

N-Channel Enhancement Mode MOSFET

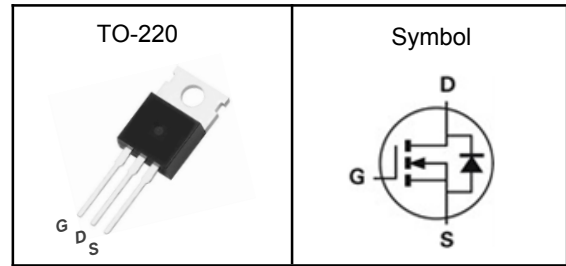
Features

- Advanced SGT 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}	80	V
$R_{DS(ON)-Typ}$	2.9	m Ω
I_D	210	A

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

Symbol	Parameter	Rating	Unit	
V_{DSS}	Drain-Source Voltage	80	V	
V_{GSS}	Gate-Source Voltage	± 20	V	
T_J	Maximum Junction Temperature	-55 to 175	$^\circ\text{C}$	
T_{STG}	Storage Temperature Range	-55 to 175	$^\circ\text{C}$	
E_{AS}	Single Pulse Avalanche Energy	884	mJ	
$I_{DM}^{①}$	Pulse Drain Current Tested	840	A	
I_D	Continuous Drain Current	$T_C=25^\circ\text{C}$	210	A
	Continuous Drain Current	$T_C=100^\circ\text{C}$	142	A
P_D	Maximum Power Dissipation	$T_C=25^\circ\text{C}$	179	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}^{③}$	Thermal Resistance-Junction to Ambient	62	$^\circ\text{C/W}$
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	0.84	$^\circ\text{C/W}$

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 1in² FR-4 board with 1oz.



