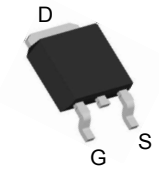
P-Channel Enhancement Mode MOSFET

Features

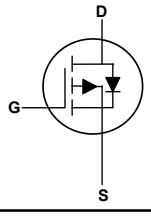
- Advanced trench cell design
- Low Thermal Resistance
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

Pin Description

TO-252



Symbol



Applications

- Motor drivers
- DC - DC Converter

V_{DSS}	-40	V
$R_{DS(ON)-Typ}$	5.0	mΩ
I_D	-90	A

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

Symbol	Parameter	Rating	Unit
V_{DSS}	Drain-Source Voltage	-40	V
V_{GSS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	-55 to 175	℃
T_{STG}	Storage Temperature Range	-55 to 175	℃
I_{DM} ①	Pulse Drain Current Tested	-339	A
I_D	Continuous Drain Current	-90	A
P_D	Maximum Power Dissipation	58	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	62	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case	2.3	℃/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	-40	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-40V, 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=-20A	---	5.0	6.0	mΩ
		V_{GS}=-4.5V, I_D=-15A	---	6.5	8.0	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-20V, Freq.=1MHz	---	5545	---	pF
C_{oss}	Output Capacitance		---	454	---	
C_{rss}	Reverse Transfer Capacitance		---	287	---	
$T_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V,V_{DD}=-20V , I_D=-1A,R_G=1.6Ω	---	16	---	nS
T_r	Turn-on Rise Time		---	17	---	
$T_{d(off)}$	Turn-off Delay Time		---	68	---	
T_f	Turn-off Fall Time		---	31	---	
Q_g	Total Gate Charge	V_{GS}=-10V,V_{DD}=-20 V , I_D=-8A	---	127	---	nC
Q_{gs}	Gate-Source Charge		---	13	---	
Q_{gd}	Gate-Drain Charge		---	22	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	I_S=-8A, V_{GS}=0V	---	---	-1.2	V

