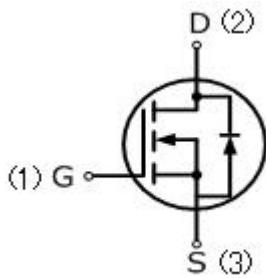


FEATURE

- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

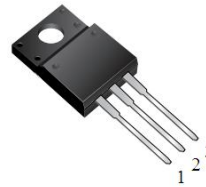


VOLTAGE RANGE

650Volts

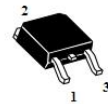
CURRENT

7Amperes



ITO-220AB

7N65F



TO-252

7N65

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	650	V
Gate-Source Voltage	V_{GSS}	±30	V
Continuous Drain Current	I_D	7	A
Pulsed Drain Current (Note 2)	I_{DM}	28	A
Avalanche Energy	Single Pulsed (Note 3) E_{AS}	435	mJ
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 T_J

3. $L = 30mH, I_{AS} = 5.25A, V_{DD} = 50V, R_G = 25 \Omega, \text{Starting } T_J = 25^\circ C$

RATING AND CHARACTERISTIC CURVES (7N65F)

ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$, unless otherwise specified)

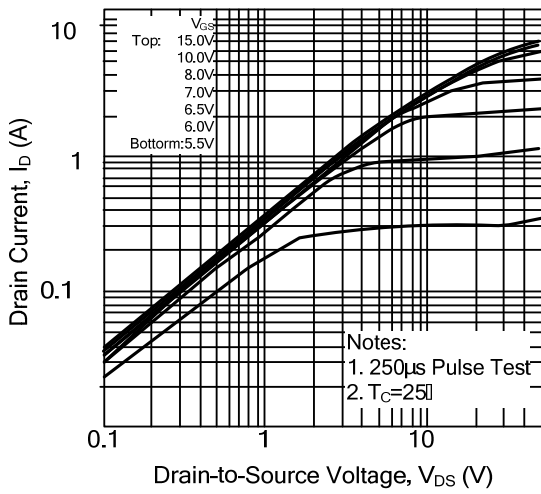
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	650			V
Drain-Source Leakage Current	I_{DSS}	$V_{DS}=650V, V_{GS}=0V$			1	μA
Gate- Source Leakage Current	Forward	$V_G=30V, V_{DS}=0V$ $V_{GS}=-30V, V_{DS}=0V$			100	nA
	Reverse				-100	nA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS}/\Delta T_J$	$I_D=250\mu A$, Referenced to 25°C		0.67		$V/^\circ\text{C}$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0		4.0	V
Static Drain-Source On-State Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=3.5A$		1.3	1.5	Ω
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	$V_{DS}=25V, V_{GS}=0V, f=1.0\text{ MHz}$		1210	1400	pF
Output Capacitance	C_{OSS}			140	180	pF
Reverse Transfer Capacitance	C_{RSS}			40	50	pF
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DD}=300V, I_D=7A,$ $R_G=25\Omega$ (Note 1, 2)		50	70	ns
Turn-On Rise Time	t_R			150	180	ns
Turn-Off Delay Time	$t_{D(OFF)}$			380	410	ns
Turn-Off Fall Time	t_F			180	220	ns
Total Gate Charge	Q_G	$V_{DS}=520V, I_D=7A,$ $V_{GS}=10V$ (Note 1, 2)		29	38	nC
Gate-Source Charge	Q_{GS}			9		nC
Gate-Drain Charge	Q_{GD}			19		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}				28	A
Reverse Recovery Time	t_{rr}	$V_{GS}=0V, I_S=7.0A,$		490		ns
Reverse Recovery Charge	Q_{RR}	$dI_F/dt=100\text{ A}/\mu\text{s}$ (Note 1)		3.2		μC

Notes: 1. Pulse Test: Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 2\%$.

