P-Ch 100V Fast Switching MOSFETs

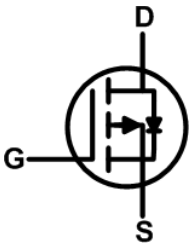
Features:

- Advanced Trench MOS Technology
- Low Gate Charge
- Reliable and Rugged
- Green Device Available

SOT23 Pin Configuration

Applications:

- Power Management.
- DC Motor Control.



Product Summary

BVDSS	RDSON	ID
-100V	195mΩ	-1.5A

Absolute Maximum Ratings

Symbol	Parameter	Rating		Units
		10s	Steady State	
V_{DS}	Drain-Source Voltage	-100		V
V_{GS}	Gate-Source Voltage	±20		V
I_D@T_A=25°C	Continuous Drain Current, V_{GS} @ -10V[1]	-1.8	-1.5	A
I_D@T_A=70°C	Continuous Drain Current, V_{GS} @ -10V[1]	-1.4	-1.2	A
I_{DM}	Pulsed Drain Current[2]	-6		A
P_D@T_A=25°C	Total Power Dissipation[3]	1.32	1	W
P_D@T_A=70°C	Total Power Dissipation[3]	0.84	0.64	W
T_{STG}	Storage Temperature Range	-55 to 150		°C
T_J	Operating Junction Temperature Range	-55 to 150		°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	125	°C/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1] (t ≤10s)	---	95	°C/W

Electrical Characteristics (T_J=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-100	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=-10V , I_D=-1.5A	---	---	195	mΩ
		V_{GS}=-4.5V , I_D=-1.0A	---	---	220	
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.2	---	-2.5	V
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-80V , V_{GS}=0V , T_J=25℃	---	---	1	uA
		V_{DS}=-80V , V_{GS}=0V , T_J=85℃	---	---	30	
I_{GSS}	Gate-Source Leakage Current	V_{GS}= ±20V , V_{DS}=0V	---	---	±100	nA
R_g	Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	---	13	---	Ω
Q_g	Total Gate Charge	V_{DS}=-50V , V_{GS}=-10V , I_D=-1.5A	---	19	---	nC
Q_{gs}	Gate-Source Charge		---	3.4	---	
Q_{gd}	Gate-Drain Charge		---	2.9	---	
$T_{d(on)}$	Turn-On Delay Time	V_{DD}=-30V , V_{GS}=-10V , R_G=3.3Ω, I_D=-1A	---	9	---	ns
T_r	Rise Time		---	6	---	
$T_{d(off)}$	Turn-Off Delay Time		---	39	---	
T_f	Fall Time		---	33	---	
C_{iss}	Input Capacitance	V_{DS}=-30V , V_{GS}=0V , f=1MHz	---	1228	---	pF
C_{oss}	Output Capacitance		---	41	---	
C_{rss}	Reverse Transfer Capacitance		---	29	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	---	---	-1.5	A
V_{SD}	Diode Forward Voltage[2]	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	-1.2	V

Note :
1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The power dissipation is limited by 150℃ junction temperature
4. The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

