

## 7A 650V N Channel MOSFET

### Features

- $V_{DS} = 650V$
- $I_D = 7A @ V_{GS} = 10V$
- $R_{DS(ON)} (Typ) = 1.1\Omega @ V_{GS} = 10V$

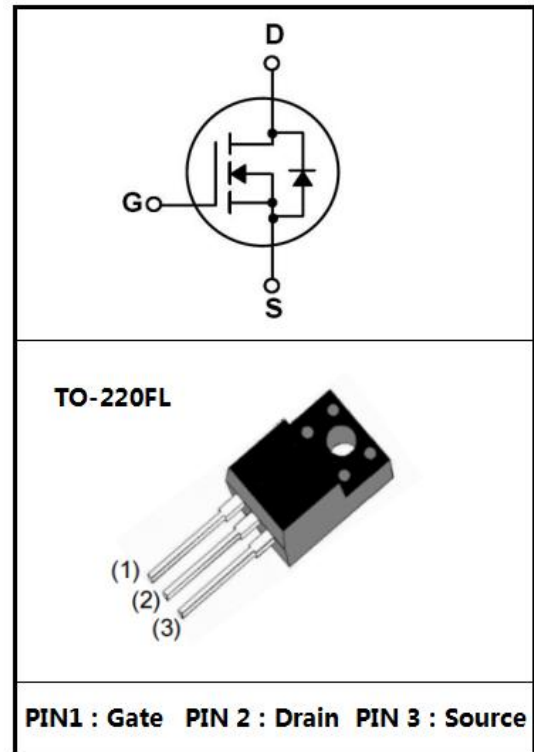
### Applications

- Power Supply
- PFC
- High Current, High Speed Switching

### Descriptions

These N-channel MOSFET are produced using advanced plane MOSFET Technology, which provides Low on-state resistance, high switching performance and excellent quality.

These devices are suitable device for SMPS, high Speed switching and general purpose applications.



**Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DSS}$	650	V
Drain Current	$I_D(T_C=25^\circ\text{C})$	7.0	A
Drain Current	$I_D(T_C=100^\circ\text{C})$	4.4	A
Drain Current - Pulsed	$I_{DM}$	29.5	A
Gate-Source Voltage	$V_{GSS}$	$\pm 30$	V
Single Pulsed Avalanche Energy	$E_{AS}$	420	mJ
Repetitive Avalanche Energy	$E_{AR}$	14.7	mJ
Avalanche Current	$I_{AR}$	7.0	A
Power Dissipation	$P_D(T_C=25^\circ\text{C})$	50	W
Operating and Storage Temperature Range	$T_J, T_{STG}$	-55 to 150	°C
Junction to Ambient	$R_{\theta JA}$	62.5	°C/W
Junction to Case	$R_{\theta JC}$	2.5	°C/W

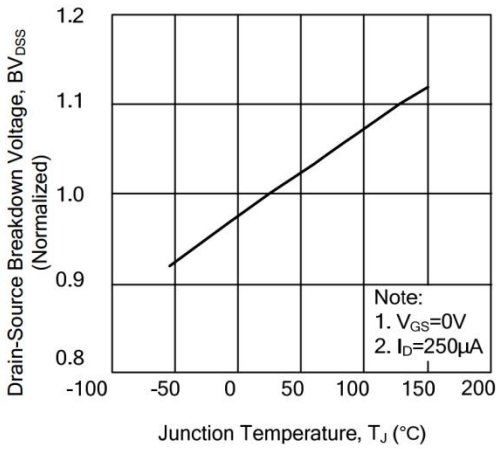
**Electrical Characteristics(Ta=25℃)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit	
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V$ $I_D=250\mu A$	650			V	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=650V$ $V_{GS}=0V$			1.0	$\mu A$	
		$V_{DS}=520V$ $T_C=125^\circ C$			100	$\mu A$	
Gate-Body Leakage Current, Forward	$I_{GSS}$	$V_{GS}=\pm 30V$ $V_{DS}=0V$			$\pm 100$	nA	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu A$	2.0		4.0	V	
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=3.5A$		1.1	1.3	$\Omega$	
Input Capacitance	$C_{iss}$	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		580		pF	
Output Capacitance	$C_{oss}$				50		pF
Reverse Transfer Capacitance	$C_{rss}$				10		pF
Total Gate Charge	$Q_G$	$V_{DS}=520V$ , $I_D=7.0A$ , $V_{GS}=10V$		30		nC	
Gate-Source Charge	$Q_{GS}$			10			
Gate-Drain Charge	$Q_{GD}$			21			

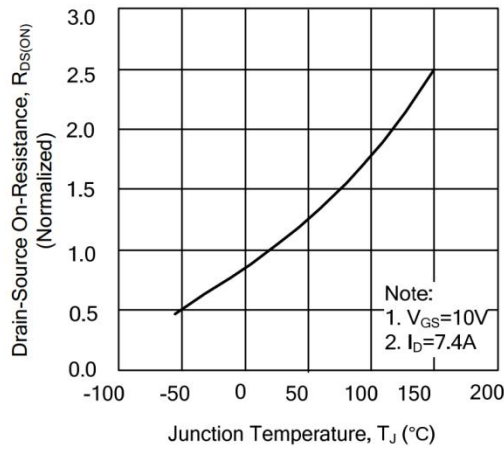
**Electrical Characteristics(Ta=25℃)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Turn-On Delay Time	$t_{d(on)}$	$V_{DD}=325V$ $I_D=7.0A$ $R_G=25\Omega$		52		ns
Turn-On Rise Time	$t_r$			160		
Turn-Off Delay Time	$t_{d(off)}$			400		
Turn-Off Fall Time	$t_f$			190		
Maximum Continuous Drain-Source Diode Forward Current	$I_S$				7	A
Maximum Pulsed Drain-Source Diode Forward Current	$I_{SM}$				29.5	A
Drain-Source Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V$ , $I_S=7.0A$			1.4	V
Reverse Recovery Time	$t_{rr}$	$V_{GS}=0V$ , $I_S=7.0A$ , $di_f/dt=100A/\mu s$		330		nS
Reverse Recovery Charge	$Q_{rr}$			2400		nC

