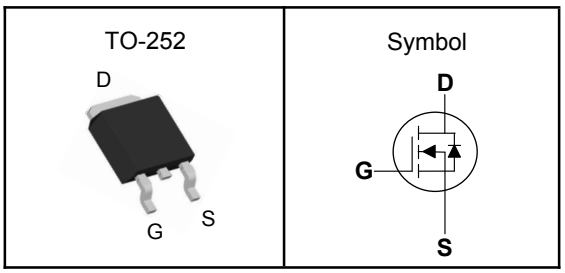
N-Channel Enhancement Mode MOSFET

Features

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

Pin Description



Applications

- Power Management in Desktop Computer
- DC/DC Converters

V_{DSS}	30	V
$R_{DS(ON)-Typ}$	3.8	mΩ
I_D	90	A

Absolute Maximum Ratings(T_A=25℃, Unless Otherwise Noted)

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	30	V
V_{GSS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	-55 to 150	℃
T_{STG}	Storage Temperature Range	-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested	360	A
I_D	Continuous Drain Current	90	A
P_D	Maximum Power Dissipation	90	W
E_{AS}	Avalanche Energy, Single pulse	90	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1.67	℃/W

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

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

Note ③: Surface Mounted on 1in^2 FR-4 board with 1oz.

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Electrical Characteristics (T_J=25℃, 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=250uA	30	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=30V, V_{GS}=0V	---	---	1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=250uA	1.0	---	2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=10V, I_D=30A	---	3.8	4.5	mΩ
		V_{GS}=4.5V, I_D=20A	---	5.5	7.0	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{DS}=15V, V_{GS}=0V, Freq.=1MHz	---	1960	---	pF
C_{oss}	Output Capacitance		---	320	---	
C_{rss}	Reverse Transfer Capacitance		---	240	---	
$T_{d(on)}$	Turn-on Delay Time	V_{DS}=15V,V_{GS}=10V, I_D=30A,R_G=3Ω	---	13	---	nS
T_r	Turn-on Rise Time		---	36	---	
$T_{d(off)}$	Turn-off Delay Time		---	43	---	
T_f	Turn-off Fall Time		---	16	---	
Q_g	Total Gate Charge	V_{DS}=15V,V_{GS}=10V, I_D=30A	---	45	---	nC
Q_{gs}	Gate-Source Charge		---	4	---	
Q_{gd}	Gate-Drain Charge		---	14	---	
Source-Drain Characteristics						
I_S	Continuous Source Current		---	---	90	A
Is	Pulsed Source Current		---	---	360	A
V_{SD}	Diode Forward Voltage	I_S=30A, V_{GS}=0V	---	---	1.2	V
t_{rr}	Reverse Recovery Time	I_F=20A,V_{GS}=0V, dI_F/dt=100A/us	---	16	---	nS
Q_{rr}	Reverse Recovery Charge		---	5	---	nC