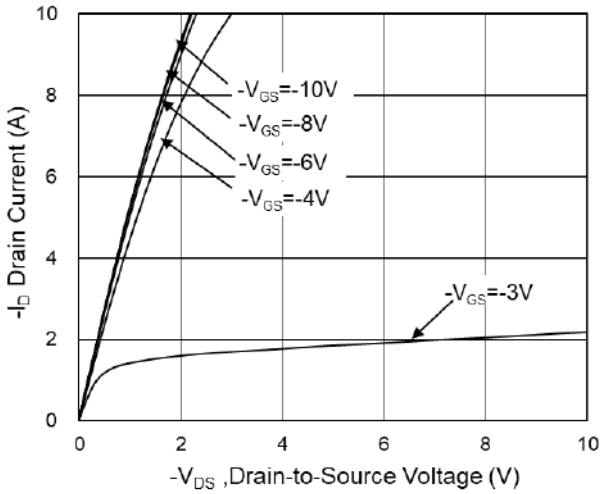


Fig.1 Typical Output Characteristics

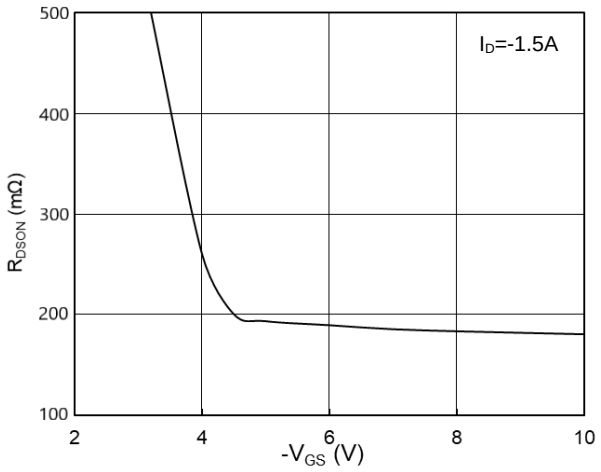


Fig.2 On-Resistance vs G-S Voltage

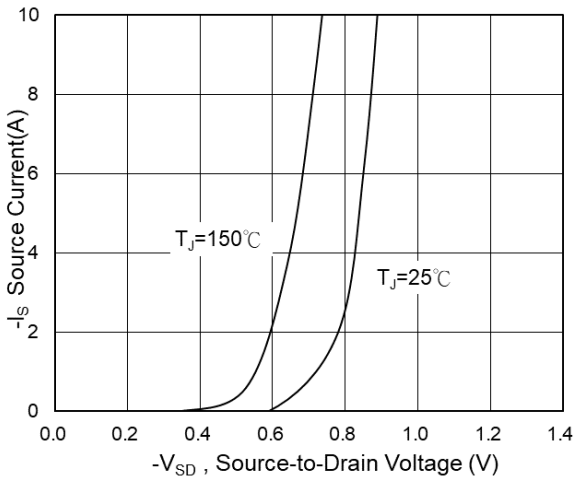


Fig.3 Source Drain Forward Characteristics

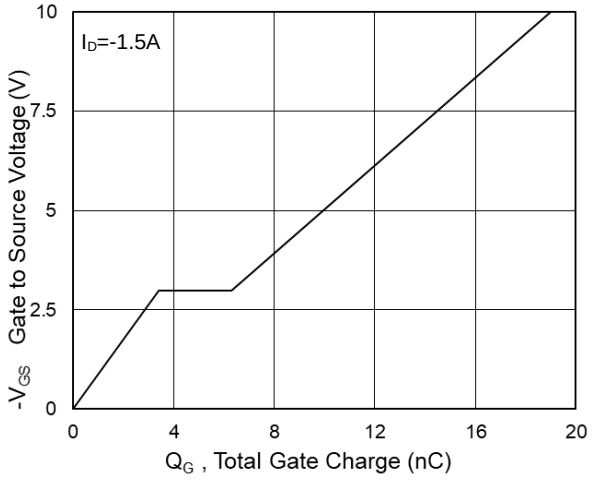