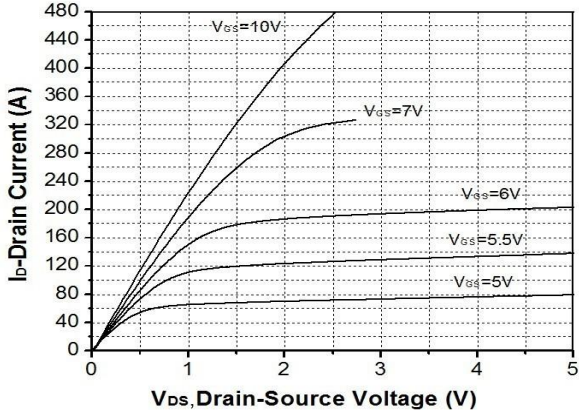
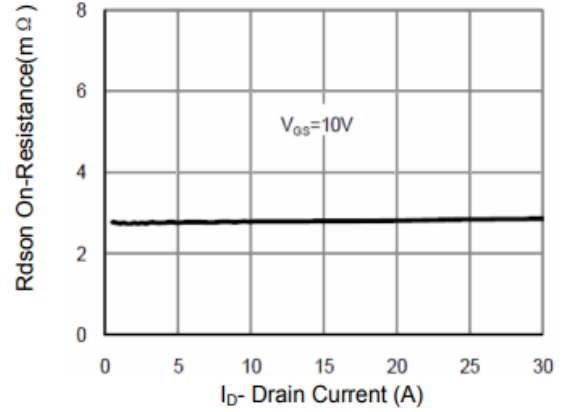
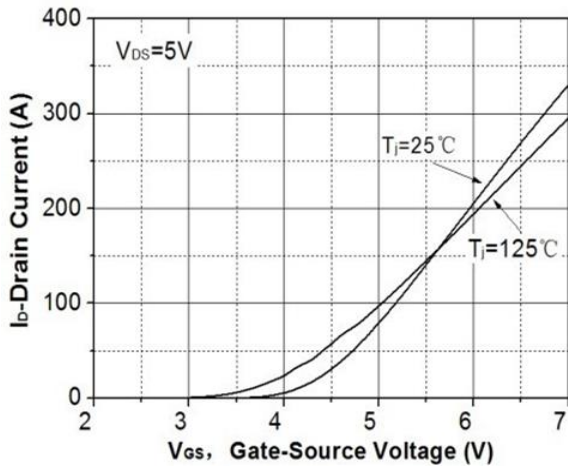
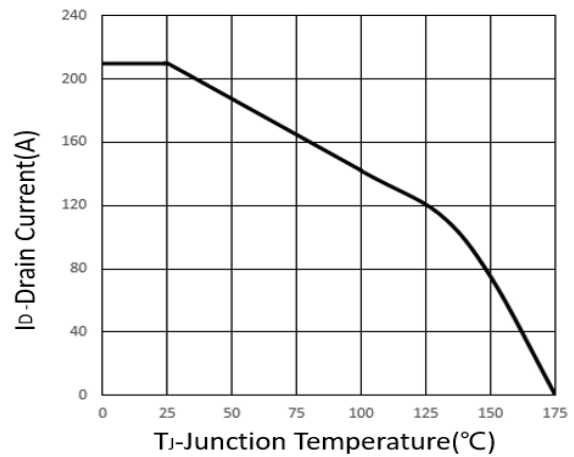
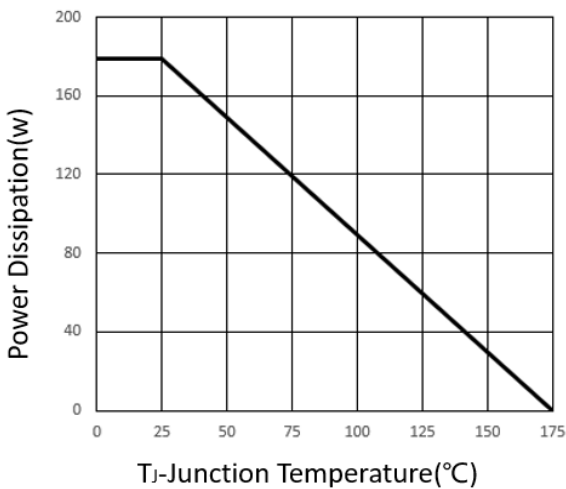
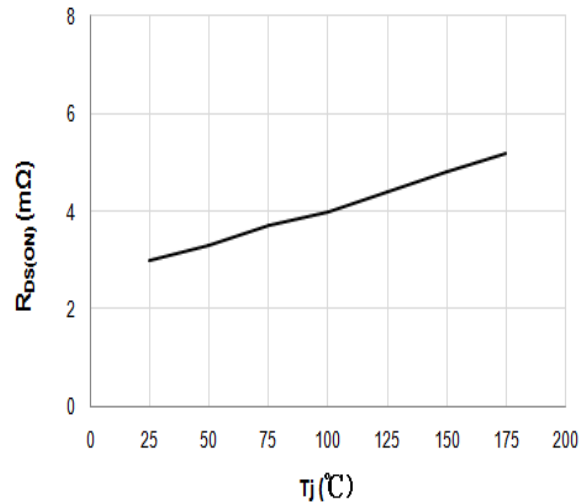
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Electrical Characteristics ($T_J=25^{\circ}\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	80	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=80V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	2.5	---	4.5	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(on)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=20A$	---	2.9	3.3	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=40V,$ Freq.=1.0MHz	---	7465	---	pF
C_{oss}	Output Capacitance		---	1292	---	
C_{rss}	Reverse Transfer Capacitance		---	43	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{GS}=10V, V_{DD}=40V,$ $I_D=20A, R_G=10\Omega$	---	24	---	nS
T_r	Turn-on Rise Time		---	53	---	
$T_{d(off)}$	Turn-off Delay Time		---	107	---	
T_f	Turn-off Fall Time		---	66	---	
Q_g	Total Gate Charge	$V_{GS}=10V, V_{DD}=40V,$ $I_D=20A$	---	109	---	nC
Q_{gs}	Gate-Source Charge		---	28	---	
Q_{gd}	Gate-Drain Charge		---	26	---	
Source-Drain Characteristics						
V_{SD}	Diode Forward Voltage	$I_F=1A, V_{GS}=0V$	---	---	1.2	V
t_{rr}	Reverse recovery time	$I_F=20A,$ $diF/dt=200A/\mu s$	---	52	---	nS
Q_{rr}	Reverse recovery charge		---	137	---	nC
I_{rrm}	Peak reverse recovery current		---	3.7	---	A

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

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

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Typical Characteristics
Diagram 1: Typ. Output characteristics

Diagram 2: Typ. Rdson – Drain Current

Diagram 3: Typ. Transfer characteristics

Diagram 4: Typ. Drain Current De-rating

Diagram 5: Typ. Power Dissipation

Diagram 6: Rdson – Junction Temperature


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Diagram 7: Typ. Capacitances