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

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

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Typical Characteristics

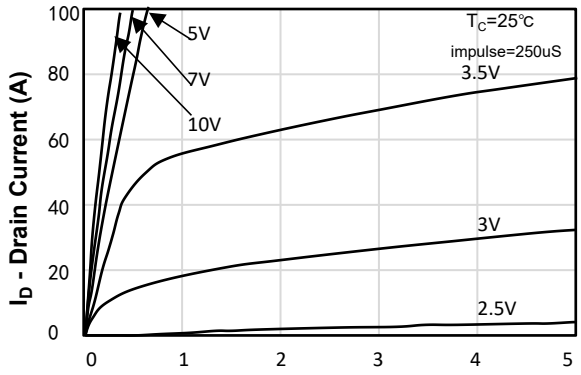

Figure 1. On-Region Characteristics

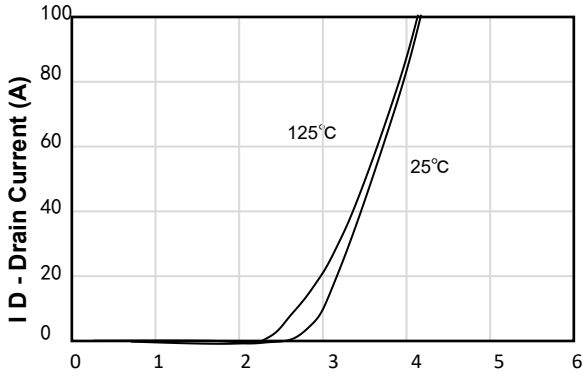

Figure 2. Transfer Characteristics

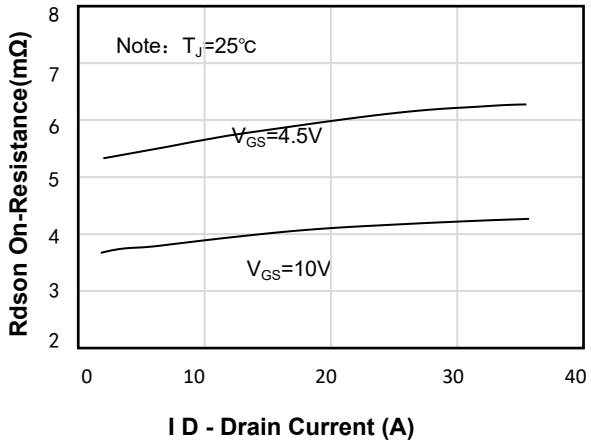

Figure 3. On-Resistance Variation vs Drain Current and Gate Voltage

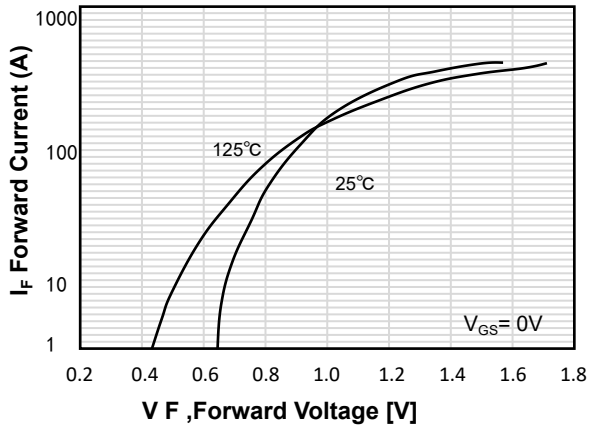

Figure 4. Body Diode Forward Voltage Variation with Source Current and Temperature