Fig.4 Gate-Charge Characteristics

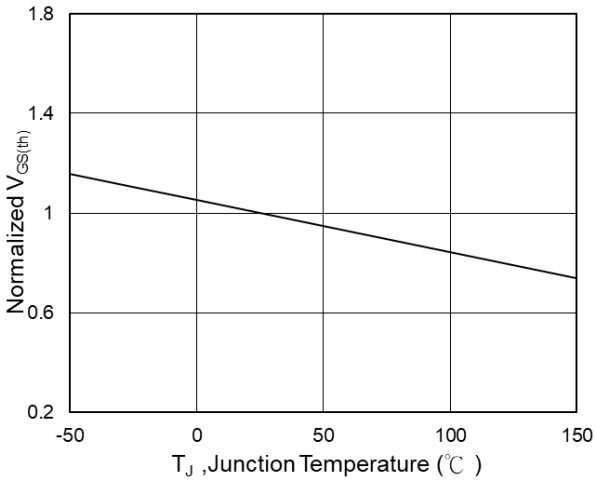


Fig.5 Normalized $V_{GS(th)}$ vs T_J

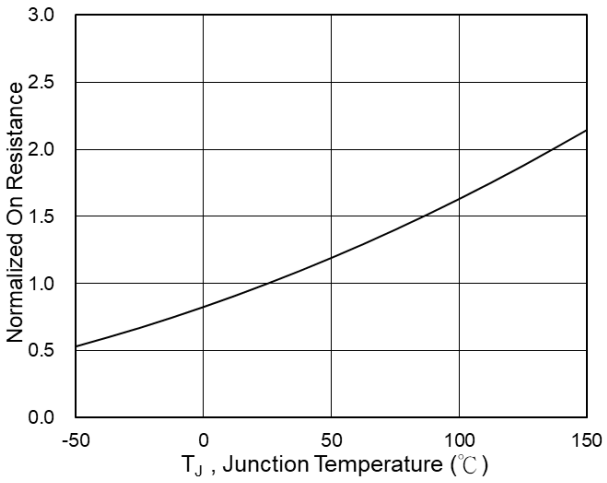


Fig.6 Normalized R_{DSON} vs T_J

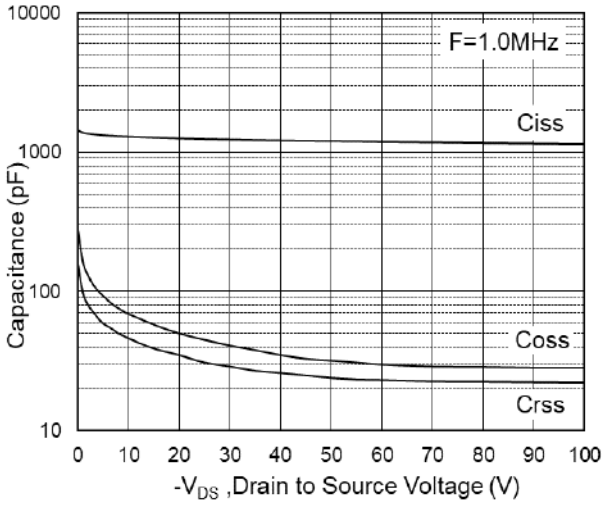


Fig.7 Capacitance

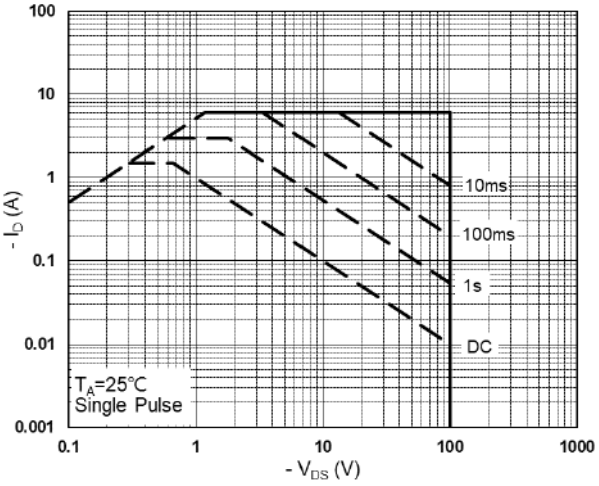


