

## N-Channel Enhancement Mode MOSFET

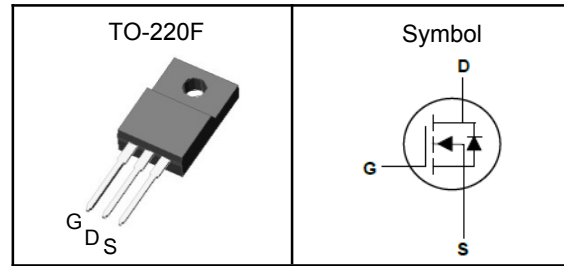
### Features

- Fast switching speed
- Reliable and Rugged
- ROHS Compliant
- 100% UIS and Rg Tested

### Applications

- Power Management in Desktop Computer
- DC/DC Converters

### Pin Description



$V_{DSS}$	900	V
$R_{DS(ON)-Typ}$	3600	m $\Omega$
$I_D$	4	A

### Absolute Maximum Ratings ( $T_J=25^\circ\text{C}$ , Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit	
$V_{DSS}$	Drain-Source Voltage	900	V	
$V_{GSS}$	Gate-Source Voltage	$\pm 30$	V	
$T_J$	Maximum Junction Temperature	-55 to 150	$^\circ\text{C}$	
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$	
$E_{AS}$	Single Pulse Avalanche Energy <sup>③</sup>	650	mJ	
$I_{DM}^{①}$	Pulse Drain Current Tested	16	A	
$I_D$	Continuous Drain Current	$T_c=25^\circ\text{C}$	4	A
$P_D$	Maximum Power Dissipation	$T_c=25^\circ\text{C}$	30	W

### Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient <sup>①</sup>	100	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance Junction-Case <sup>①</sup>	4.17	$^\circ\text{C/W}$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature 150 $^\circ\text{C}$ .

Note ③ : Surface Mounted on 1in<sup>2</sup> FR-4 board with 1oz.