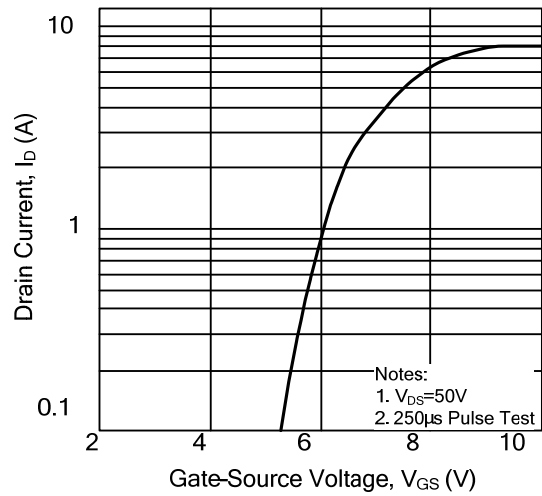
2. Essentially independent of operating temperature.

RATING AND CHARACTERISTIC CURVES (7N65F)

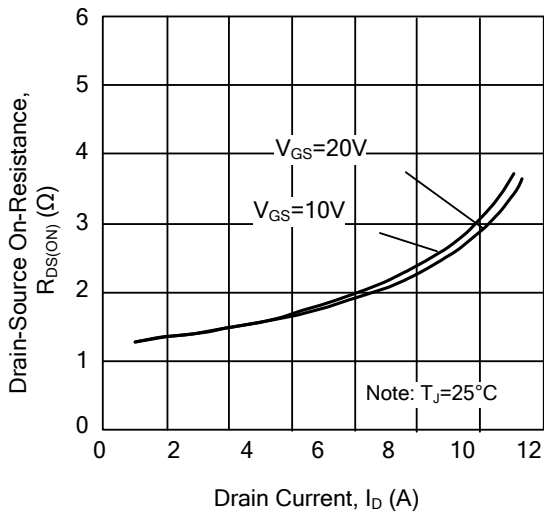
On-State Characteristics



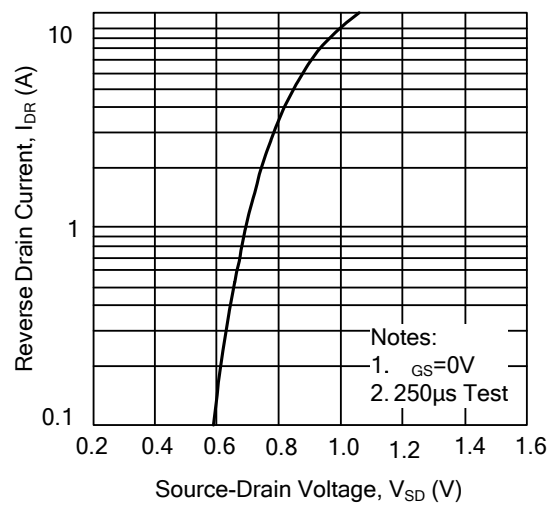
Transfer Characteristics



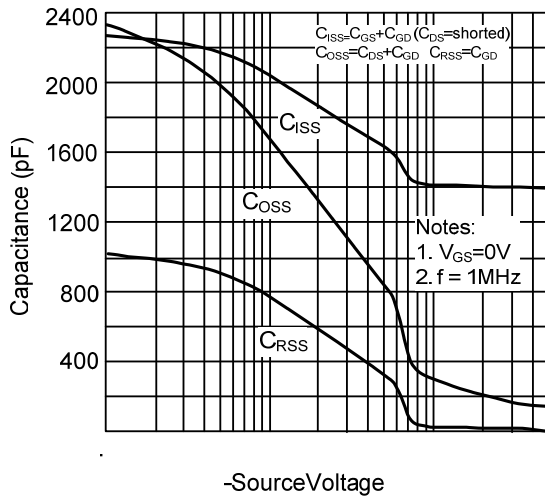
On-Resistance Variation vs. Drain Current and Gate Voltage



