

GTM CORPORATION

ISSUED DATE :2005/01/26
REVISIED DATE :2005/03/22B

G152B

P-CHANNEL ENHANCEMENT MODE POWER MOSFET

BVDSS	-20V
RDS(ON)	0.3Ω
ID	-0.7A

Description

The G152B provide the designer with best combination of fast switching, low on-resistance and cost-effectiveness.

The G152B is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.

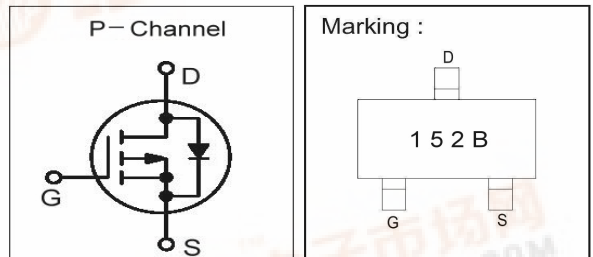
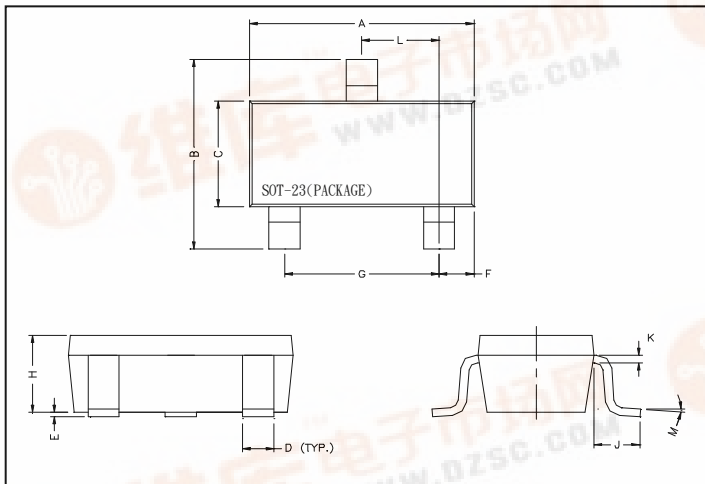
Features

- Low On-State Resistance:0.3Ω(max)
- Ultra High Speed Switching

Applications

- Notebook PCs
- Cellular and portable phones
- On-board power supplies
- Li-ion battery System

Package Dimensions



REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V _{DS}	-20	V
Gate-Source Voltage	V _{GS}	±12	V
Continuous Drain Current ³	I _D	-0.7	A
Pulsed Drain Current ^{1,2}	I _{DM}	-2.8	A
Power Dissipation	P _{D @TA=25°C}	0.5	W
Linear Derating Factor		0.01	W/°C
Operating Junction and Storage Temperature Range	T _j , T _{stg}	-55 ~ +150	°C

Thermal Data

Parameter	Symbol	Ratings	Unit
Thermal Resistance Junction-ambient ³ Max.	R _{thj-a}	90	°C/W



Electrical Characteristics(T_j = 25°C Unless otherwise specified)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Drain-Source Breakdown Voltage	BV _{DSS}	-20	-	-	V	V _{GS} =0, I _D =-250uA
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_j$	-	-0.1	-	V/°C	Reference to 25°C, I _D =-1mA
Gate Threshold Voltage	V _{GS(th)}	-0.5	-	-1.2	V	V _{DS} =V _{GS} , I _D =-1mA
Forward Transconductance	g _{fs}	-	1.5	-	S	V _{DS} =-10V, I _D =-0.4A
Gate-Source Leakage Current	I _{GSS}	-	-	±100	nA	V _{GS} = ±12V
Drain-Source Leakage Current(T _j =25°C)	I _{DSS}	-	-	-10	uA	V _{DS} =-20V, V _{GS} =0
Static Drain-Source On-Resistance	R _{DS(ON)}	-	135	300	mΩ	V _{GS} =-4.5V, I _D =-0.4A
		-	192	500		V _{GS} =-2.5V, I _D =-0.4A
Total Gate Charge ²	Q _g	-	5.2	10	nC	I _D =-0.7A V _{DS} =-10.0V V _{GS} =-6.0V
Gate-Source Charge	Q _{gs}	-	1.36	-		
Gate-Drain ("Miller") Change	Q _{gd}	-	0.6	-		
Turn-on Delay Time ²	T _{d(on)}	-	5	-	ns	V _{DD} =-10V I _D =-0.4A V _{GS} =-5V
Rise Time	T _r	-	20	-		
Turn-off Delay Time	T _{d(off)}	-	55	-		
Fall Time	T _f	-	70	-		
Input Capacitance	C _{iss}	-	180	-	pF	V _{GS} =0V V _{DS} =-10V f=1.0MHz
Output Capacitance	C _{oss}	-	120	-		
Reverse Transfer Capacitance	C _{rss}	-	60	-		