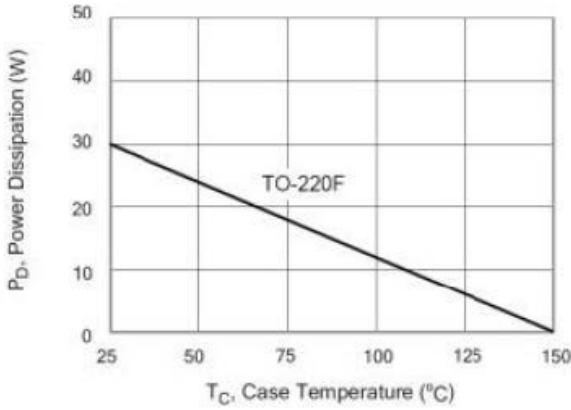
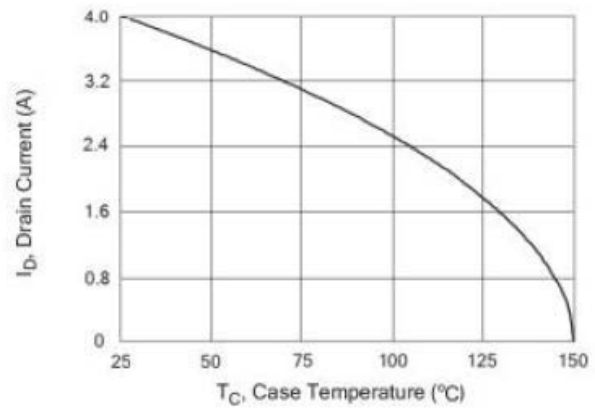
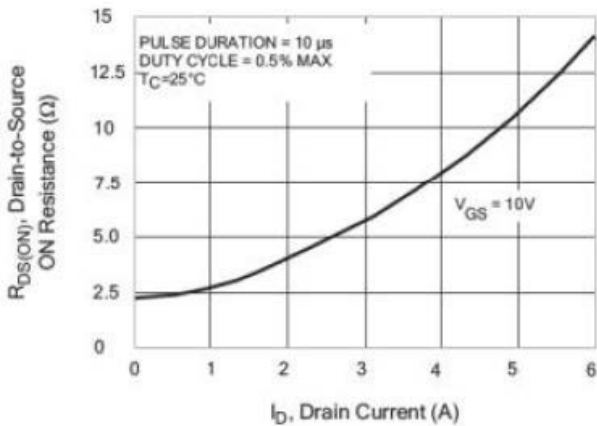
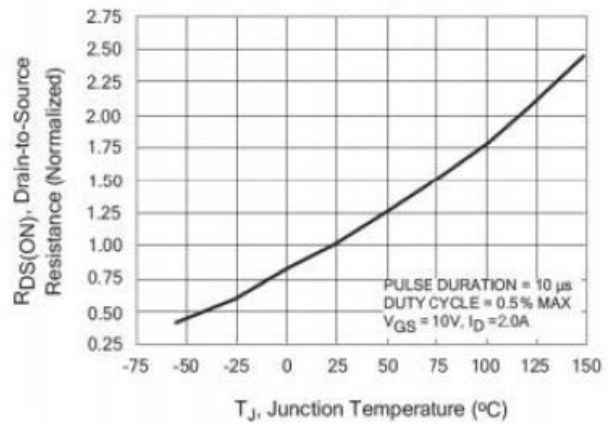
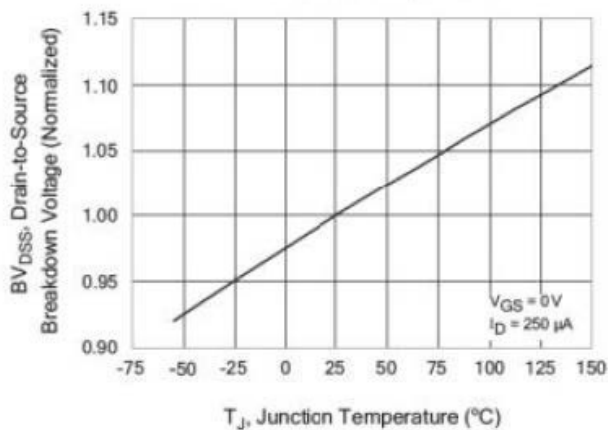
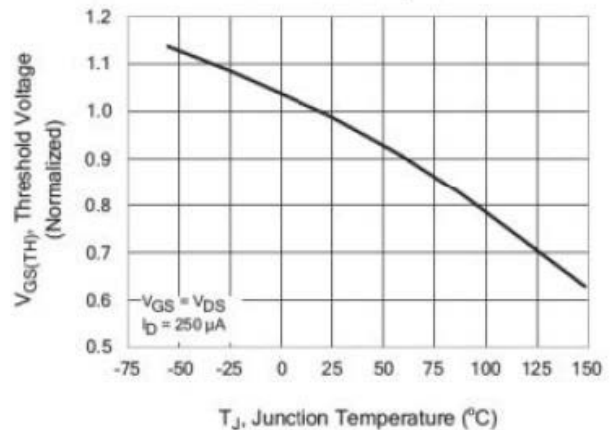
**N-Channel Enhancement Mode MOSFET**

