

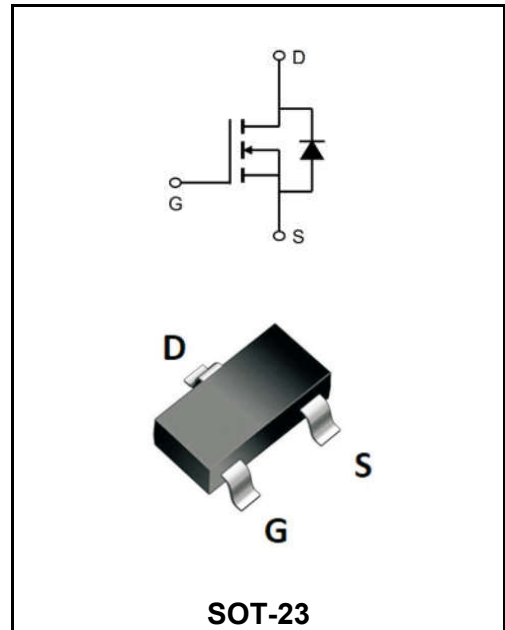
20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	3.2A
V_{DSS}	20V
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	< 56mΩ (Type:43 mΩ)

Application

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply



Marking Code	
YFW2302B	A2SHB.

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}	±12	V
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=25^\circ C$	I_D	3.2	A
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=70^\circ C$	I_D	1.8	A
Pulsed Drain Current ^A	I_{DM}	14	A
Total Power Dissipation @ $T_A=25^\circ C$	P_D	0.7	W
Thermal Resistance Junction-to-Ambient @Steady State	$R_{\theta JA}$	178	°C/W
Operating Junction 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	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	20	21	-	V
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.52	0.66	0.9	V
Static Drain-Source On-Resistance	$V_{GS}=4.5V, I_D=2.0A$	$R_{DS(on)}$	-	43	56	m Ω
	$V_{GS}=2.5V, I_D=1.5A$		-	58	78	
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	280	-	μF
Output Capacitance		C_{oss}	-	46	-	
Reverse Transfer Capacitance		C_{rss}	-	29	-	
Total Gate Charge	$V_{GS}=4.5V$ $V_{DS}=10V$ $I_D=3.0A$	Q_g	-	2.9	-	nC
Gate-Source Charge		Q_{gs}	-	0.4	-	
Gate-Drain Charge		Q_{gd}	-	0.6	-	
Turn-on delay time	$V_{GS}=4.5V$ $V_{DD}=10V$ $R_L=1.5\Omega$ $R_{GEN}=3\Omega$	$t_{d(on)}$	-	13	-	ns
Turn-on Rise Time		T_r	-	54	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	18	-	
Turn-Off Fall Time		t_f	-	11	-	
Maximum Body-Diode Continuous Current		I_S	-	-	3.0	A
Diode Forward Voltage	$V_{GS}=0V, I_S=3.0A$	V_{SD}	-	-	1.2	V

Note:

- 1、Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.
- 2、Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Ratings and Characteristic Curves

