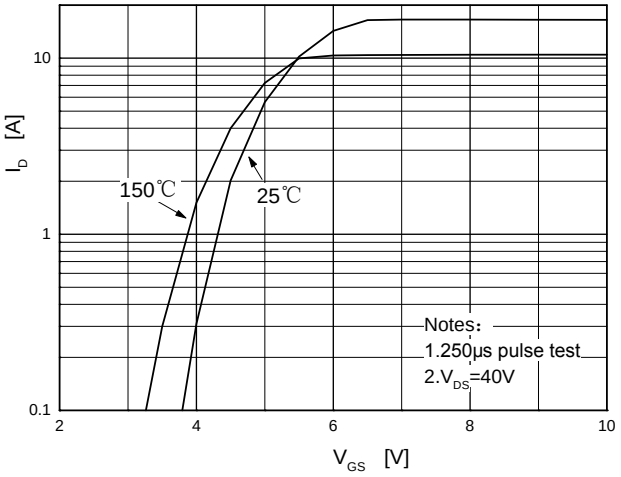
2. Essentially independent of operating temperature

RATING AND CHARACTERISTIC CURVES (7N65F)

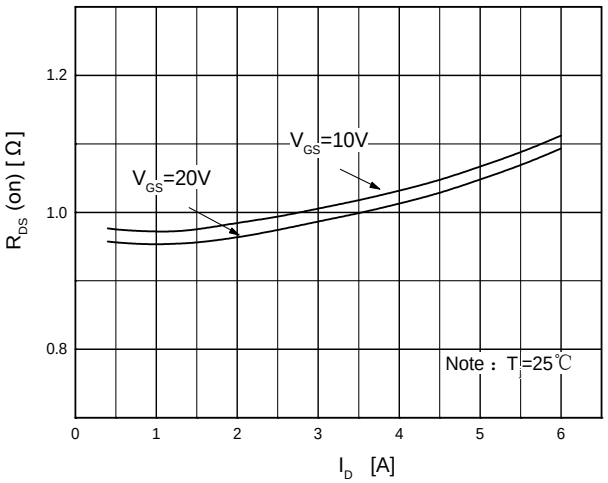
On-Region Characteristics



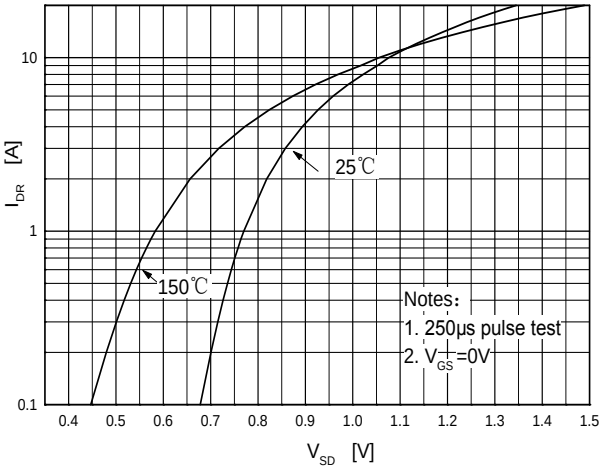
Transfer Characteristics



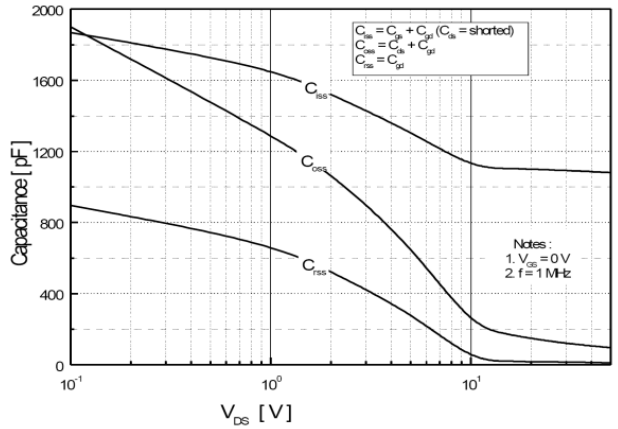
On-Resistance Variation vs. Drain Current and Gate Voltage



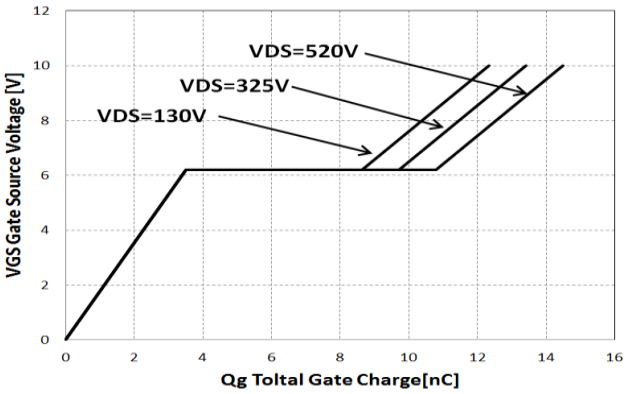
Body Diode Forward Voltage Variation vs. Source Current and Temperature



Capacitance Characteristics

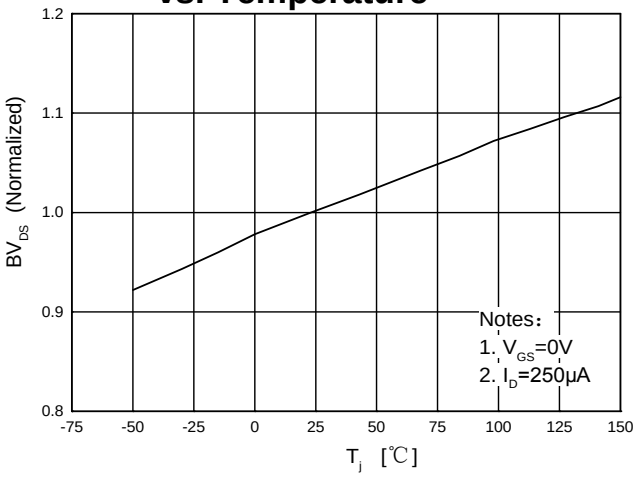


Gate Charge Characteristics



RATING AND CHARACTERISTIC CURVES (7N65F)

Breakdown Voltage Variation vs. Temperature



On-Resistance Variation vs. Temperature