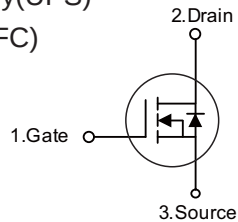


Features

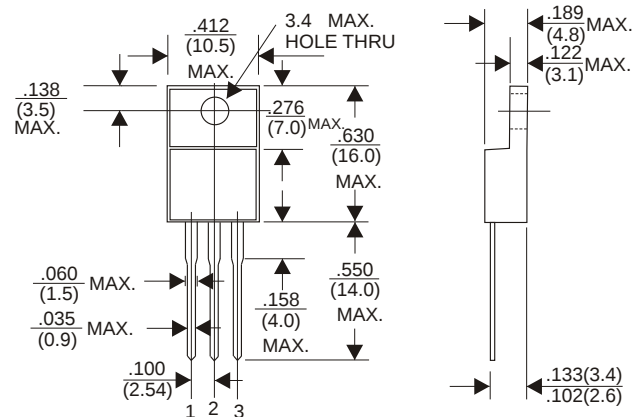
- 650V,10A
- $R_{DS(ON)} = 0.87\Omega$ (Typ.) @ $V_{GS} = 10V$, $I_D = 5A$
- Fast Switching
- Improved dv/dt Capability
- 100% Avalanche Tested

Application

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



ITO-220F (FULLY INSULATED)



Dimensions in inches and (millimeters)

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}	10	A
Drain Current	Continuous	I_D	10	A
	Pulsed (Note 2)	I_{DM}	38	A
Avalanche Energy	Single Pulsed (Note 3)	E_{AS}	700	mJ
	Repetitive (Note 2)	E_{AR}	15.6	mJ
Peak Diode Recovery dv/dt (Note 4)		dv/dt	4.5	V/ns
Power Dissipation		P_D	50	W
Junction Temperature		T_J	+150	$^\circ\text{C}$
Operating Temperature		T_{OPR}	-55 ~ +150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +150	$^\circ\text{C}$

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. $L = 14.2\text{mH}$, $I_{AS} = 10\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\Omega$ Starting $T_J = 25^\circ\text{C}$

4. $I_{SD} \leq 9.5\text{A}$, $di/dt \leq 200\text{A}/\mu\text{s}$, $V_{DD} \leq BV_{DSS}$, Starting $T_J = 25^\circ\text{C}$

10N65F

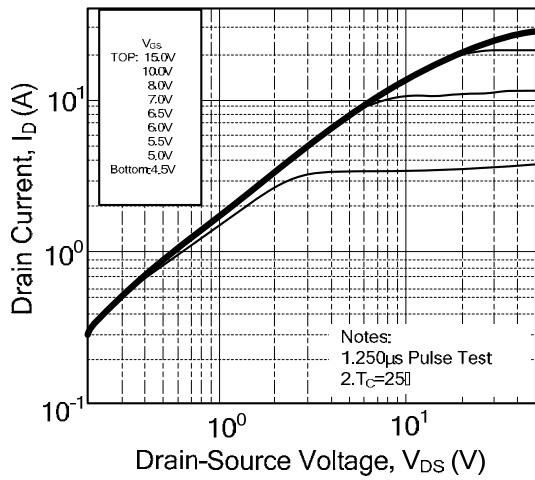
Electrical Characteristics (T_c=25°C unless otherwise specified)

PARAMETER		SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS							
Drain-Source Breakdown Voltage		BV _{DSS}	V _{GS} = 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} = 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 = 250 μA, Referenced to 25°C		0.7		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 = 5.0A		0.87	1.2	Ω
DYNAMIC CHARACTERISTICS							
Input Capacitance		C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0 MHz		1570	2040	pF
Output Capacitance		C _{OSS}			166	215	pF
Reverse Transfer Capacitance		C _{RSS}			18	24	pF
SWITCHING CHARACTERISTICS							
Turn-On Delay Time		t _{D(ON)}	V _{DD} =325V, I _D =10A, R _G =25Ω (Note 1, 2)		23	55	ns
Turn-On Rise Time		t _R			69	150	ns
Turn-Off Delay Time		t _{D(OFF)}			144	300	ns
Turn-Off Fall Time		t _F			77	165	ns
Total Gate Charge		Q _G	V _{DS} =520V, I _D =10A, V _{GS} =10 V (Note 1, 2)		44	57	nC
Gate-Source Charge		Q _{GS}			6.7		nC
Gate-Drain Charge		Q _{GD}			18.5		nC
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS							
Drain-Source Diode Forward Voltage		V _{SD}	V _{GS} = 0 V, I _S =10A			1.4	V
Maximum Continuous Drain-Source Diode Forward Current		I _S				10	A
Maximum Pulsed Drain-Source Diode Forward Current		I _{SM}				38	A
Reverse Recovery Time		t _{rr}	V _{GS} = 0 V, I _S = 10A,		420		ns
Reverse Recovery Charge		Q _{RR}	dI _F / dt = 100 A/μs (Note 1)		4.2		μC