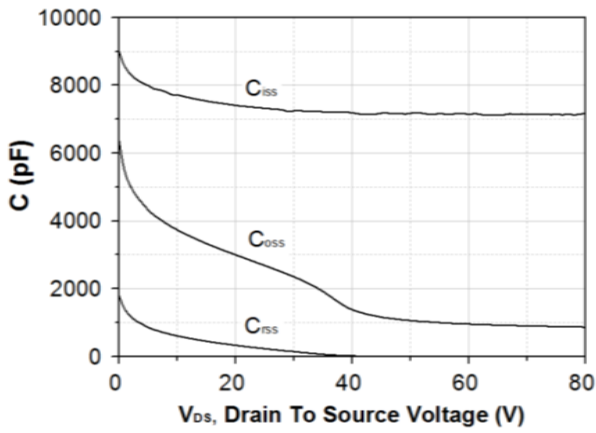


Diagram 8: Typ. Gate charge

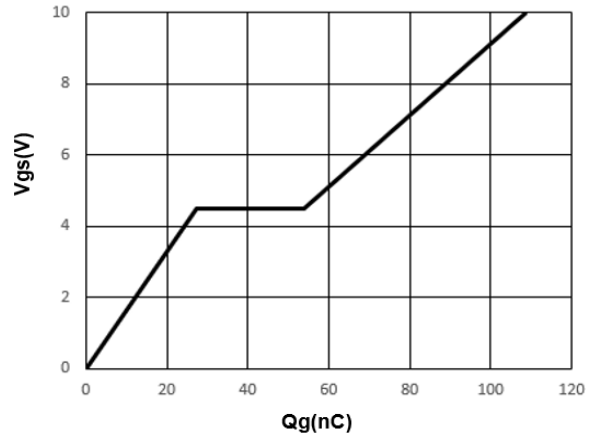


Diagram 9: Source – Drain Diode Forward

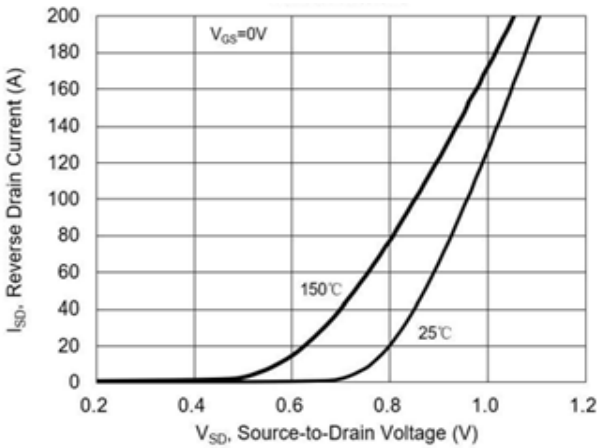


Diagram 10: Safe Operation Area

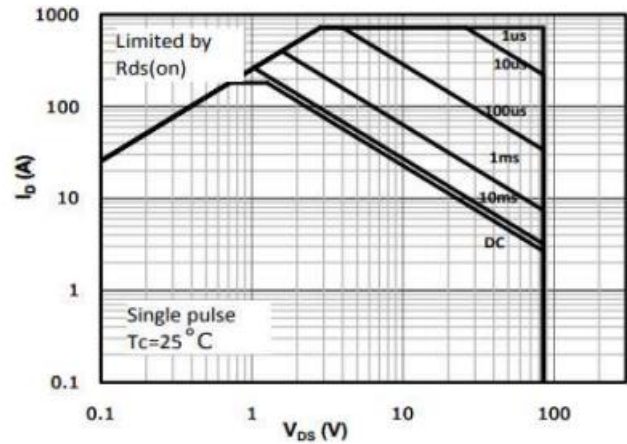
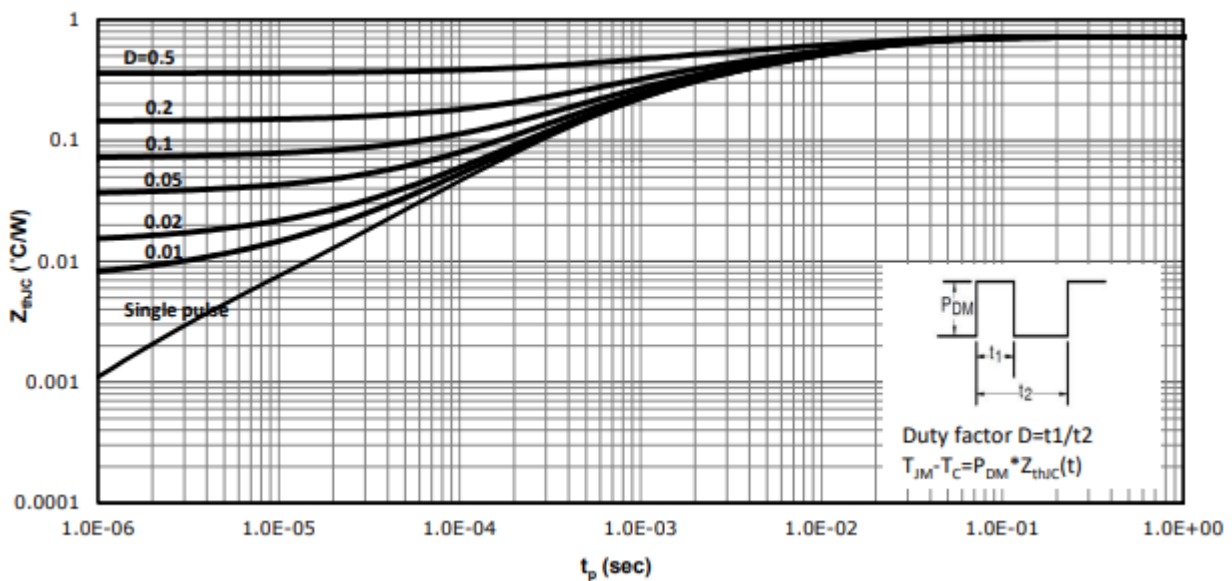
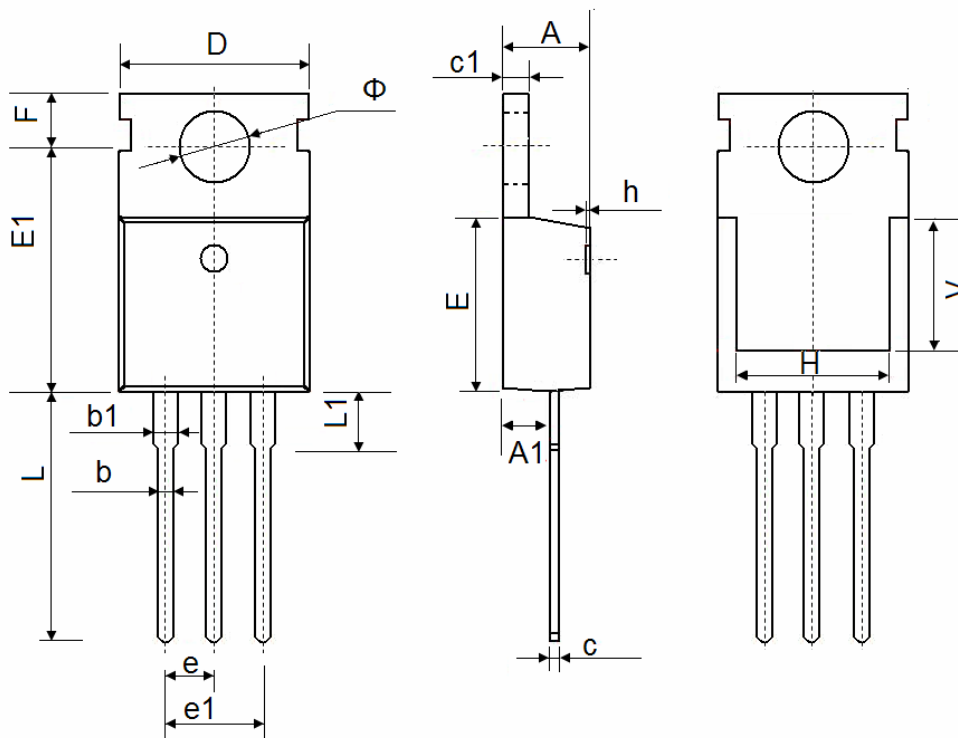


Figure 11: Normalized Maximum Transient Thermal Impedance



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TO-220 Package Outline Data


Symbol	Dimensions In Millimeters	
	Min.	Max.
A	4.350	4.650
A1	2.250	2.550
b	0.710	0.910
b1	1.170	1.400
c	0.330	0.650
c1	1.200	1.400
D	9.910	10.250
E	8.9500	9.750
E1	12.650	12.950
e	2.540 TYP.	
e1	4.980	5.180
F	2.650	2.950
H	7.900	8.100
h	0.000	0.300
L	12.700	13.500
L1	2.850	3.250
V	7.500 REF.	
φ	3.400	3.800



印字说明

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FSH08N029BE

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。