

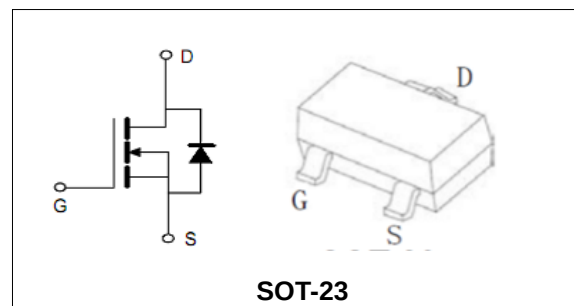
**20V/3A N-Channel Enhancement Mode MOSFET****Features**

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- High Power and Current handing capability

Applications

- Low Side Load Switch
- Battery Switch
- Optimized for Power Management Applications for Portable Products, such as Aeromodelling, Power bank, Brushless motor, Main board , and Others

BVDSS	20	V
ID	3	A
RDSON@VGS=4.5V	33	mΩ
RDSON@VGS=2.5V	39	mΩ

**Order Information**

Product	Package	Marking	Reel Size	Reel	Carton
PT2302B	SOT-23	A2sHB	7inch	3000PCS	180000PCS

Absolute Maximum Ratings

Symbol	Parameter	Rating	Unit	
Common Ratings (TC=25°C Unless Otherwise Noted)				
V _{(BR)DSS}	Drain-Source Breakdown Voltage	20	V	
V _{GS}	Gate-Source Voltage	±12	V	
T _J	Maximum Junction Temperature	150	°C	
T _{STG}	Storage Temperature Range	-55 to 150	°C	
Mounted on Large Heat Sink				
I _{DM}	Pulse Drain Current Tested (Note1)	TA =25°C	10	A
I _D	Continuous Drain current	TA =25°C	3	A
P _D	Maximum Power Dissipation	TA =25°C	0.6	W
R _{θJA}	Thermal Resistance Junction-to-Ambient (Note2)		208.3	°C/W



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Symbol	Parameter	Condition	Min.	Typ.	Max.	Unit
Static Electrical Characteristics @ TJ = 25°C (unless otherwise stated)						
V _{(BR)DSS}	Drain- Source Breakdown Voltage	VGS=0V ID=250μA	20	--	--	V
I _{DSS}	Zero Gate Voltage Drain current	VDS=19.5V,VGS=0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	VGS=±12V,VDS=0V	--	--	±100	nA
V _{GS(TH)}	Gate Threshold Voltage	VDS=VGS,ID=250μA	0.6	--	1.1	V
R _{DS(ON)}	Drain-Source On-State Resistance (Note3)	VGS=4.5V, ID=2A	--	33	47	mΩ
		VGS=2.5V, ID=1A	--	39	60	mΩ
Dynamic Electrical Characteristics @ TJ = 25°C (unless otherwise stated) (Note4)						
C _{iss}	Input Capacitance	VDS= 10V, VGS=0V, f=1MHz	--	235	--	pF
C _{oss}	Output Capacitance		--	42	--	pF
C _{rss}	Reverse Transfer Capacitance		--	31	--	pF
Q _g	Total Gate Charge	VDS= 10V, ID= 2A, VGS= 4.5V	--	3.23	--	nC
Q _{gs}	Gate-Source Charge		--	0.29	--	nC
Q _{gd}	Gate-Drain Charge		--	0.96	--	nC
Switching Characteristics (Note4)						
t _{d(on)}	Turn-on Delay Time	VDD=10V, ID= 2A, RG=6Ω, VGS=4.5V	--	4.19	--	nS
t _r	Turn-on Rise Time		--	1.8	--	nS
t _{d(off)}	Turn-off Delay Time		--	9.17	--	nS
t _f	Turn-off Fall Time		--	5.77	--	nS
Source- Drain Diode Characteristics@ TJ = 25°C (unless otherwise stated)						
V _{SD}	Forward on voltage (Note3)	IS=1A,VGS=0V	--	--	1.2	V