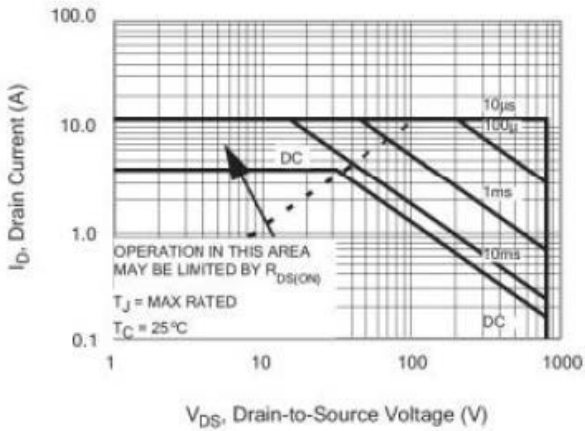
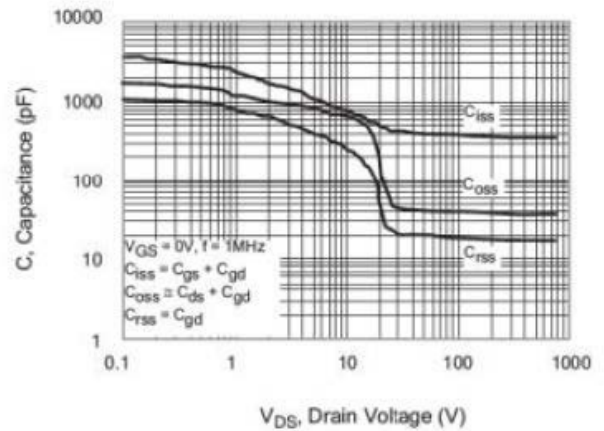
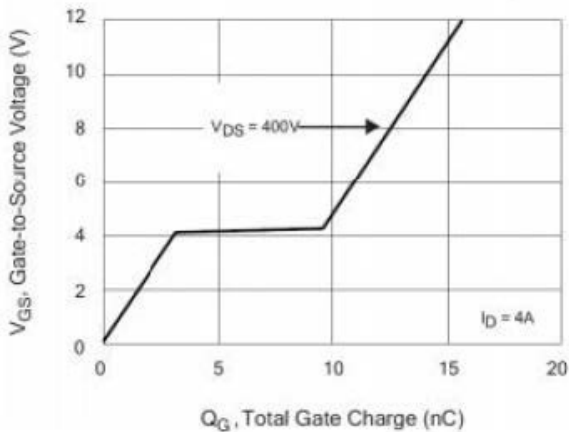
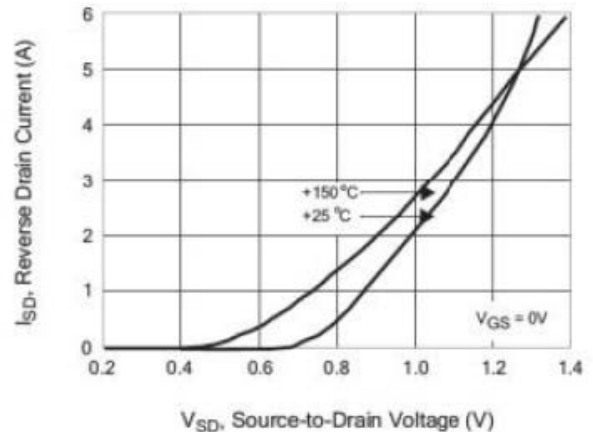
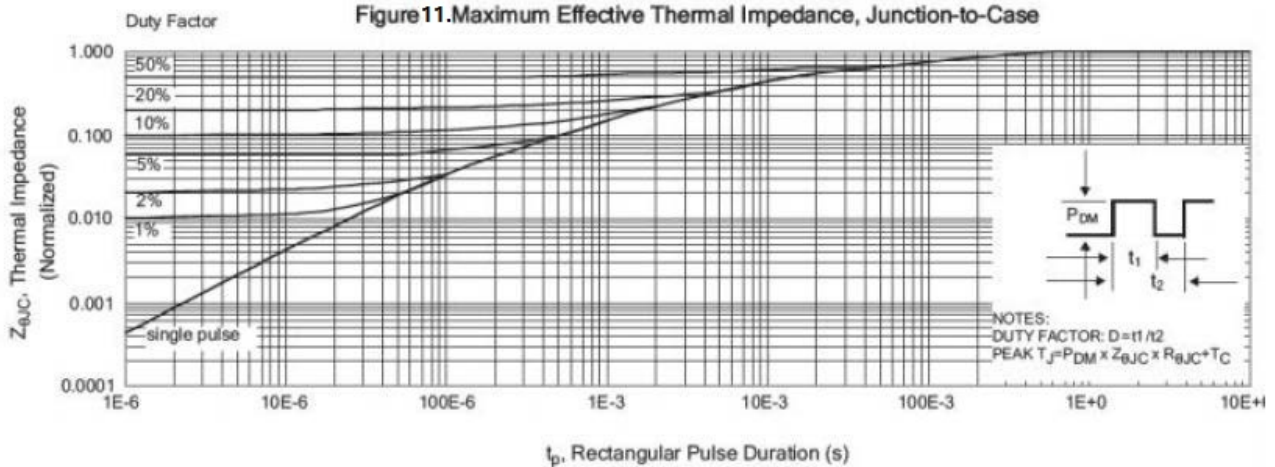
**Electrical Characteristics** ( $T_J=25^{\circ}\text{C}$ , Unless Otherwise Noted)

