

N-Channel Enhancement Mode MOSFET

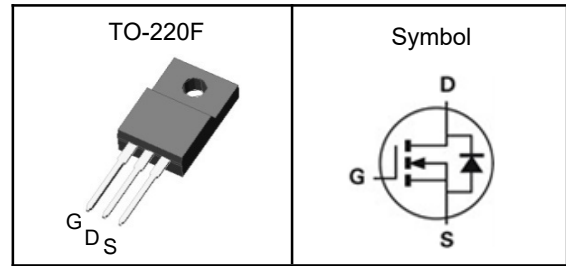
Features

- Advanced Trench technology
- High Speed Power Switching
- Reliable and Rugged
- ROHS Compliant
- 100% Avalanche Tested

Applications

- Power Management in Desktop Computer
- DC/DC Converters

Pin Description



V_{DSS}	30	V
$R_{DS(ON)-Typ}$	2.8	m Ω
I_D	80	A

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

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-Source Voltage (Gate-Source Shorted)	30	V
V_{GS}	Gate-Source Voltage	± 6	V
V_R	Reverse Drain-Source Voltage (Gate-Source Shorted)	30	V
T_{jv}	Junction Temperature (Pulsed)	150	$^\circ\text{C}$
T_J	Junction Temperature (Steady State)	100	$^\circ\text{C}$
I_D	Drain Current (Pulsed)	80	A
	Drain Current (Steady State)	52	A
I_{SM}	Surge Drain Current (Pulsed)	32	A

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance-Junction to Ambient	65	$^\circ\text{C}/\text{W}$
$R_{\theta JC}$	Thermal Resistance-Junction to Case	3.9	$^\circ\text{C}/\text{W}$

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 1in² FR-4 board with 1oz.



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

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=30V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	---	2.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=24A$	---	2.8	3.5	m Ω
gfs	Forward Transconductance	$V_{DS}=10V, I_D=10A$	---	40	---	S
Dynamic Characteristics^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=25V,$ Freq.=1.0MHz	---	5200	---	pF
C_{oss}	Output Capacitance		---	648	---	
C_{riss}	Reverse Transfer Capacitance		---	500	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DD}=25V,$ $I_D=30A, R_G=3.3\Omega$	---	16	---	nS
T_r	Turn-on Rise Time		---	66	---	
$T_{d(off)}$	Turn-off Delay Time		---	46	---	
T_f	Turn-off Fall Time		---	80	---	
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DD}=25V,$ $I_D=30A$	---	100	---	nC
Q_{gs}	Gate-Source Charge		---	19	---	
Q_{gd}	Gate-Drain Charge		---	30	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_S=40A, V_{GS}=0V$	---	---	1.2	V
t_{rr}	Reverse recovery time	$I_F=40A,$ $diF/dt=100A/\mu s$	---	15	---	ns
Q_{rr}	Reverse recovery charge		---	3	---	nC

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

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

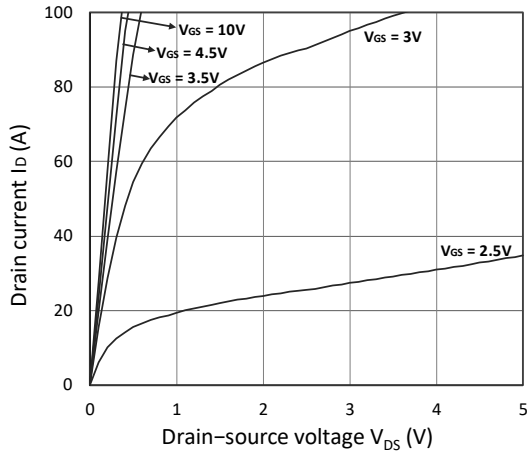
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Typical Characteristics