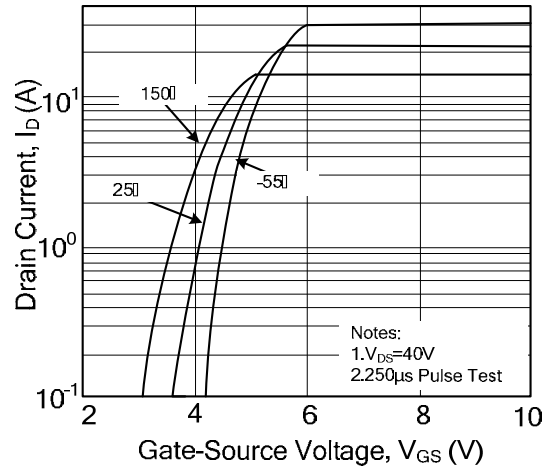
Notes: 1. Pulse Test : Pulse width ≤300μs, Duty cycle ≤2%
 2. Essentially independent of operating temperature

RATING AND CHARACTERISTIC CURVES (10N65F)

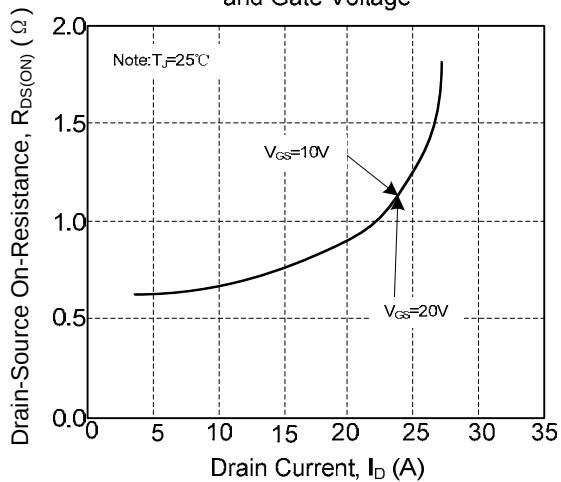
On-Region Characteristics



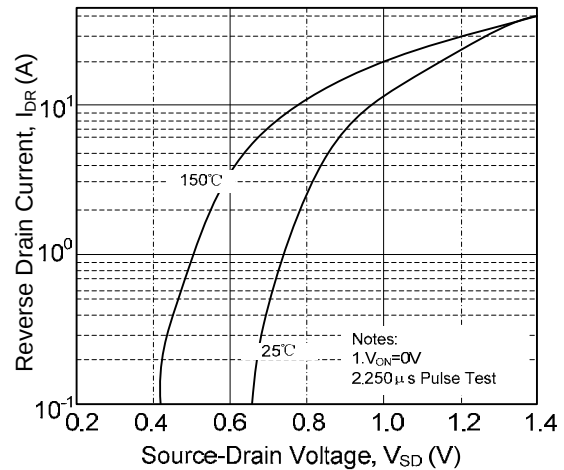
Transfer Characteristics



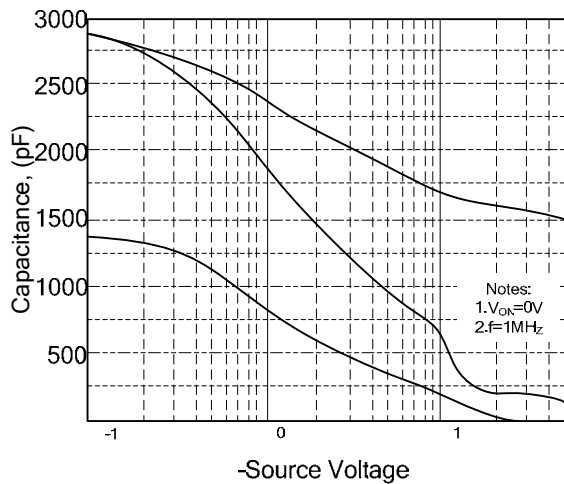
On-Resistance Variation vs. Drain Current and Gate Voltage



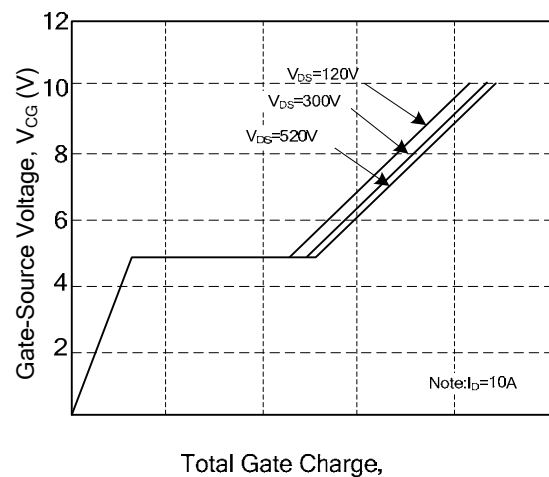
Body Diode Forward Voltage Variation with Source Current and Temperature



Capacitance Characteristics



Gate Charge Characteristics



RATING AND CHARACTERISTIC CURVES (10N65F)