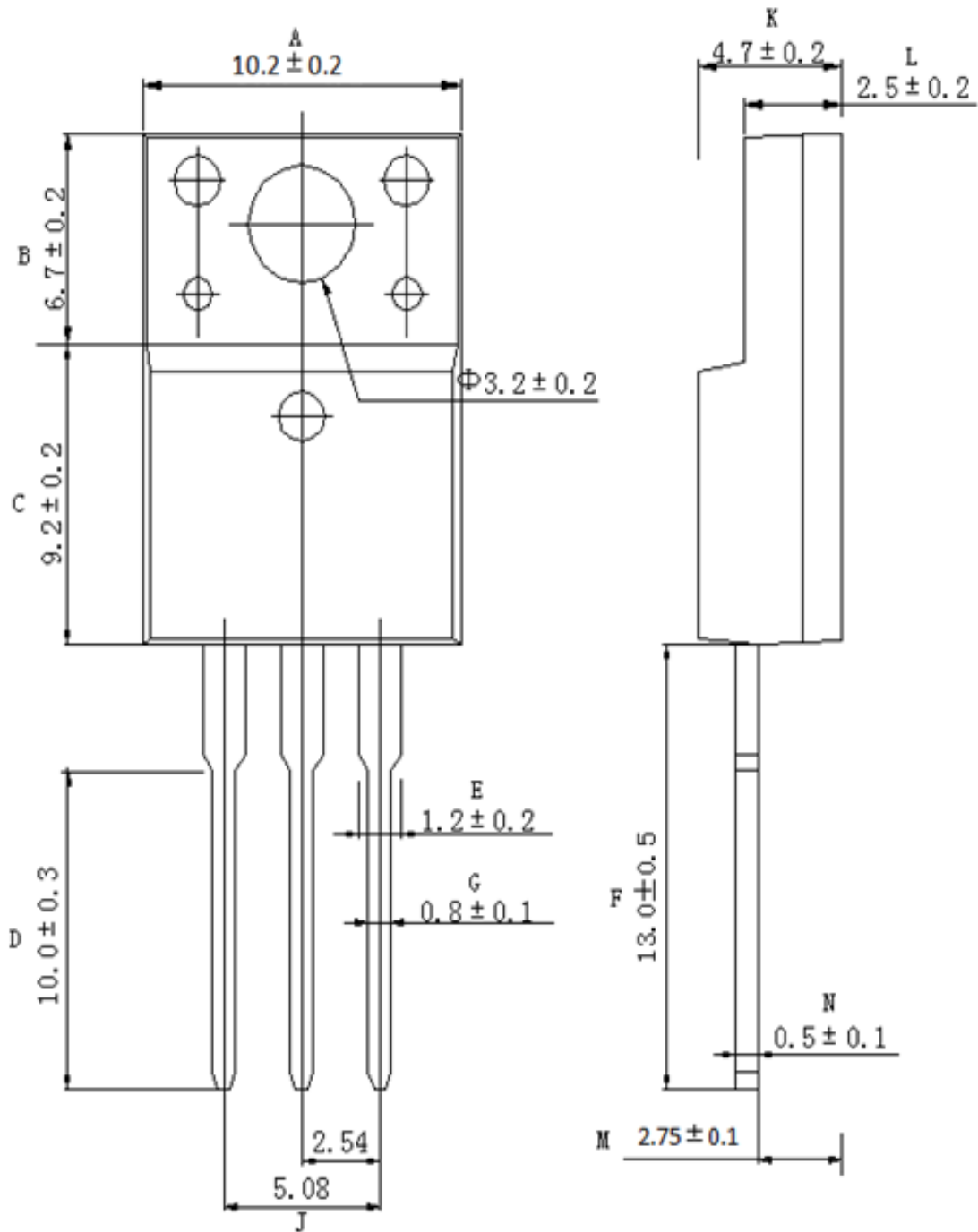
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
<b>Static Electrical Characteristics</b>						
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	900	---	---	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=900V, V_{GS}=0V$	---	---	1	$\mu A$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	---	4.0	V
$I_{GSS}$	Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	$\pm 100$	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=2A$	---	3600	4800	$m\Omega$
<b>Dynamic Characteristics</b> <sup>⑤</sup>						
$C_{iss}$	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Freq.=1MHz	---	490	---	pF
$C_{oss}$	Output Capacitance		---	50	---	
$C_{rss}$	Reverse Transfer Capacitance		---	25	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=400V,$ $V_{GS}=10V,$ $R_G=12\Omega, I_D=4A$	---	10	---	nS
$T_r$	Turn-on Rise Time		---	10	---	
$T_{d(off)}$	Turn-off Delay Time		---	30	---	
$T_f$	Turn-off Fall Time		---	15	---	
$Q_g$	Total Gate Charge	$V_{DD}=400V,$ $V_{GS}=10V, I_D=4A$	---	16	---	nC
$Q_{gs}$	Gate-Source Charge		---	3	---	
$Q_{gd}$	Gate-Drain Charge		---	6	---	
<b>Source-Drain Characteristics</b> ( $T_J=25^{\circ}\text{C}$ )						
$V_{SD}$	Diode Forward Voltage <sub>2</sub>	$V_{GS}=0V, I_S=4A, T_J=25^{\circ}\text{C}$	---	---	1.5	V
$t_{rr}$	Reverse Recovery Time	$I_F=4A,$ $di/dt=100A/\mu s, T_J=25^{\circ}\text{C}$	---	135	---	nS
$Q_{rr}$	Reverse Recovery Charge		---	446	---	nC

