



4N65F

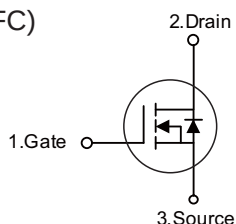
N-Channel Enhancement Mode MOSFET

Features

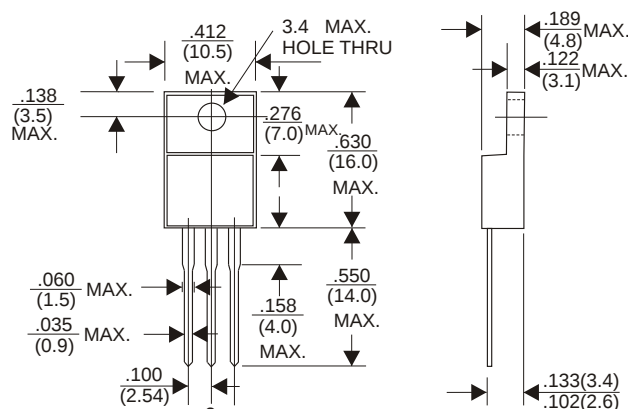
- 650V, 4 A
- $R_{DS(ON)} = 2.0 \Omega$ (Typ.) @ $V_{GS} = 10V$, $I_D = 2A$
- Fast Switching
- Improved dv/dt Capability
- 100% Avalanche Tested

Application

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



ITO-220F(FULLY INSULATED)



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ 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}	4.0	A
Drain Current	Continuous	I_D	4.0
	Pulsed (Note 2)	I_{DM}	16
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	260
	Repetitive (Note 2)	E_{AR}	10.6
Peak Diode Recovery dv/dt (Note 4)	dv/dt	4.5	V/ns
Power Dissipation	P_D	36	W
Junction Temperature	T_J	+150	$^\circ\text{C}$
Operating Temperature	T_{OPR}	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: 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. $L = 30\text{mH}$, $I_{AS} = 4\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25 \Omega$, Starting $T_J = 25^\circ\text{C}$

4. $I_{SD} \leq 4.4\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$

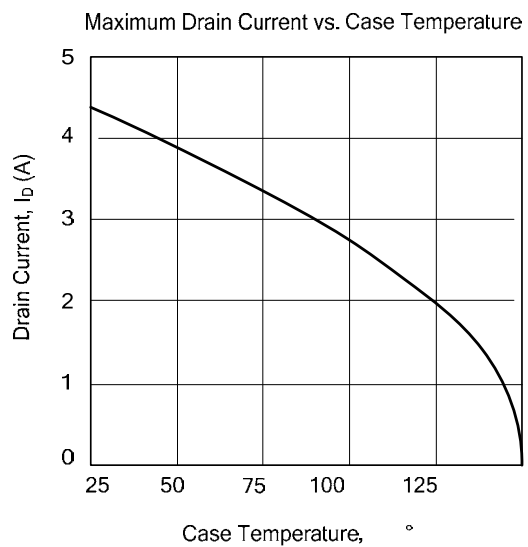
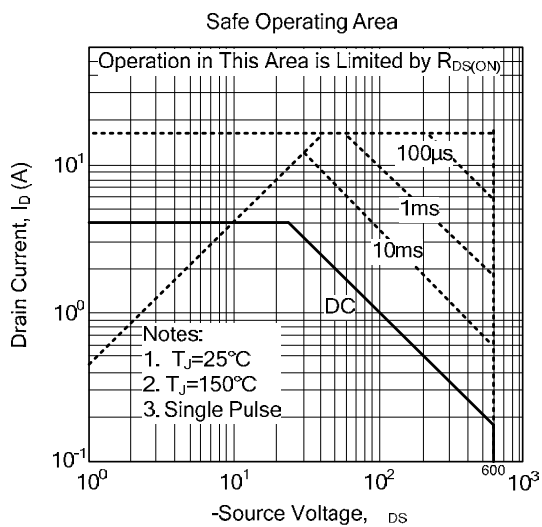
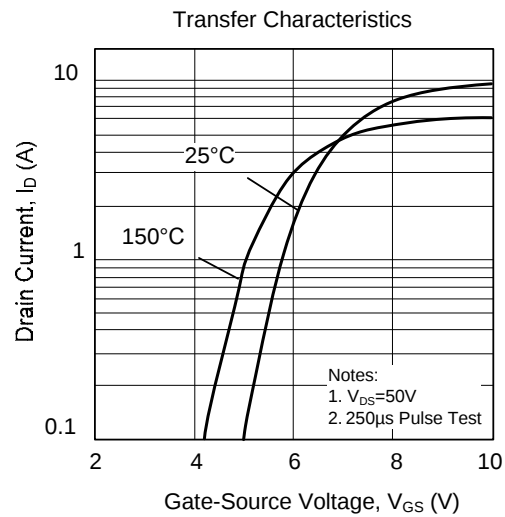
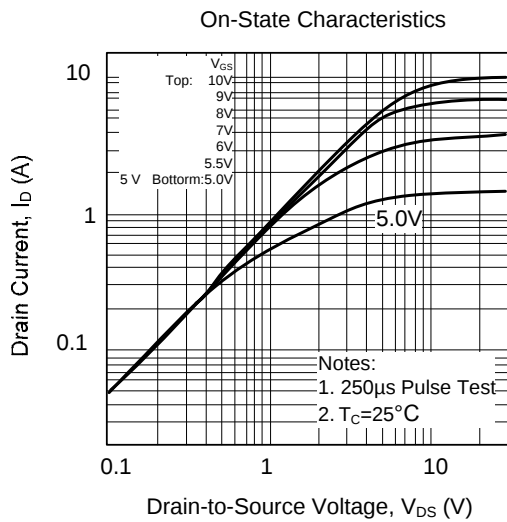
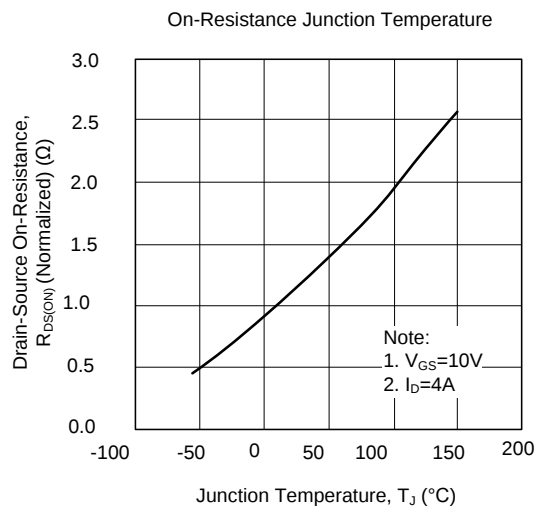
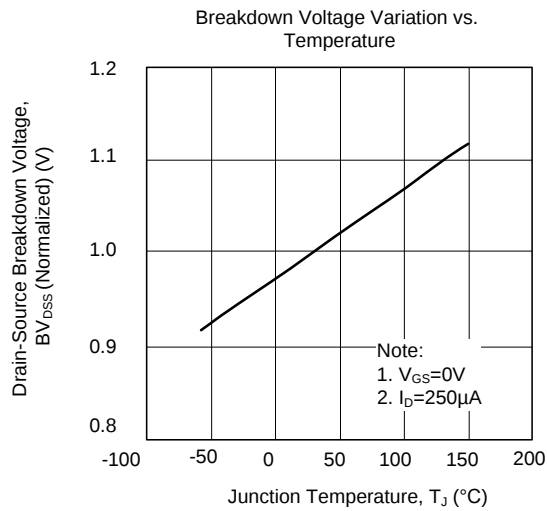
4N65F