Source-Drain Diode

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Forward On Voltage ²	V _{SD}	-	-	-1.1	V	I _S =-0.7A, V _{GS} =0V

Notes: 1. Pulse width limited by Max. junction temperature.

2. Pulse width ≤ 300us, duty cycle ≤ 2%.

3. Surface mounted on 1 in² copper pad of FR4 board;270°C/W when mounted on min. copper pad.



Characteristics Curve

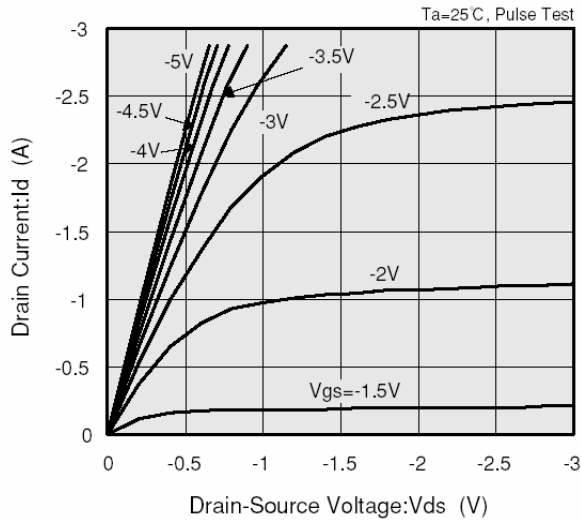


Fig 1. Drain Current vs. Drain-Source Voltage

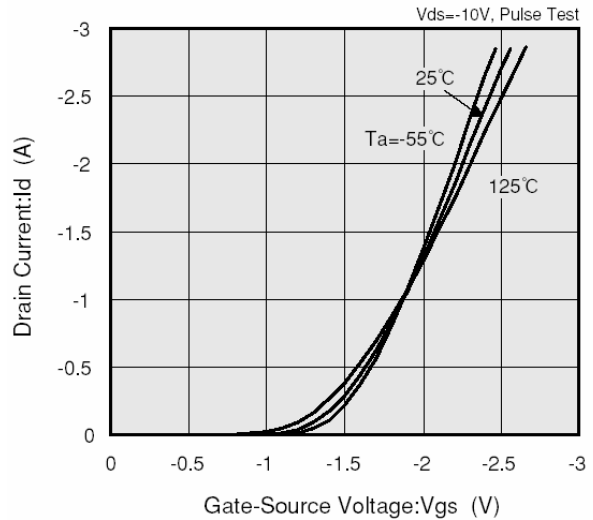