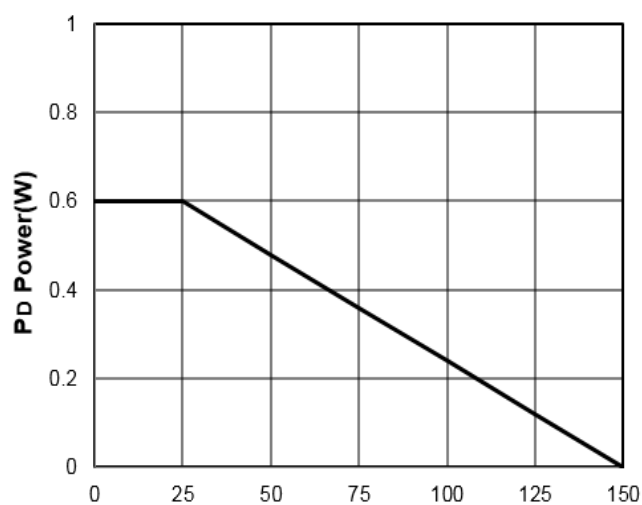
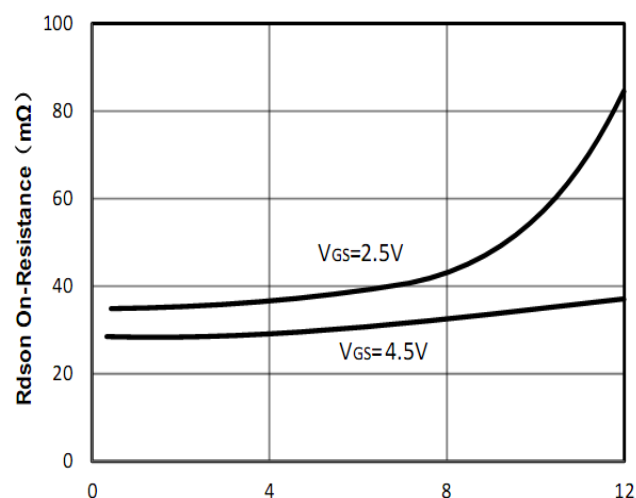
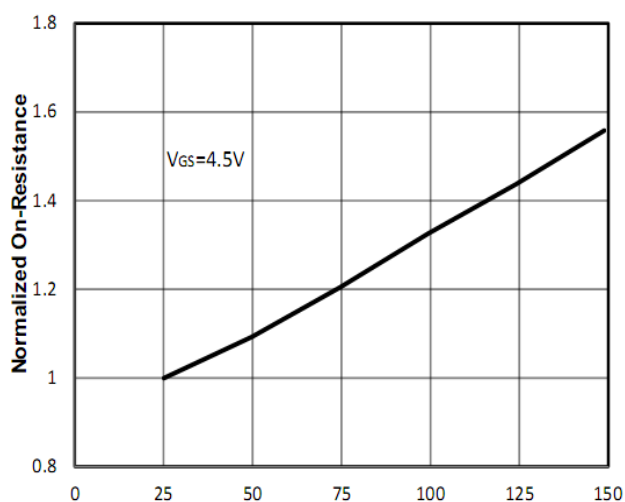
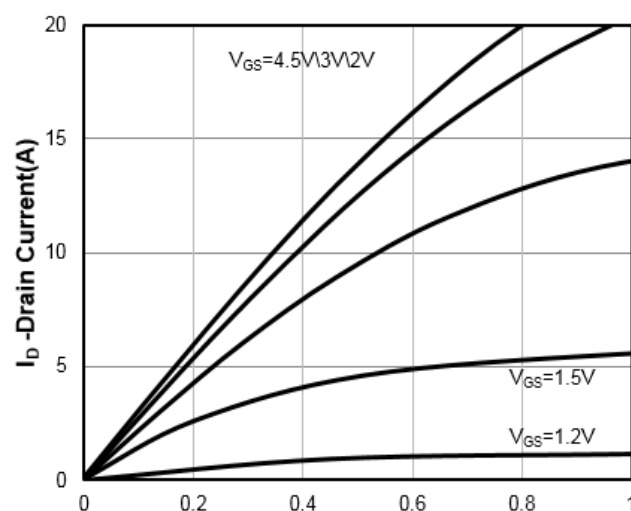
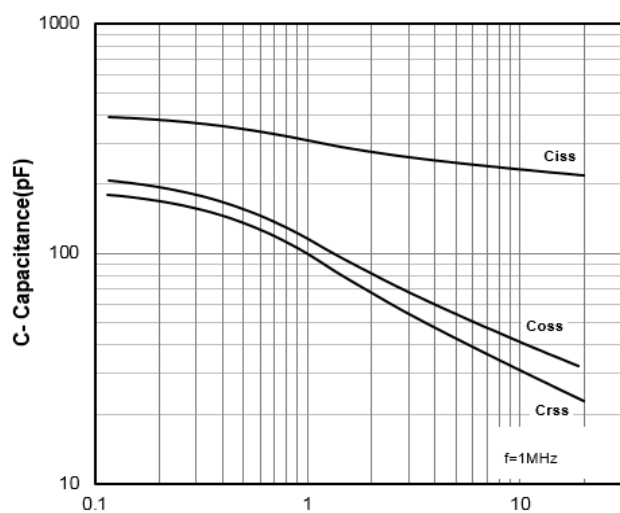
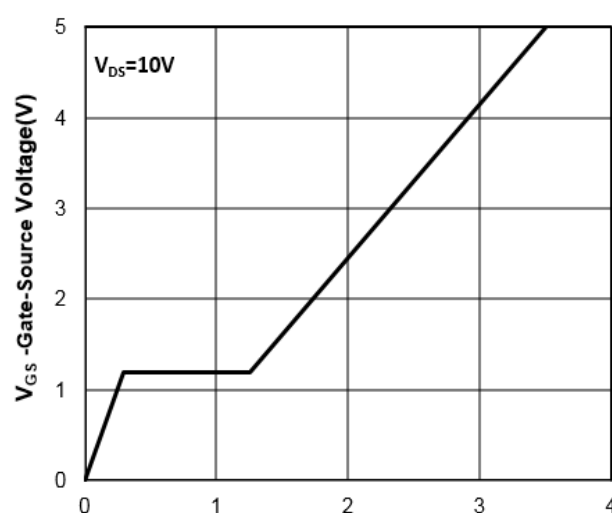
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec
3. Pulse Test: pulse width ≤ 300 us, duty cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production testing.