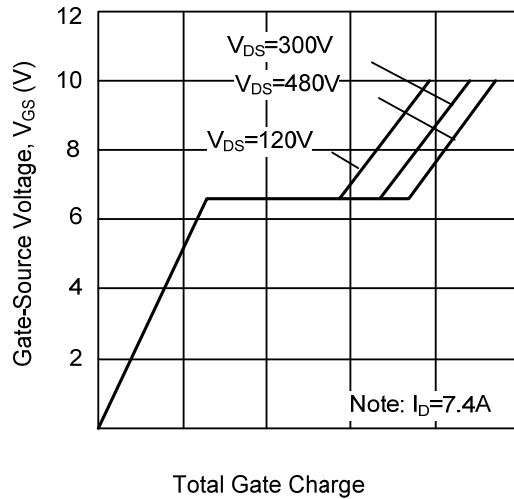
On State Current vs. Allowable Case Temperature



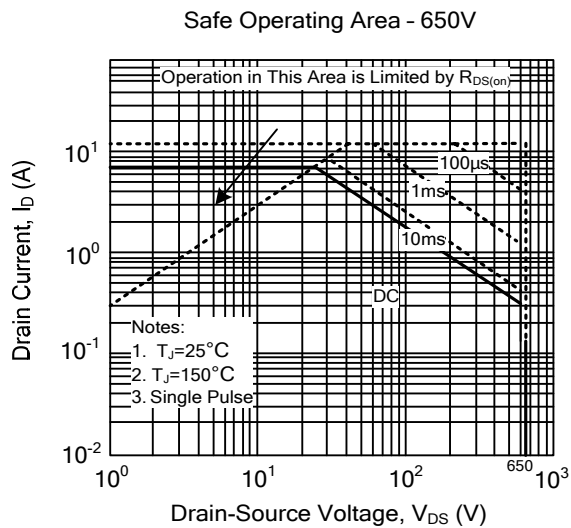
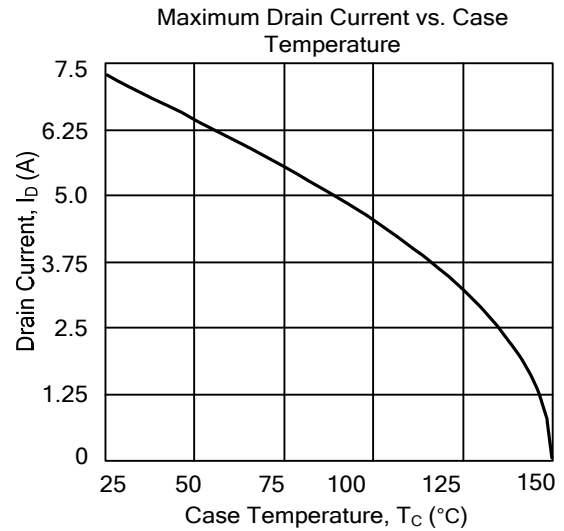
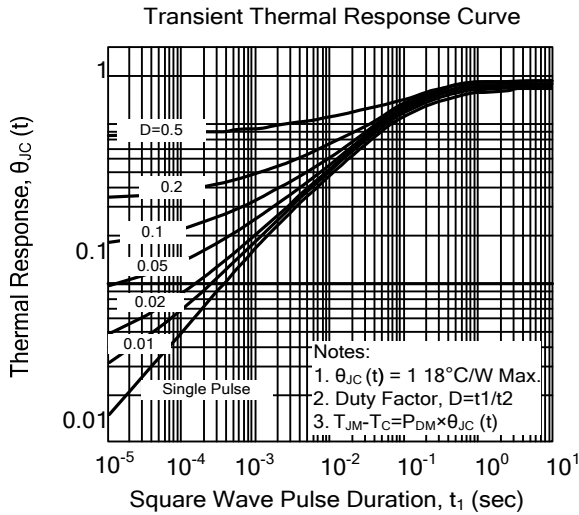
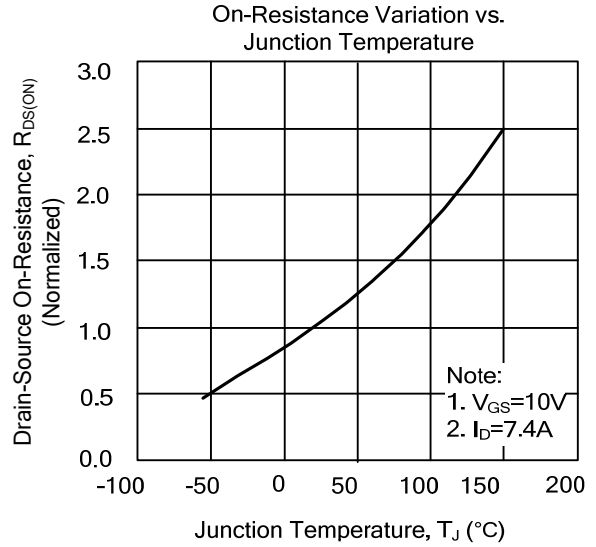
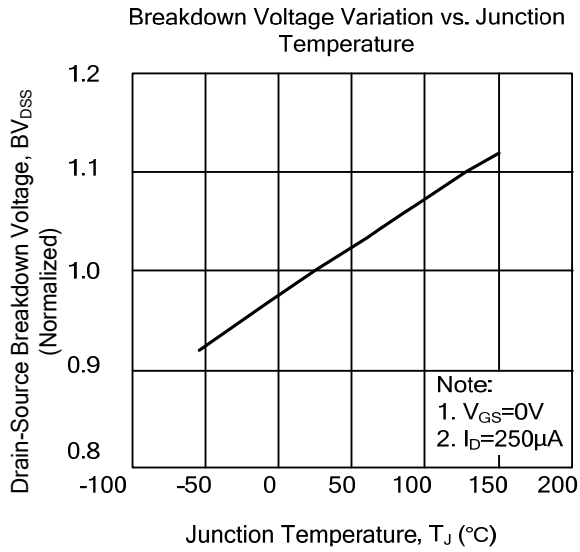
Capacitance Characteristics (Non-Repetitive)