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. Output Characteristics

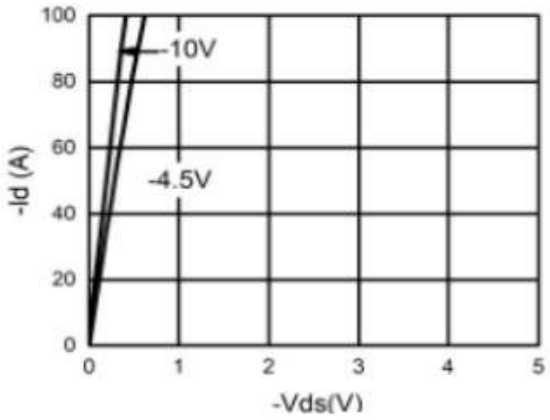

Figure 2. Transfer Characteristics

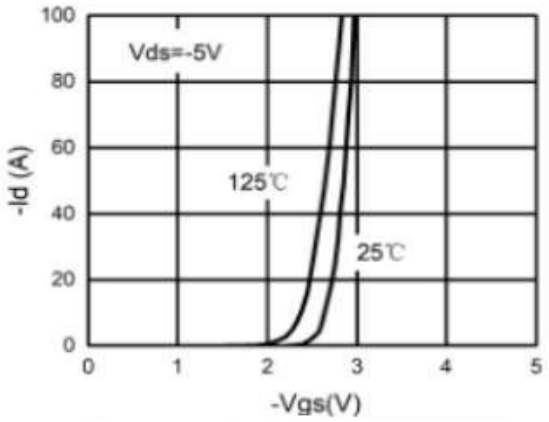

Figure 3. Power Dissipation

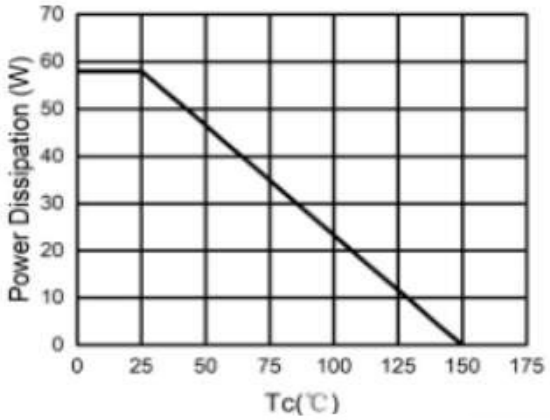

Figure 4. Drain Current

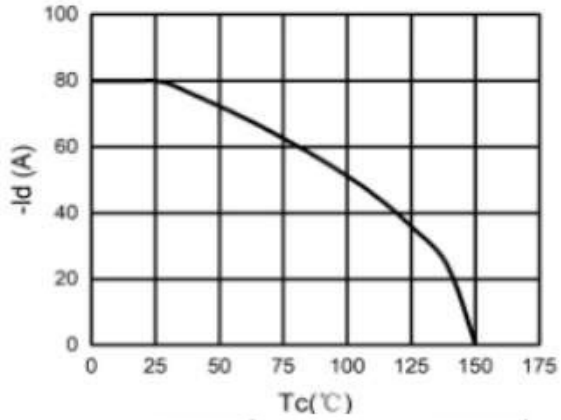

Figure 5. BV_{DSS} vs Junction Temperature

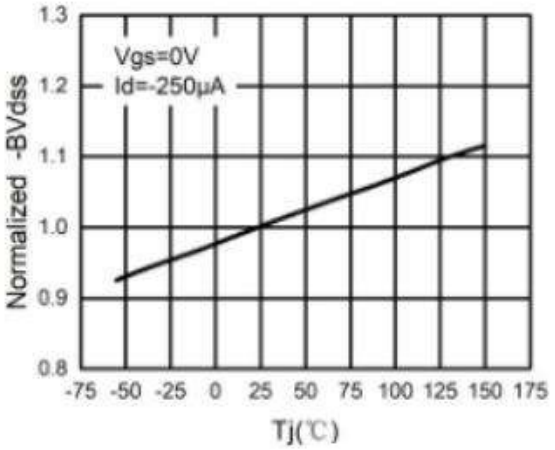

Figure 6. $R_{DS(ON)}$ vs Junction Temperature

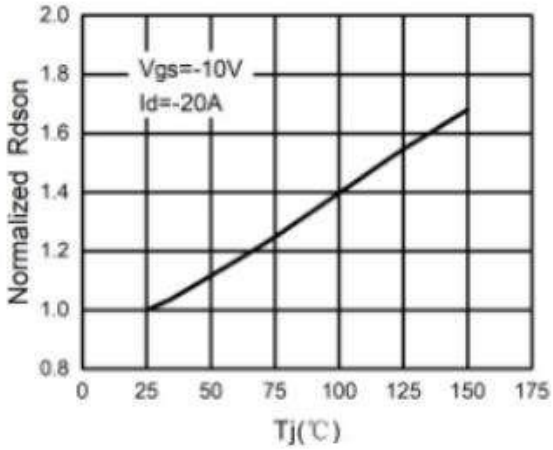

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Figure 7. Gate Charge Waveforms