Figure 1. Output Characteristics

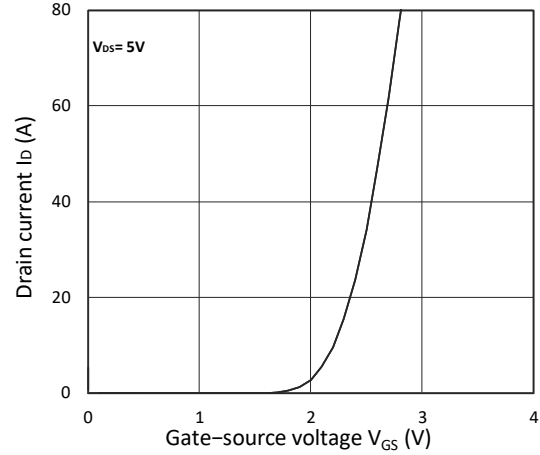


Figure 2. Transfer Characteristics

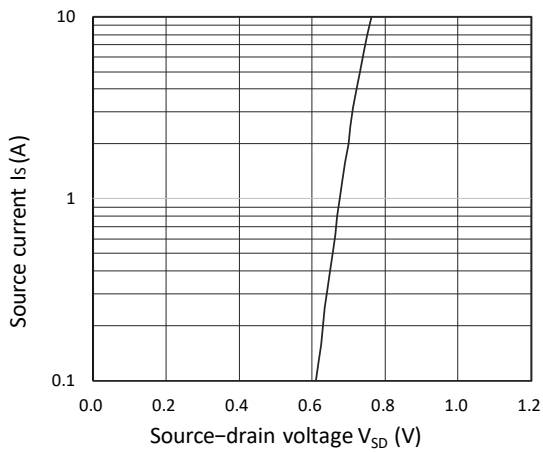
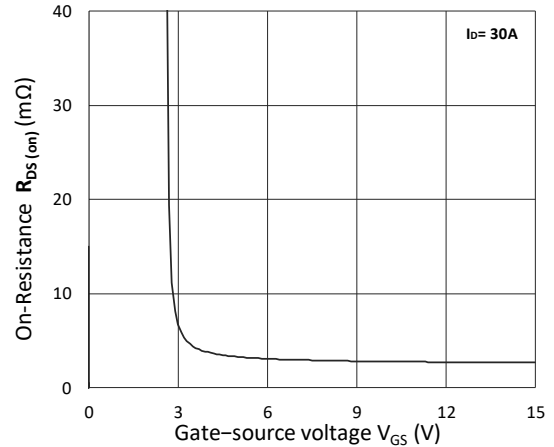
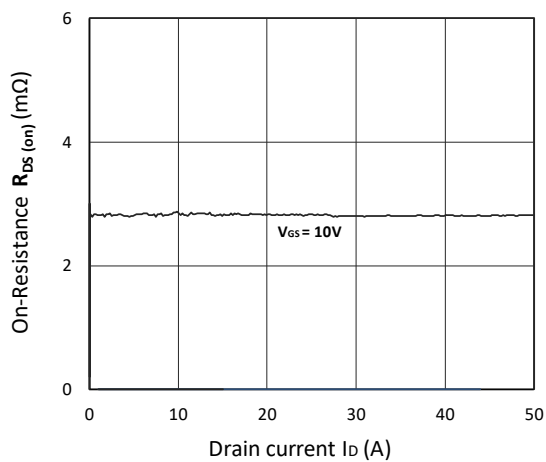
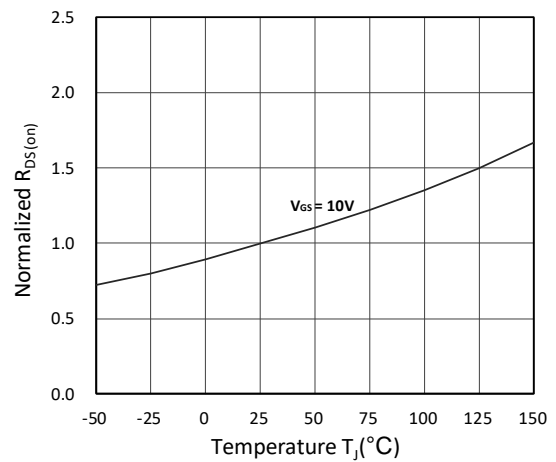


Figure 3. Forward Characteristics of Reverse


 Figure 4. $R_{DS(ON)}$ vs. V_{GS}

 Figure 5. $R_{DS(ON)}$ vs. I_D

 Figure 6. Normalized $R_{DS(ON)}$ vs. Temperature

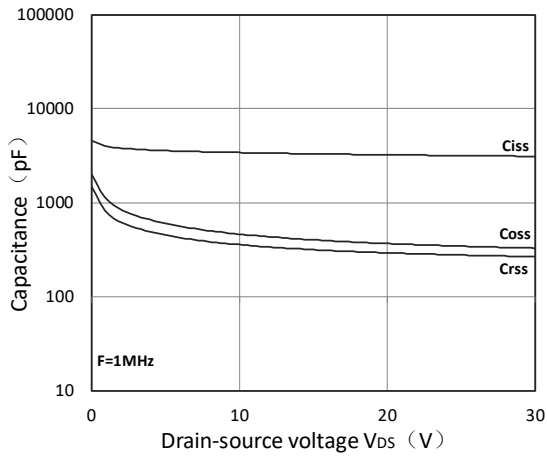
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Figure 7. Capacitance Characteristics

