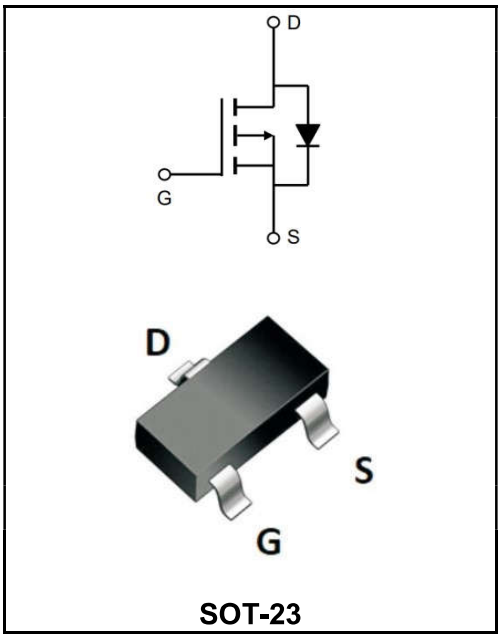
-20V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-4.2A
V_{DSS}	-20V
R_{DSON}-typ(@V_{GS}=-4.5V)	< 50mΩ(Type:43 mΩ)



Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW2305B	SOT-23	A5SHB	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-20	V
Gate - Source Voltage	V_{GS}	±10	V
Drain Current T_A=25℃	I_D	-4.2	A
Drain Current T_A=70℃	I_D	-2.7	A
Pulsed Drain Current [A]	I_{DM}	-14	A
Total Power Dissipation @ T_A=25℃	P_D	1	W
Thermal Resistance Junction-to-Ambient [B]	$R_{\theta JA}$	125	°C/W
Junction and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	BV_{DSS}	-20	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=-20V , V_{GS}=0V , T_C=25℃	I_{DSS}	-	-	-1	μA
Gate-Body Leakage Current	V_{GS}=±10V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=-250μA	$V_{GS(th)}$	-0.5	-0.69	-1.2	V
Drain-Source On-State Resistance	V_{GS}=-4.5V, I_D=-3.4A	$R_{DS(ON)}$	-	43	50	mΩ
	V_{GS}=-2.5V, I_D=-3A		-	57	68	
	V_{GS}=-1.8V, I_D=-2.5A		-	83	90	
Diode Forward Voltage	I_S=-3.4A, V_{GS}=0V	V_{SD}	-	-0.8	-1.2	V
Maximum Body-Diode Continuous Current		I_S	-	-	-3.4	A
Input Capacitance	V_{DS}=-10V V_{GS}=0V f=1MHz	C_{iss}	-	550	-	pF
Output Capacitance		C_{oss}	-	89	-	
Reverse Transfer Capacitance		C_{rss}	-	65	-	
Total Gate Charge	V_{DS}=-10V V_{GS}=-4.5V I_D=-3.4A	Q_g	-	4.3	-	nC
Gate-Source Charge		Q_{gs}	-	0.8	-	
Gate-Drain(“Miller”) Charge		Q_{gd}	-	1.1	-	
Turn-on delay time	V_{DD}=-10V I_D=-1A V_{GS}=-4.5V R_{GEN}=2.5Ω	$t_{d(on)}$	-	12	-	ns
Turn-on Rise Time		T_r	-	54	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	15	-	
Turn-Off Fall Time		t_f	-	9	-	

Notes:
1. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
2. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Ratings and Characteristic Curves