Note ④ : Pulse test (pulse width $\leq 300\mu s$ , duty cycle $\leq 2\%$ ).

Note ⑤ : Guaranteed by design, not subject to production testing.

**N-Channel Enhancement Mode MOSFET**
**Typical Characteristics**
**Figure 1. Maximum Power Dissipation vs Case Temperature**

**Figure 2. Maximum Continuous Drain Current vs Case Temperature**

**Figure 3. Typical Drain-to-Source ON Resistance vs Drain Current**

**Figure 4. Typical Drain-to-Source ON Resistance vs Junction Temperature**

**Figure 5. Typical Breakdown Voltage vs Junction Temperature**

**Figure 6. Typical Threshold Voltage vs Junction Temperature**


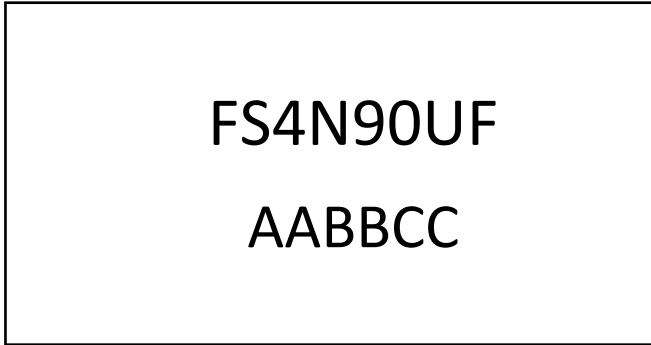
**N-Channel Enhancement Mode MOSFET**
**Figure 7. Maximum Forward Bias Safe Operating Area**

**Figure 8. Typical Capacitance vs Drain-to-Source Voltage**

**Figure 9. Typical Gate Charge vs Gate-to-Source Voltage**

**Figure 10. Typical Body Diode Transfer Characteristics**

**Figure 11. Maximum Effective Thermal Impedance, Junction-to-Case**


**N-Channel Enhancement Mode MOSFET**
**TO-220F Package Outline Data**




# 印字说明

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第一行标记为物料型号代码

第二行为AA为内部识别码，BB为表示年份，例如22即表示2022年，CC表示周期，例如01即表示第一周；2201即表示2022年第一周生产。