Fig 2. Drain Current vs. Gate-Source Voltage

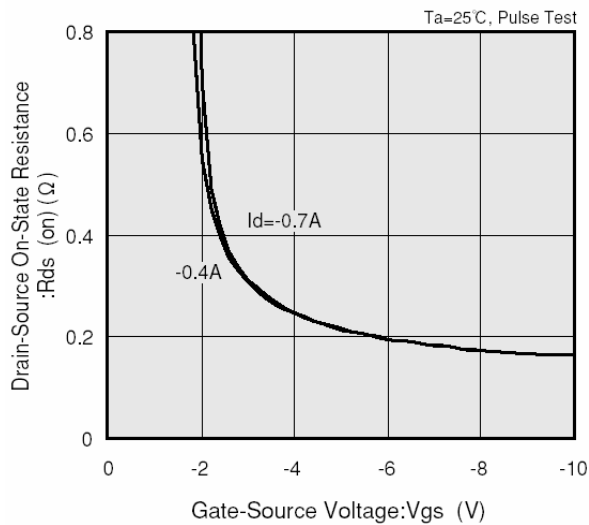


Fig 3. Drain-Source On-State Resistance vs. Gate-Source Voltage

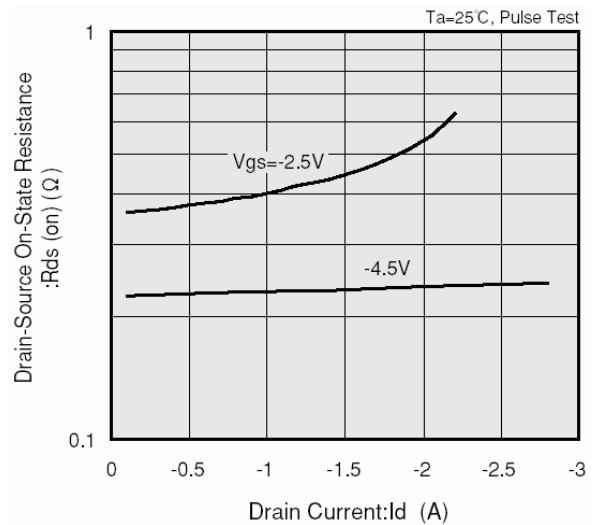


Fig 4. Drain-Source On-State Resistance vs. Drain Current

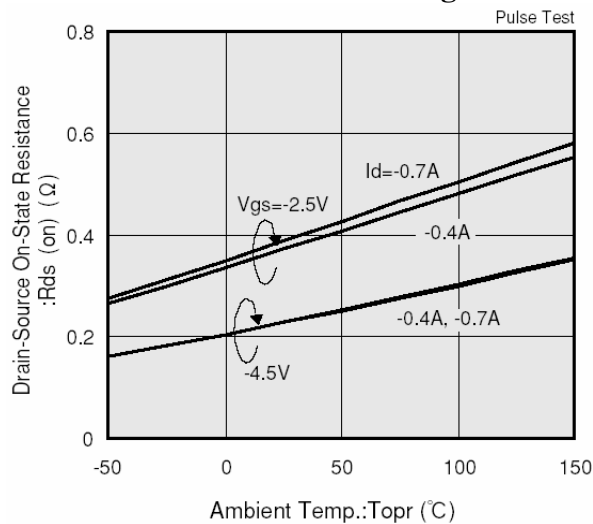


Fig 5. Drain-Source On-State Resistance vs. Ambient Temperature

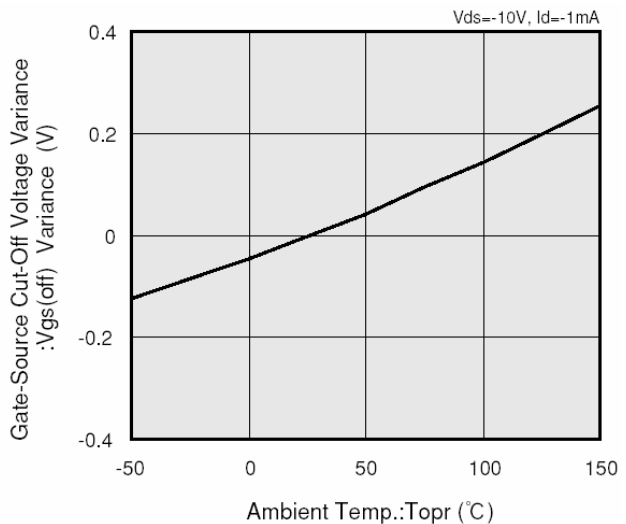


Fig 6. Gate-Source Cut-off Voltage Variance vs. Ambient Temperature