Typical Characteristics

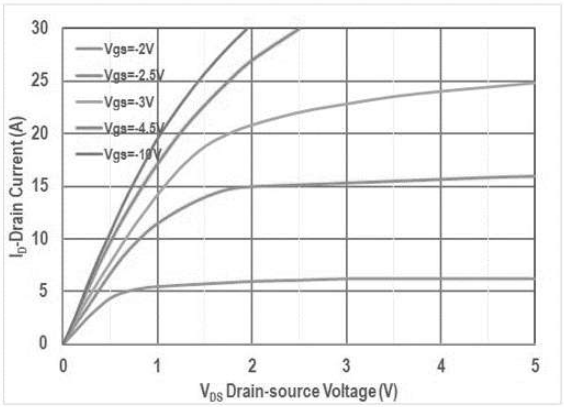


Figure1. Output Characteristics

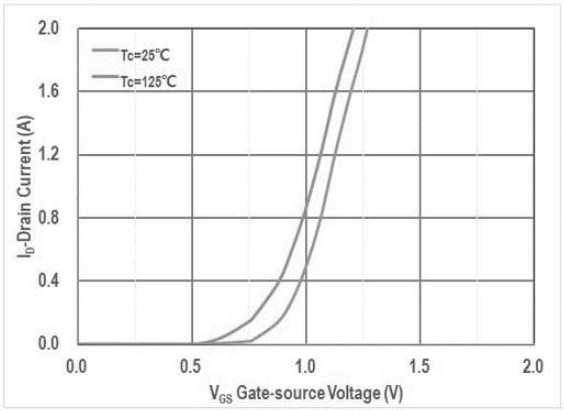


Figure2. Transfer Characteristics

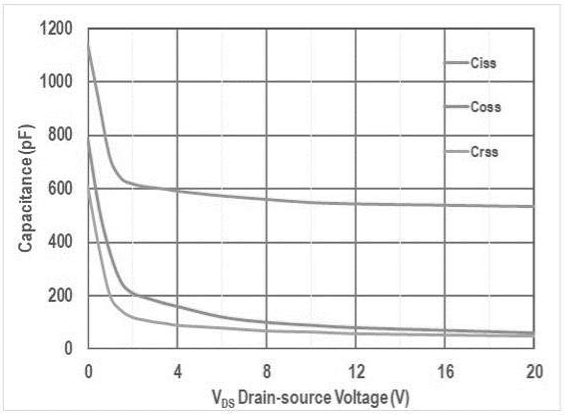


Figure3. Capacitance Characteristics

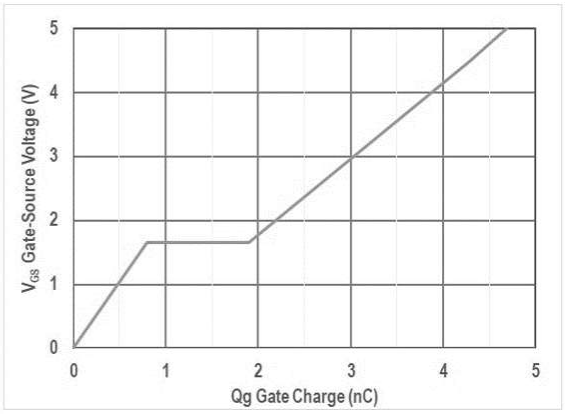


Figure4. Gate Charge

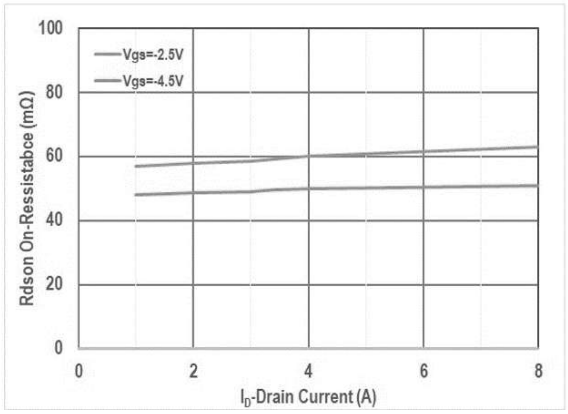


Figure5. Drain-Source on Resistance

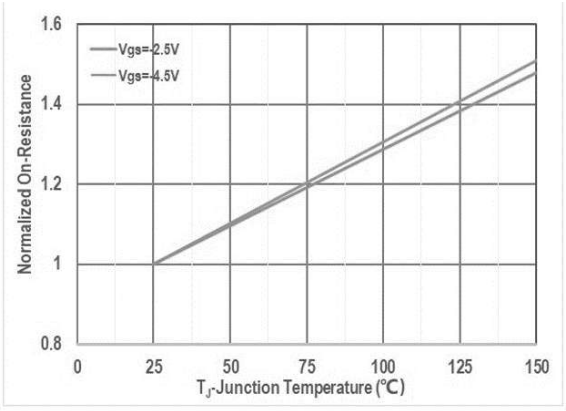


Figure6. Drain-Source on Resistance

Ratings and Characteristic Curves

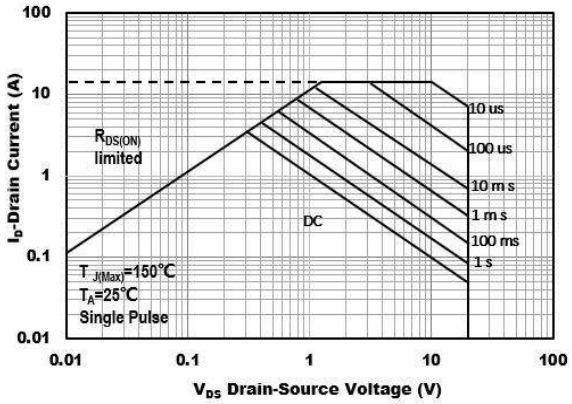


Figure7. Safe Operation Area

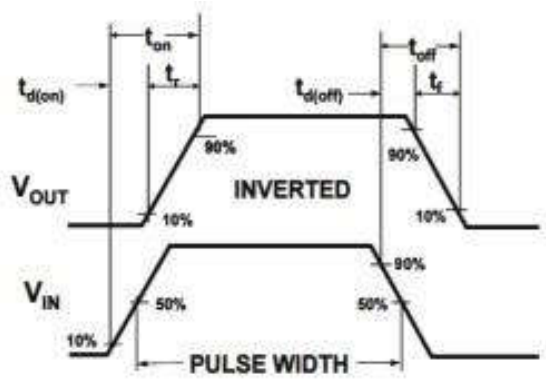
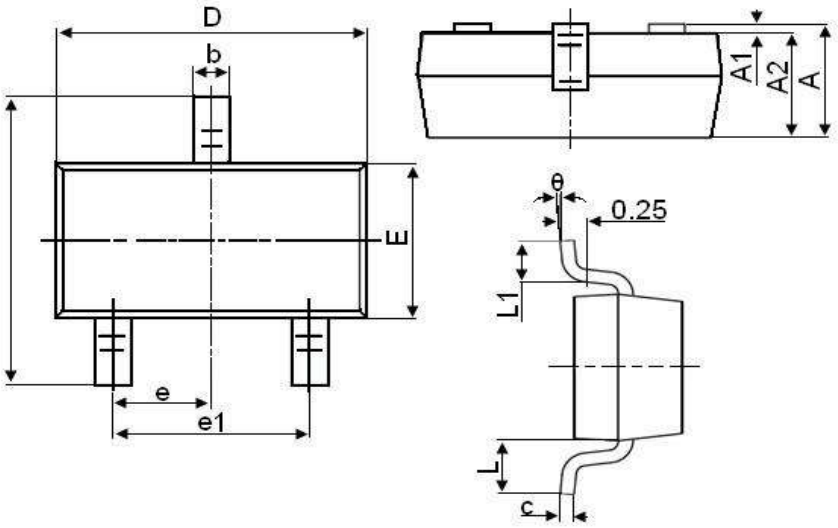


Figure8. Switching wave

Package Outline Dimensions Millimeters

SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°