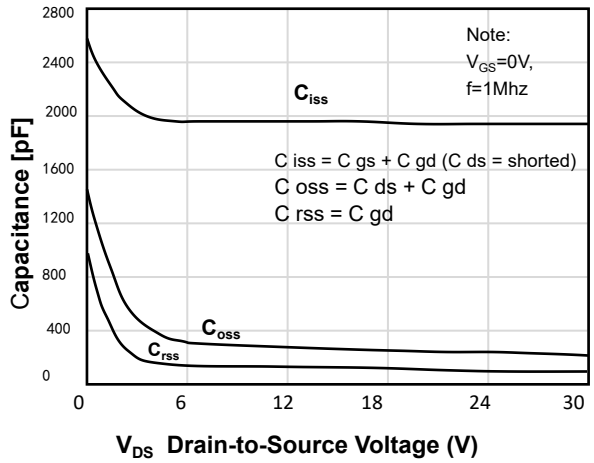

Figure 5. Capacitance Characteristics

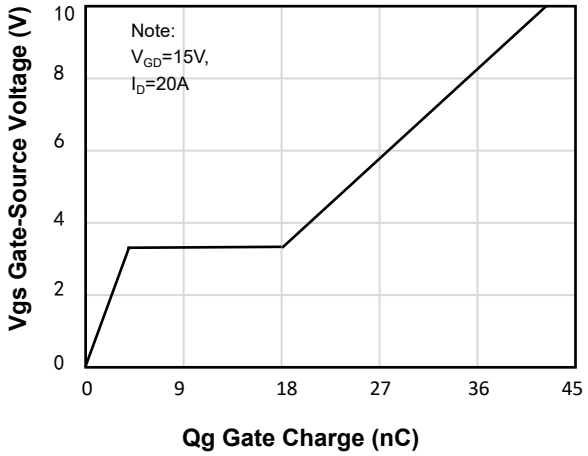

Figure 6. Gate Charge Characteristics

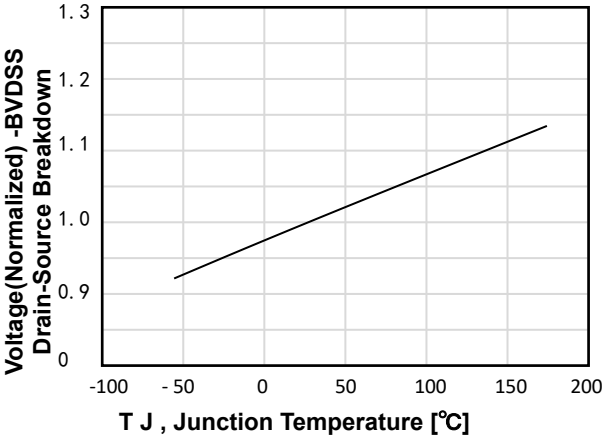

Figure 7. Breakdown Voltage Variation vs Temperature

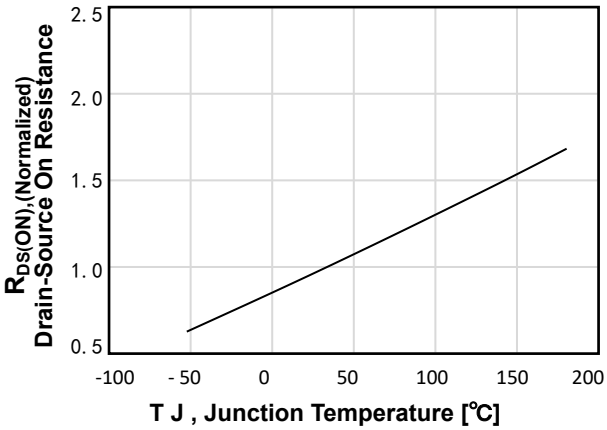

Figure 8. On-Resistance Variation vs Temperature

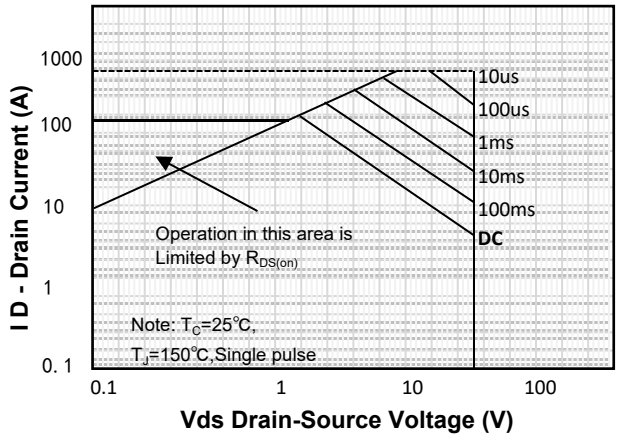

Figure 9. Maximum Safe Operating Area

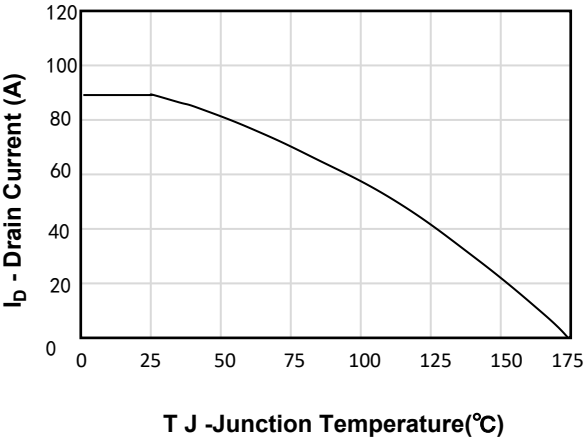

Figure 10. Maximum PContinuous Drain Currentvs Case Temperature

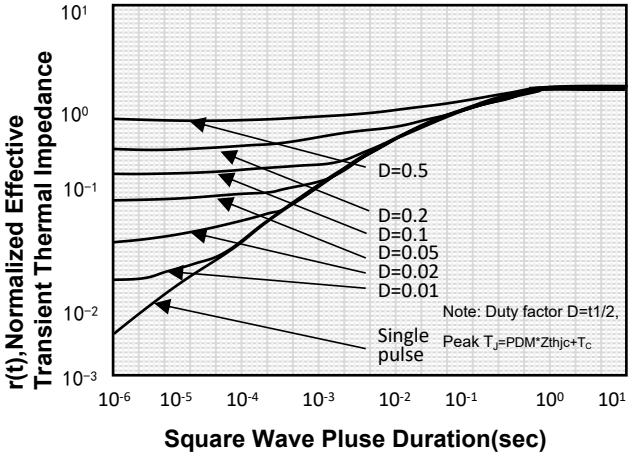