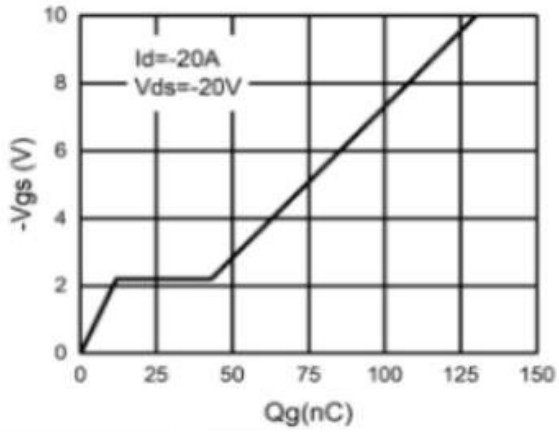


Figure 8. Capacitance

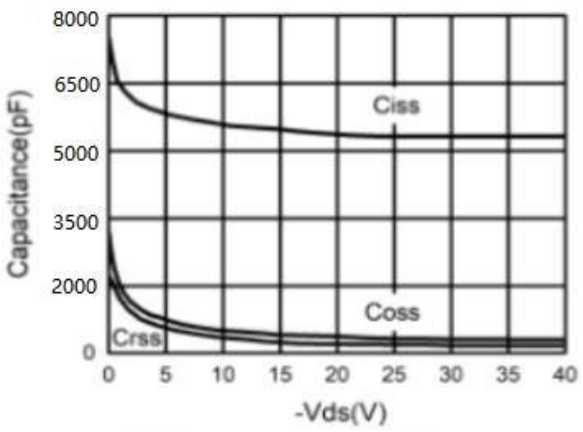


Figure 9. Body-Diode Characteristics

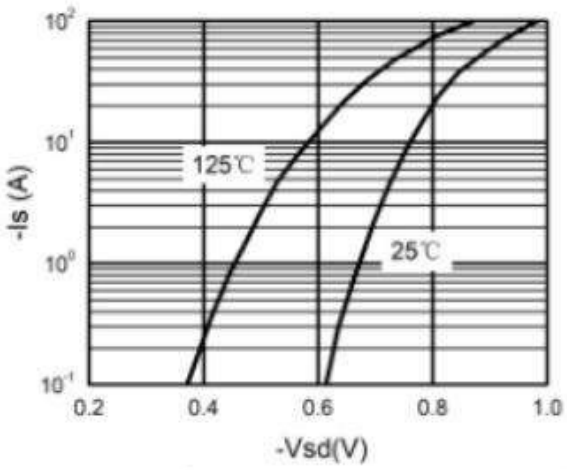
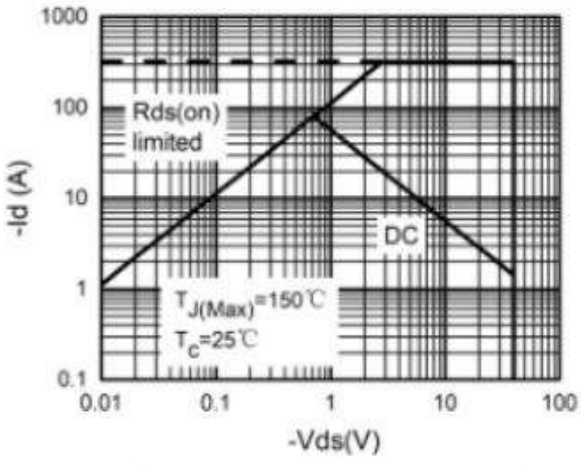
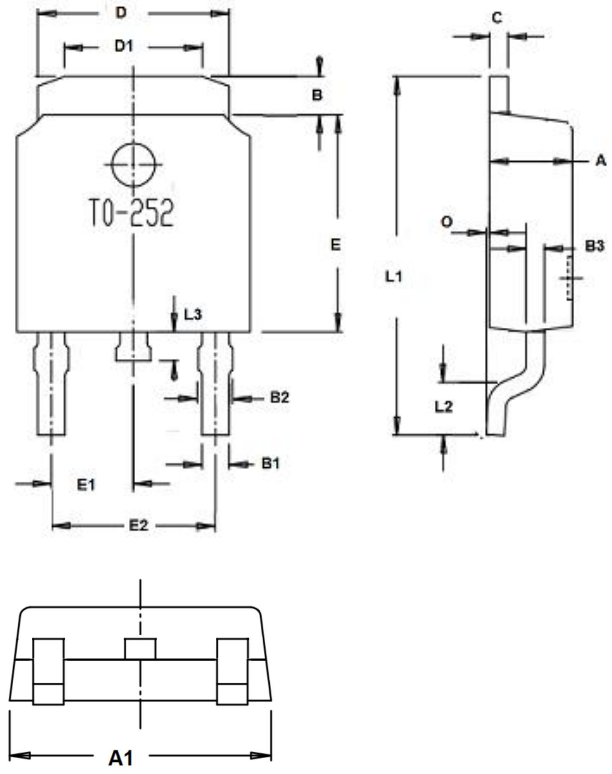


Figure 10. Maximum Safe Operating Area



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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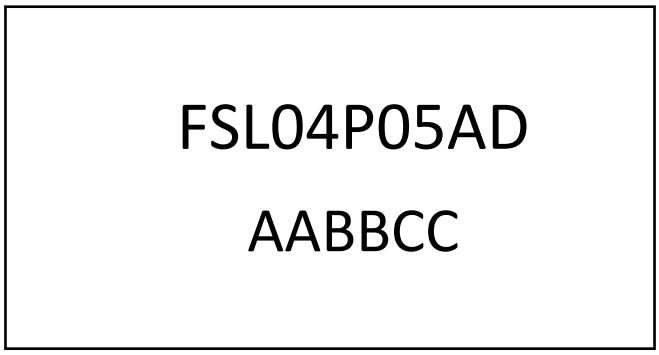

第一行标记为物料型号代码

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。