Fig.8 Safe Operating Area

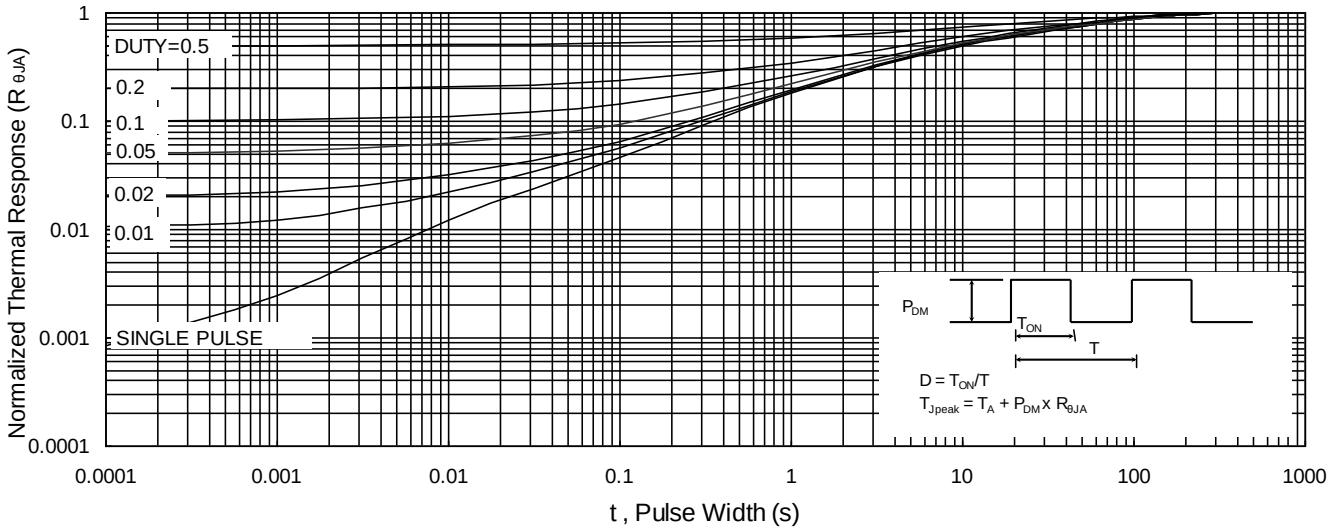


Fig.9 Normalized Maximum Transient Thermal Impedance

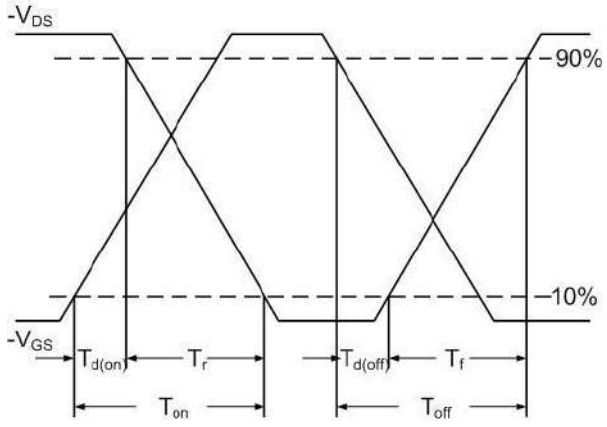


Fig.10 Switching Time Waveform

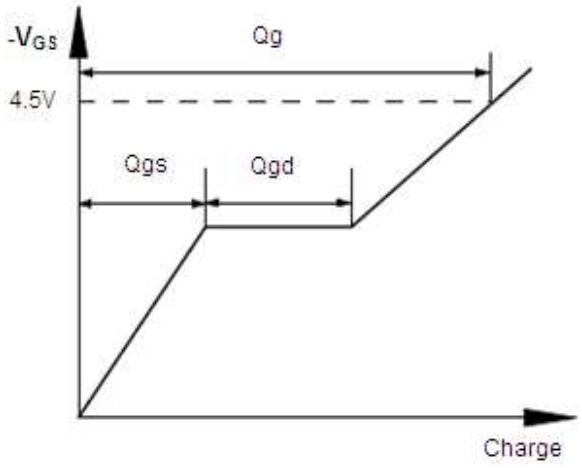


Fig.11 Gate Charge Waveform