Gate Charge Characteristics

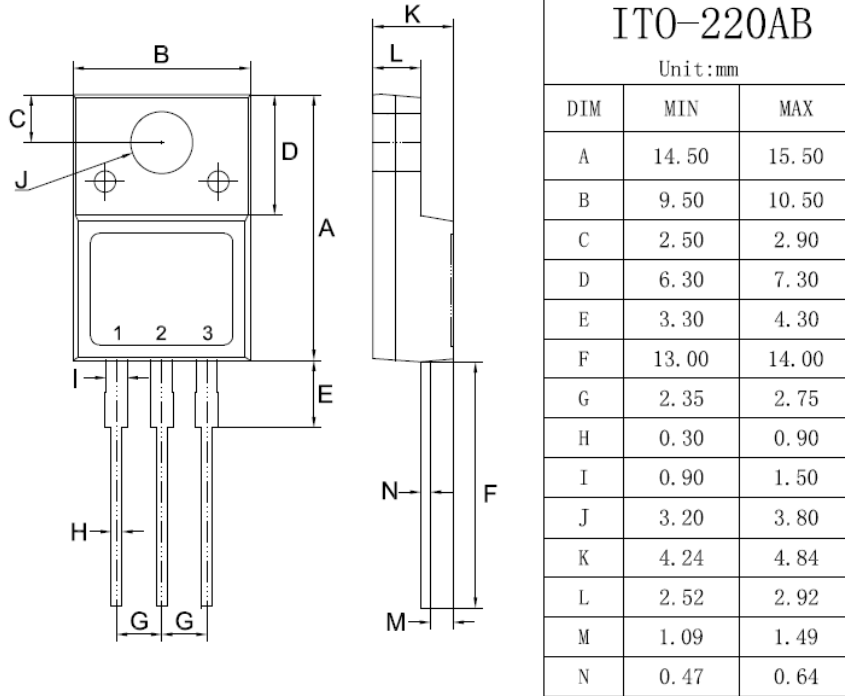


RATING AND CHARACTERISTIC CURVES (7N65F)



RATING AND CHARACTERISTIC CURVES (7N65F)

ITO-220 Mechanical Drawing



TO-252 Mechanical Drawing