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Typical Characteristics

Figure1: T_j -Junction Temperature (°C)Figure2: I_D -Drain Current (A)Figure3: T_j -Junction Temperature (°C)Figure4: V_{DS} -Drain Source Voltage (V)Figure5: V_{DS} -Drain Source Voltage (V)Figure6: Q_g -Gate Charge (nC)



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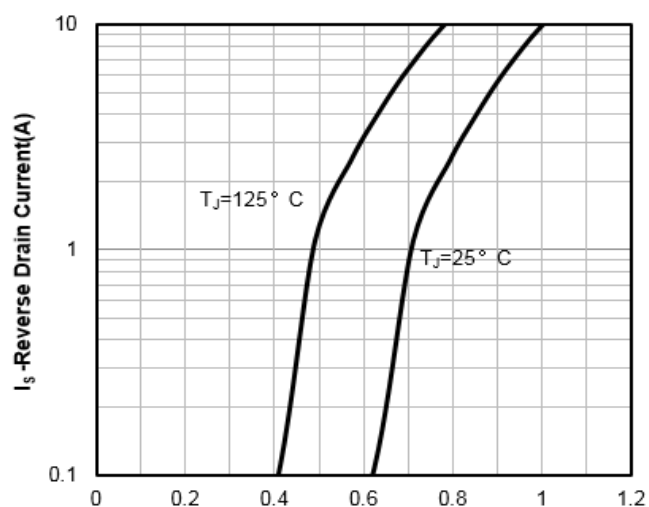


Figure7: VSD –Source Drain Voltage (V)

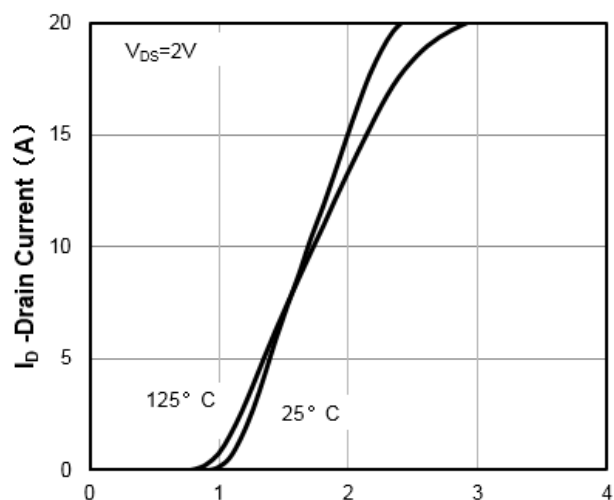


Figure8: VGS –Gate Source Voltage (V)