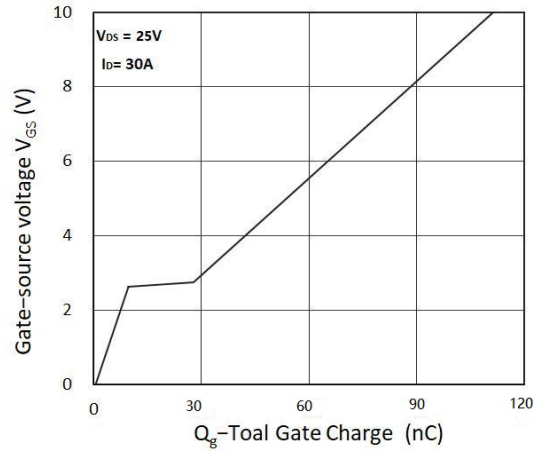


Figure 8. Gate Charge Characteristics

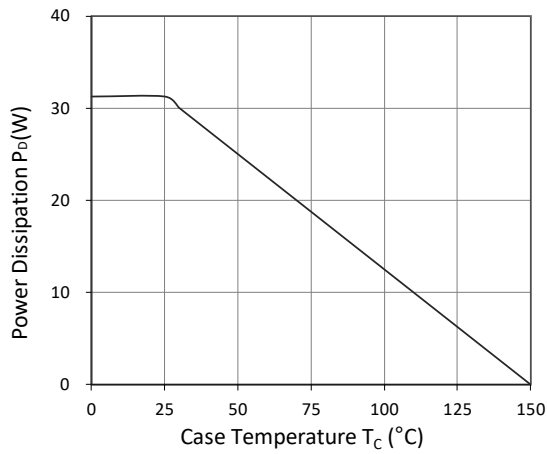


Figure 9. Power Dissipation

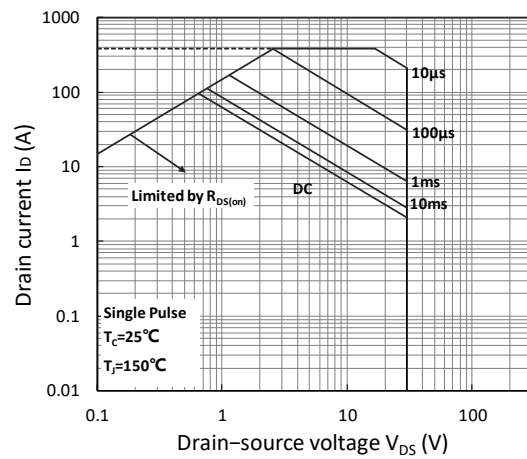


Figure 10. Safe Operating Area

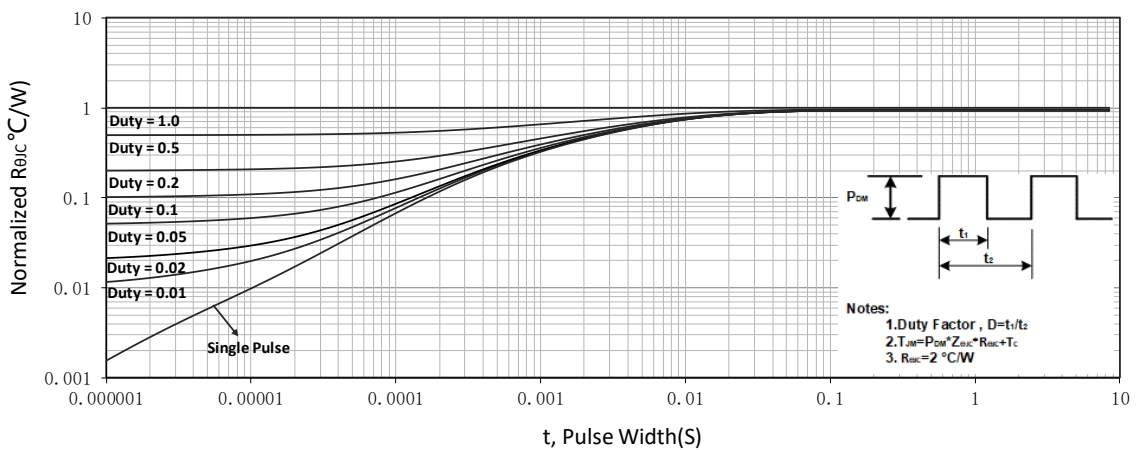
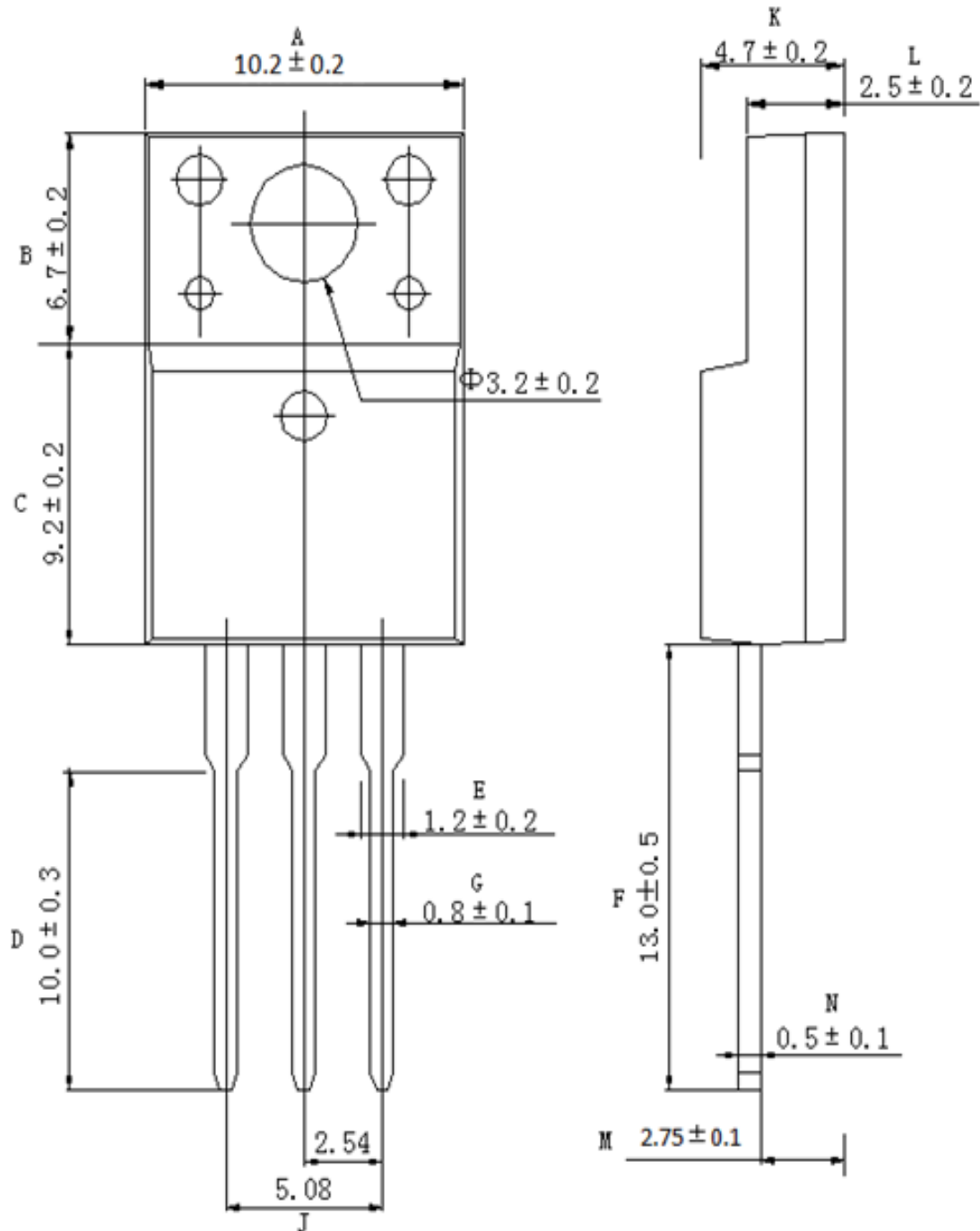


Figure 11. Normalized Maximum Transient Thermal Impedance

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TO-220F Package Outline Data




印字说明

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FSL03N028FF

AABBCC

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。