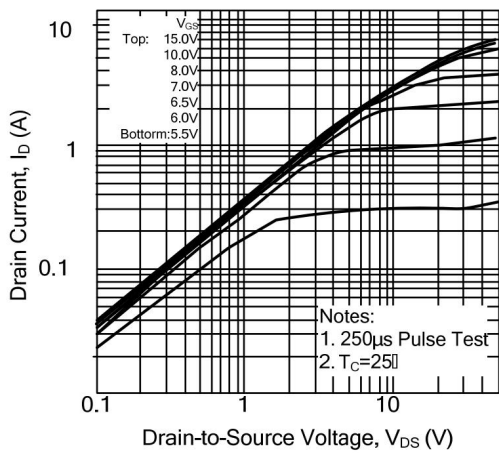
Electrical Characteristic Curve



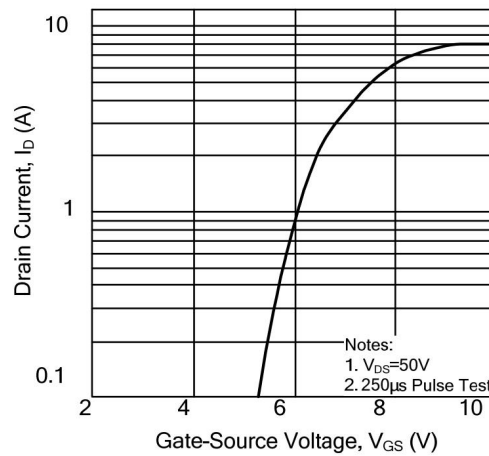
1. Breakdown Voltage Variation vs. Junction Temperature



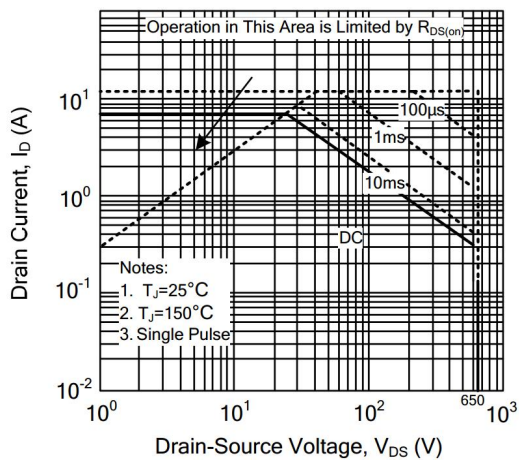
2. On-Resistance Variation vs. Junction Temperature



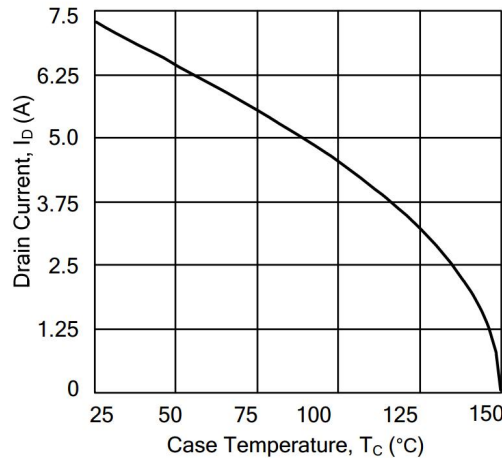
3. On-State Characteristics



4. Transfer Characteristics

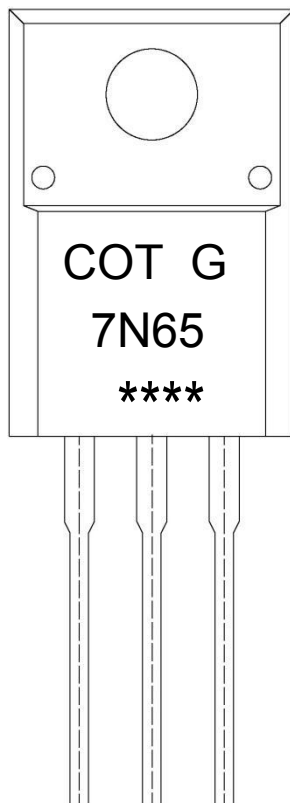


5. Safe Operating Area



6. Maximum Drain Current vs. Case Temperature

Marking Instructions



Note:

COT: Company Logo

G: Halogen Free

7N65: Product Type.

\*\*\*\*: Lot No. Code, code change with Lot No.

Packaging SPEC.

TUBE INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Tube	Tubes/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Tube	Inner Box	Outer Box
TO-220FL	50	20	1,000	5	5,000	532×33×7.0	555×164×50	575×290×180

Package Outline Dimensions

TO-220FL 单位: mm