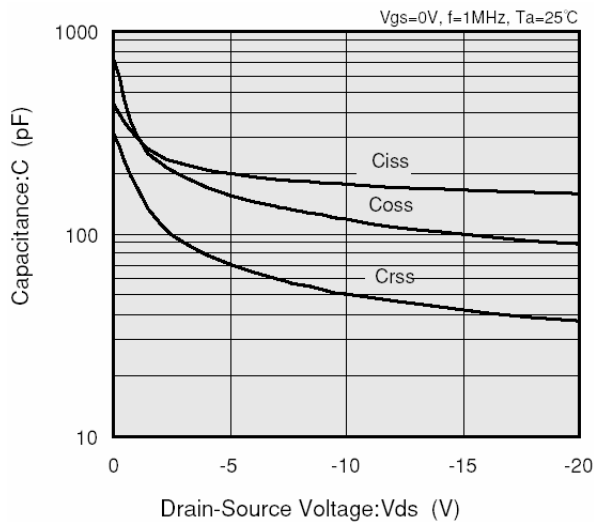


Fig 7. Capacitance v.s. Drain-Source Voltage

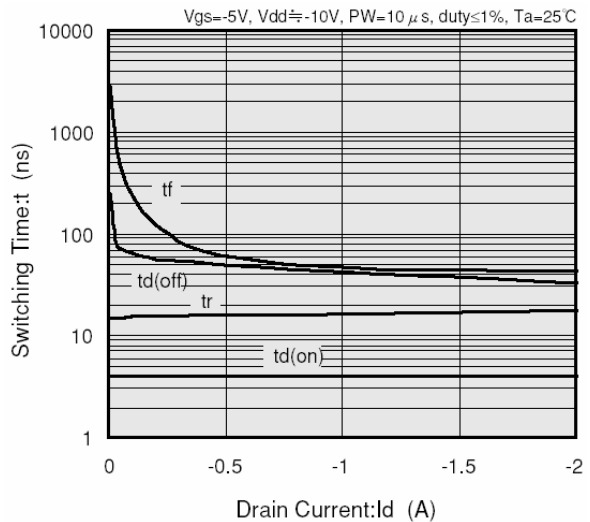


Fig 8. Switching Time v.s. Drain Current

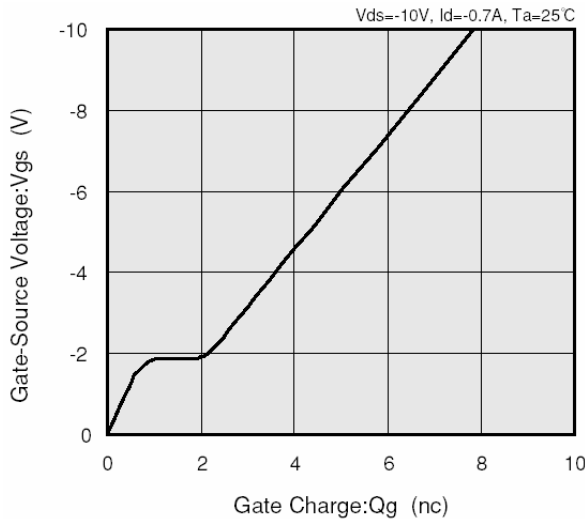


Fig 9. Gate-Source Voltage v.s. Gate Charge

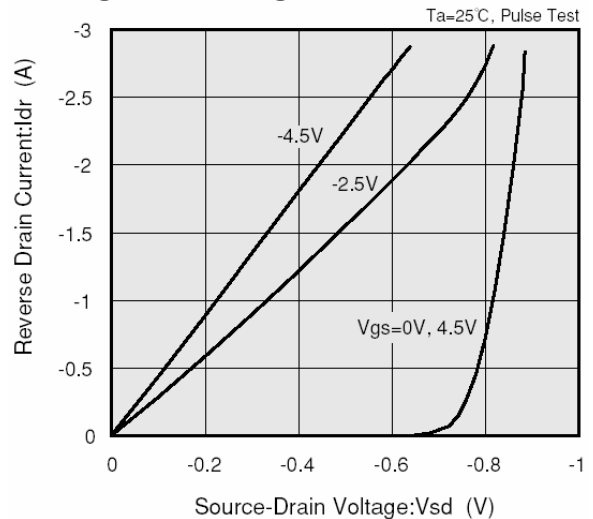


Fig 10. Reverse Drain-Current v.s. Source-Drain Voltage

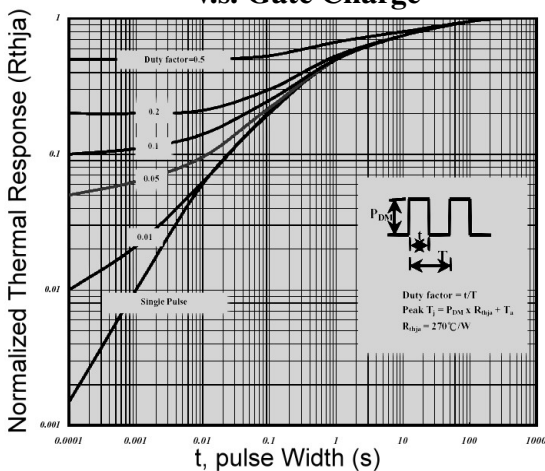


Fig 11. Thermal Resistance v.s. Pulse Width

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