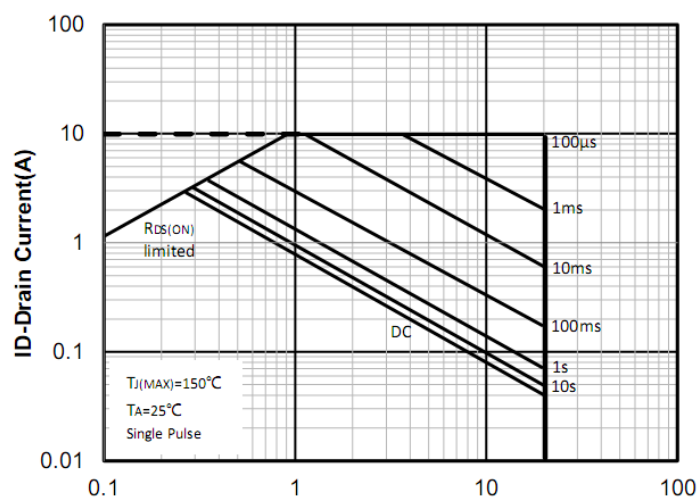


Figure9: VDS -Drain Source Voltage (V)

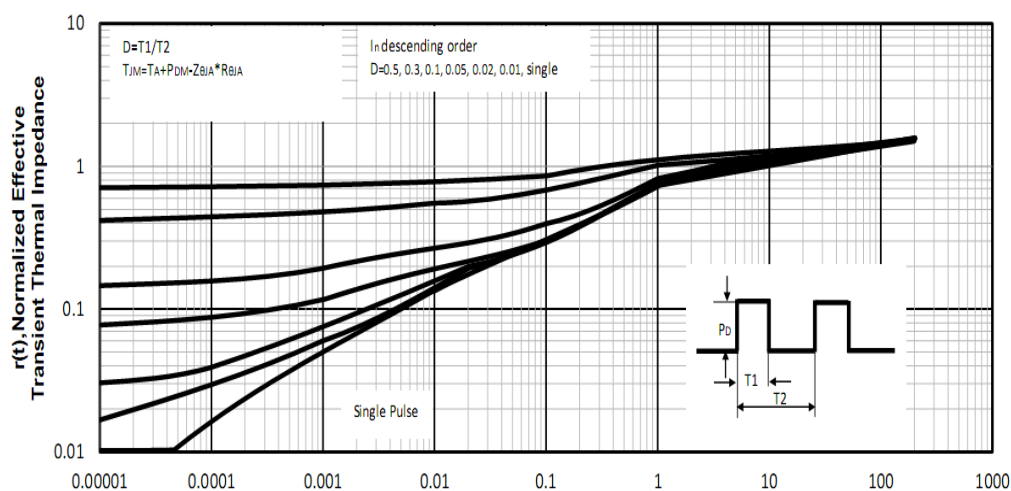


Figure10: Square Wave Pulse Duration (sec)



Test Circuit and Waveform:

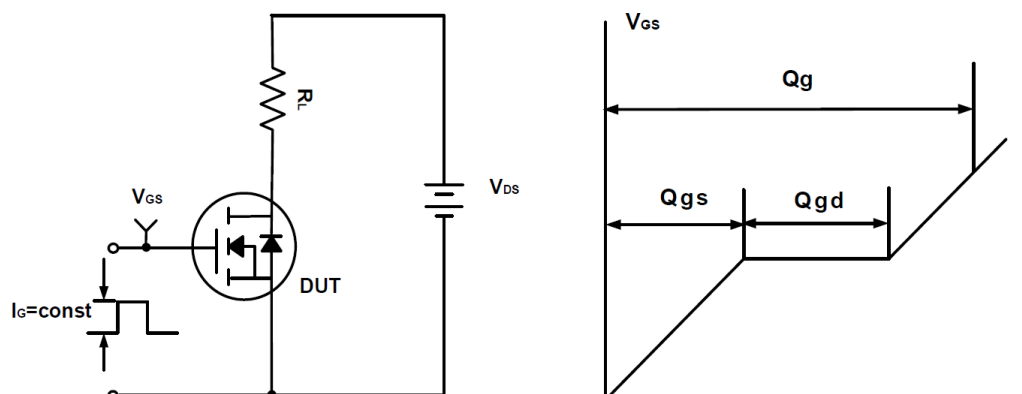


Figure A Gate Charge Test Circuit & Waveforms

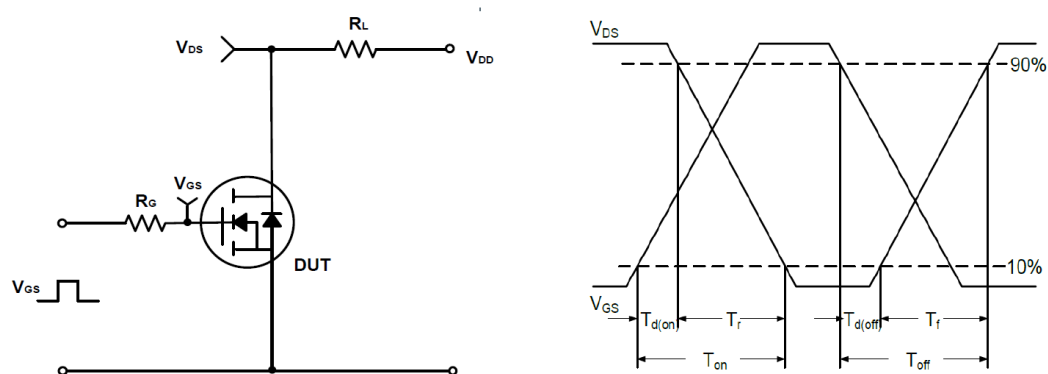
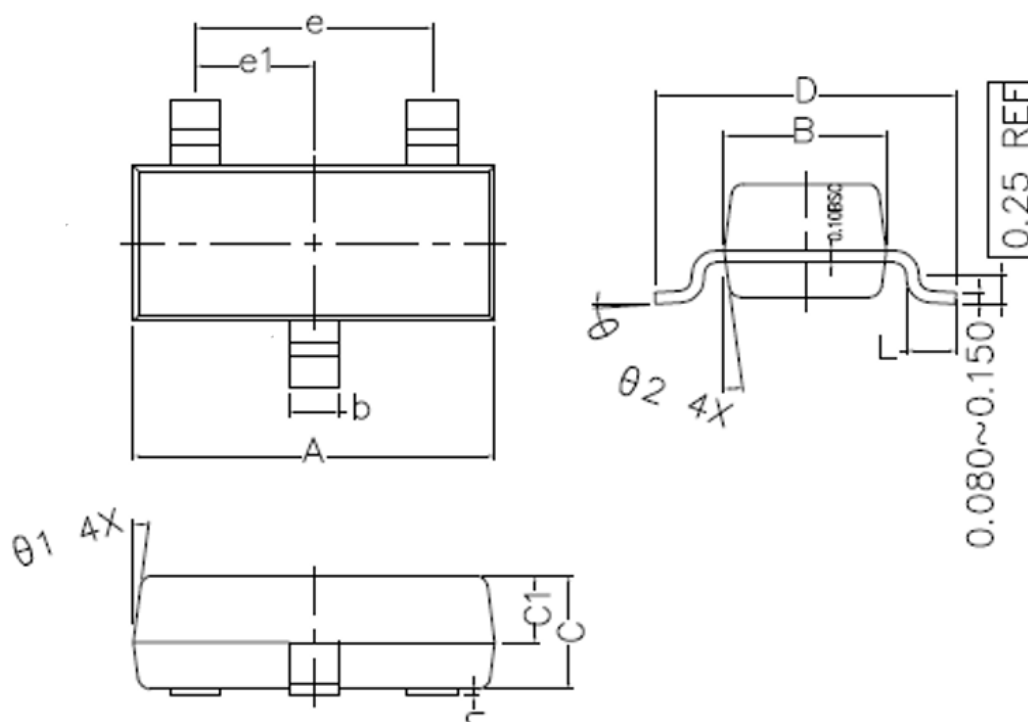


Figure B Switching Test Circuit & Waveforms

**SOT-23 Package Outline Dimensions (Units: mm)**

COMMON DIMENSIONS (UNITS OF MEASURE IS mm)			
	MIN	NORMAL	MAX
A	2.800	2.900	3.000
B	1.200	1.300	1.400
C	0.900	1.000	1.100
C1	0.500	0.550	0.600
D	2.250	2.400	2.550
L	0.300	0.400	0.500
h	0.010	0.050	0.100
b	0.300	0.400	0.500
e	1.90 TYPE		
e1	0.95 TYPE		
θ ₁	7° TYPE		
θ ₂	7° TYPE		
θ	0° ~ 7°		