Figure 11. Transient Thermal Response Curve

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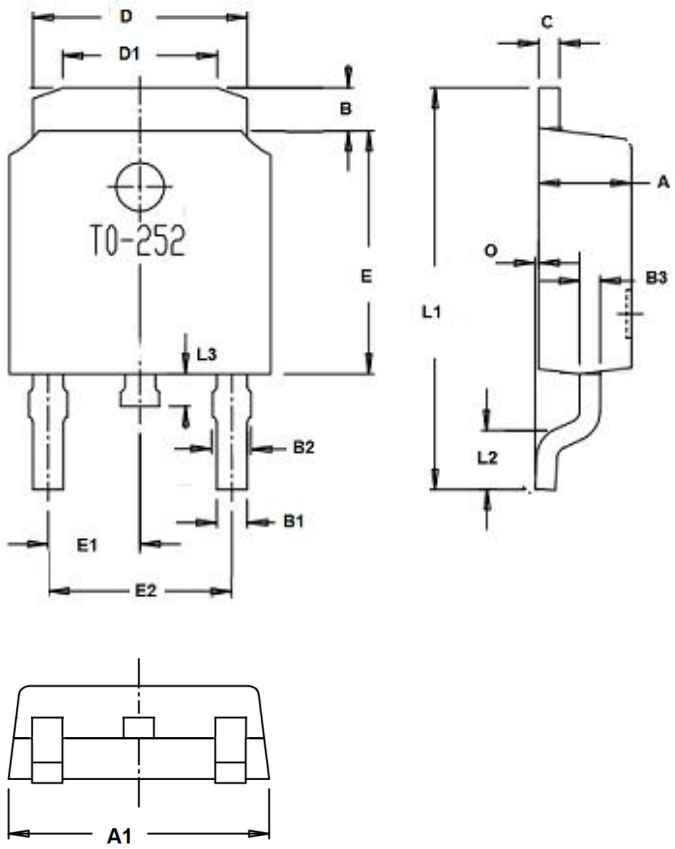
TO-252 Package Outline Dimensions



Dim.	Min.	Max.
A	2.1	2.5
A1	6.3	6.9
B	0.96	1.42
B1	0.74	0.86
B2	0.74	0.94
C	Typ0.5	
D	5.33	5.53
D1	3.65	4.05
E	6.0	6.2
E1	Typ2.29	
E2	Typ4.58	
O	0	0.15
L1	9.9	10.5
L2	Typ1.65	
L3	0.6	1.0
All Dimensions in millimeter		

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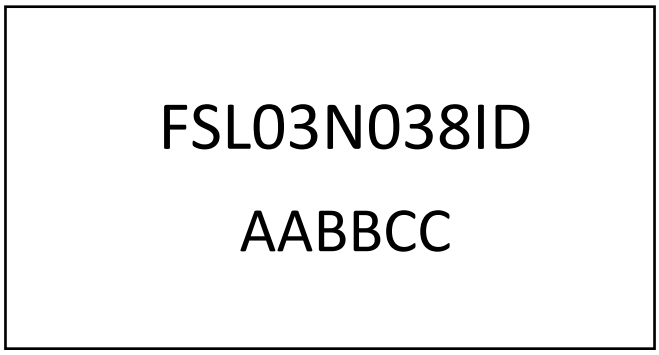

第一行标记为物料型号代码

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。