Electrical Characteristics (T_c=25°C unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} = 0 V, I _D = 250μA	650			V
Drain-Source Leakage Current		I _{DSS}	V _{DS} = 650 V, V _{GS} = 0 V			10	μA
Gate-Source Leakage Current	Forward	I _{GSS}	V _{GS} = 30 V, V _{DS} = 0 V			100	nA
	Reverse		V _{GS} = -30 V, V _{DS} = 0 V			-100	nA
Breakdown Voltage Temperature Coefficient		ΔBV _{DSS} /ΔT _J	I _D =250μA, Referenced to 25°C		0.6		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} = 10 V, I _D = 2A		2.0	2.4	Ω
DYNAMIC CHARACTERISTICS							
Input Capacitance		C _{ISS}	V _{DS} = 25 V, V _{GS} = 0V, f = 1MHz		520	670	pF
Output Capacitance		C _{OSS}			70	90	pF
Reverse Transfer Capacitance		C _{RSS}			8	11	pF
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		t _{D(ON)}	V _{DD} = 325V, I _D = 4.0A, R _G = 25Ω (Note 1, 2)		13	35	ns
Turn-On Rise Time		t _R			45	100	ns
Turn-Off Delay Time		t _{D(OFF)}			25	60	ns
Turn-Off Fall Time		t _F			35	80	ns
Total Gate Charge		Q _G	V _{DS} = 520V,I _D = 4A V _{GS} = 10V (Note 1, 2)		15	20	nC
Gate-Source Charge		Q _{GS}			3.4		nC
Gate-Drain Charge		Q _{GD}			7.1		nC
SOURCE- DRAIN DIODE RATINGS AND CHARACTERISTICS							
Drain-Source Diode Forward Voltage		V _{SD}	V _{GS} = 0 V, I _S = 4.0A			1.4	V
Maximum Continuous Drain-Source Diode Forward Current		I _S				4.4	A
Maximum Pulsed Drain-Source Diode Forward Current		I _{SM}				17.6	A
Reverse Recovery Time		t _{rr}	V _{GS} = 0V, I _S = 4.0A,		250		ns
Reverse Recovery Charge		Q _{RR}	dl _F /dt = 100 A/μs (Note 1)		1.5		μC

Note: 1. Pulse Test: Pulse width ≤ 300μs, Duty cycle ≤ 2%
2. Essentially independent of operating temperature

RATING AND CHARACTERISTIC CURVES (4N65F)



RATING AND CHARACTERISTIC CURVES (4N65F)