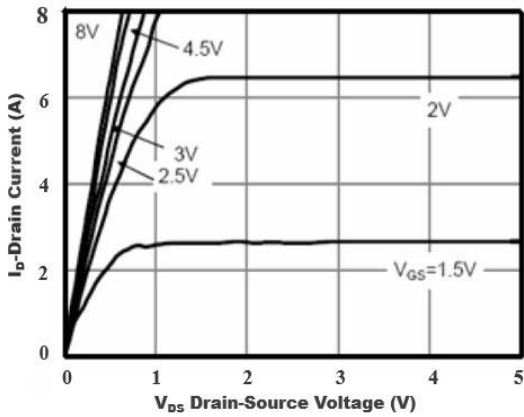


Figure1. Output Characteristics

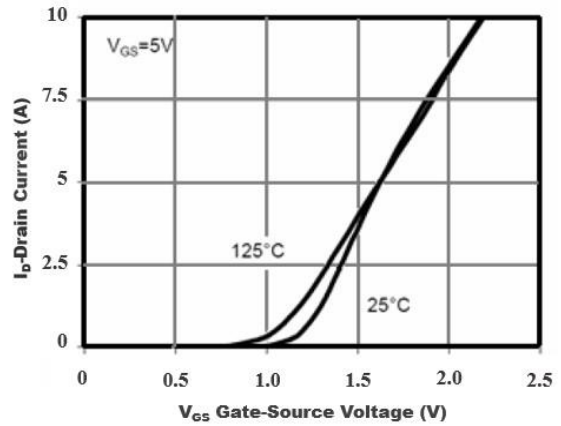


Figure2. Transfer Characteristics

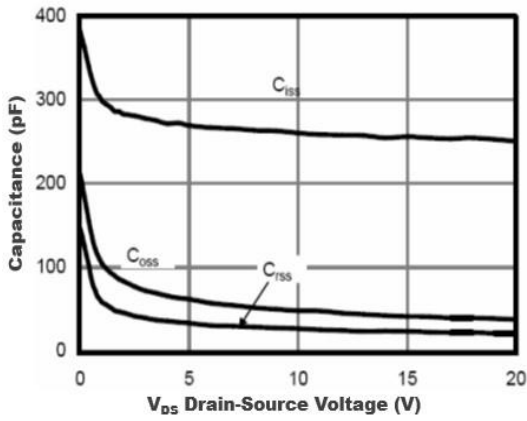


Figure3. Capacitance Characteristics

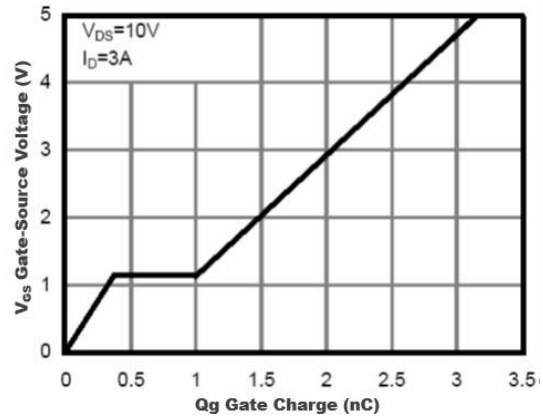


Figure4. Gate Charge

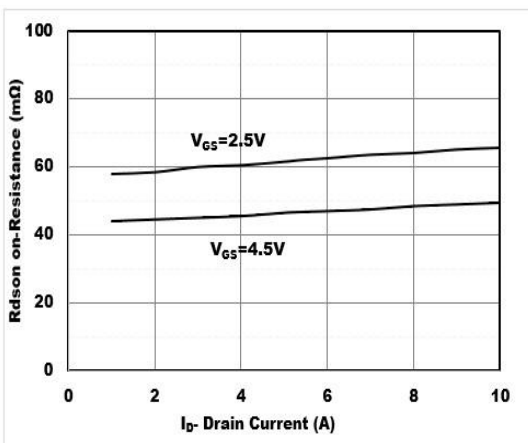


Figure5. Drain-Source on Resistance

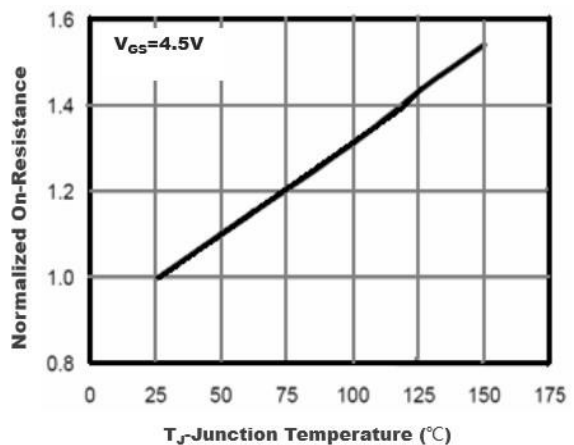


Figure6. Drain-Source on Resistance

Ratings and Characteristic Curves

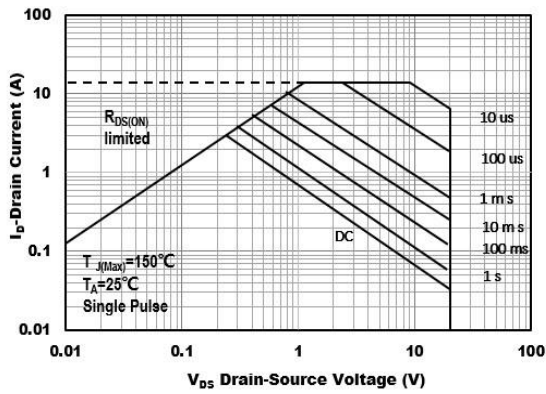


Figure7. Safe Operation Area

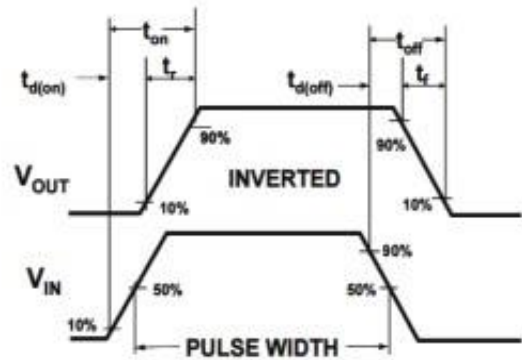


Figure8. Switching wave

Ordering information

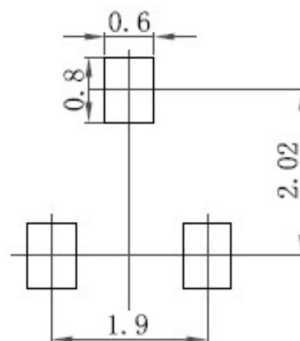
Package	Packing Description	Base Quantity	Packing Quantity
SOT-23	Tape/Reel,7"reel	3000pcs/Reel	24000PCS/Box 120000PCS/Carton

Package Dimensions

SOT-23

Dim.	Millimeter (mm)		mil	
	Min.	Max.	Min.	Max.
A	0.9	1.15	35	45
A1	0.1		3.9	
bp	0.38	0.48	15	19
C	0.09	0.15	3.54	5.9
D	2.8	3.0	110	118
E	1.2	1.4	47	55
E	1.9		75	
E1	0.95		37	
HE	2.1	2.55	83	100
Lp	0.15	0.45	5.9	18
Q	0.45	0.55	18	22
v	0.2		7.9	
W	0.1		4	

The recommended mounting pad size



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