

**-20V P-CHANNEL ENHANCEMENT MODE MOSFET**

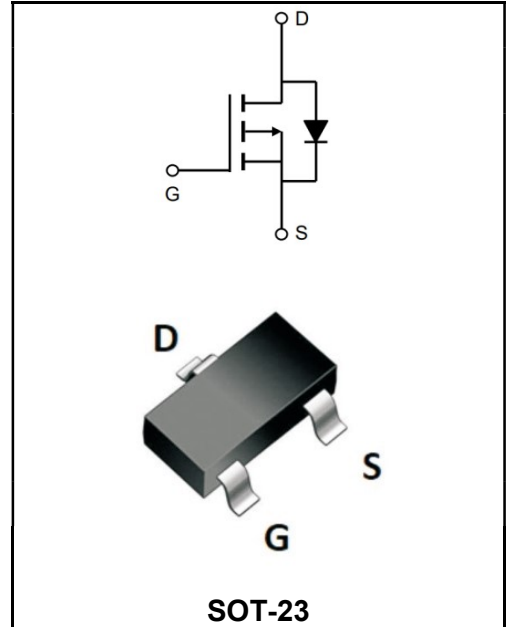
**MAIN CHARACTERISTICS**

$I_D$	-2.3A
$V_{DSS}$	-20V
$R_{DS(on)-typ}(@V_{GS}=-4.5V)$	< 165mΩ (Type:135 mΩ)



**Application**

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



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW2301B	SOT-23	A1SHB	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	$V_{GS}$	±12	V
Drain Current-Continuous	$I_D$	-2.3	A
Drain Current -Pulsed <sup>(Note 1)</sup>	$I_{DM}$	-10	A
Maximum Power Dissipation	$P_D$	0.7	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	°C
Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup>	$R_{θJA}$	178	°C/W

**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	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=-20V, V_{GS}=0V$	$I_{DSS}$	-	-	1	$\mu A$
Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 100$	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-0.5	-0.7	-1.2	V
Drain-Source On-State Resistance	$V_{GS}=-4.5V, I_D=-2A$	$R_{DS(on)}$	-	135	165	m $\Omega$
	$V_{GS}=-2.5V, I_D=-1.8A$		-	150	185	
Forward Transconductance	$V_{DS}=-5V, I_D=-2A$	$g_{fs}$	4	-	-	S
Input Capacitance	$V_{DS}=-10V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	290	-	pF
Output Capacitance		$C_{oss}$	-	60	-	
Reverse Transfer Capacitance		$C_{rss}$	-	34	-	
Turn-on delay time	$V_{DD}=-10V$ $R_L=5\Omega$ $V_{GS}=-4.5V$ $R_{GEN}=3\Omega$	$t_{d(on)}$	-	10	-	ns
Turn-on Rise Time		$T_r$	-	5.0	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	21	-	
Turn-Off Fall Time		$t_f$	-	7	-	
Total Gate Charge	$V_{DS}=-10V$ $V_{GS}=-4.5V$ $I_D=-2A$	$Q_g$	-	3.0	-	nC
Gate-Source Charge		$Q_{gs}$	-	0.5	-	
Gate-Drain Charge		$Q_{gd}$	-	0.8	-	
Diode Forward Voltage <sup>(Note 3)</sup>	$I_S=-2A, V_{GS}=0V$	$V_{SD}$	-	-	-1.2	V

**Notes:**

- 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  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .
- 4、Guaranteed by design, not subject to production

Ratings and Characteristic Curves

Typical Characteristics

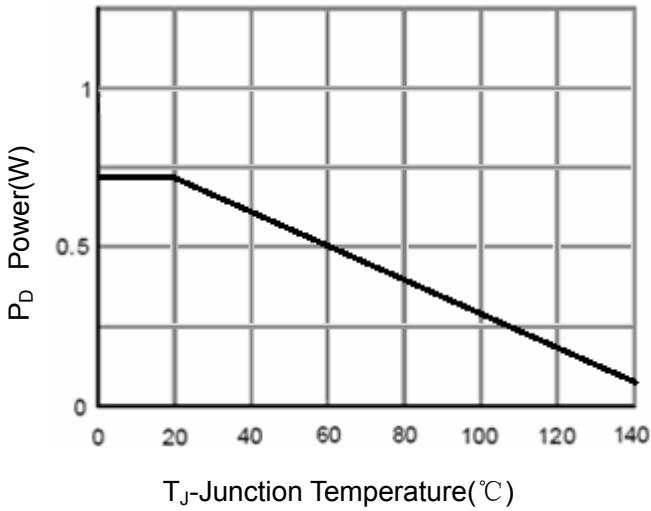


Figure 1 Power Dissipation

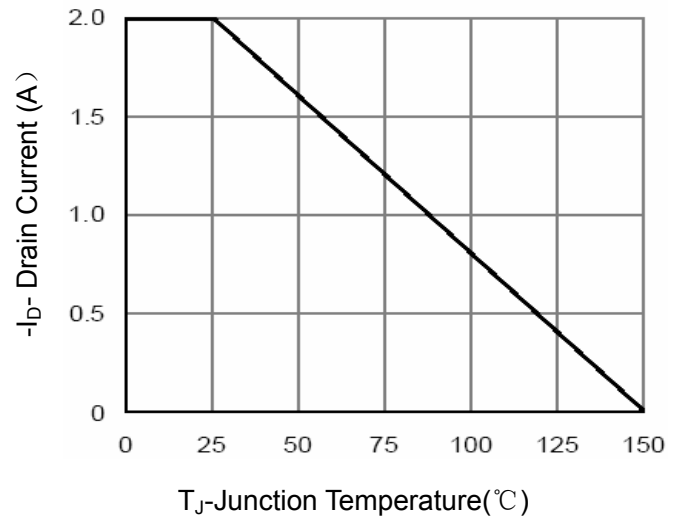


Figure 2 Drain Current

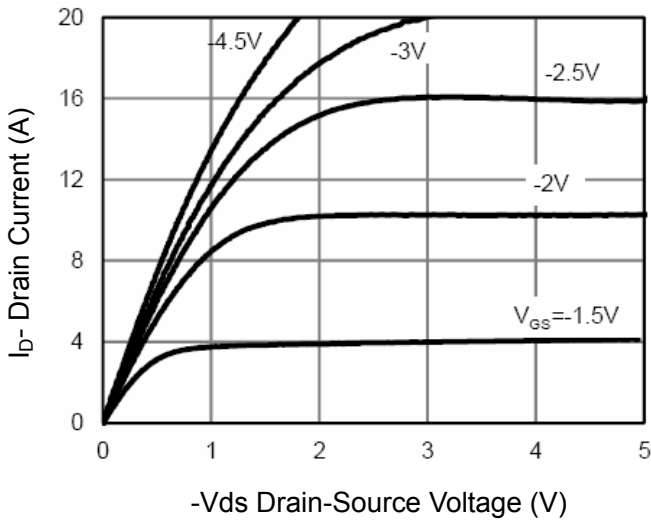


Figure 3 Output Characteristics

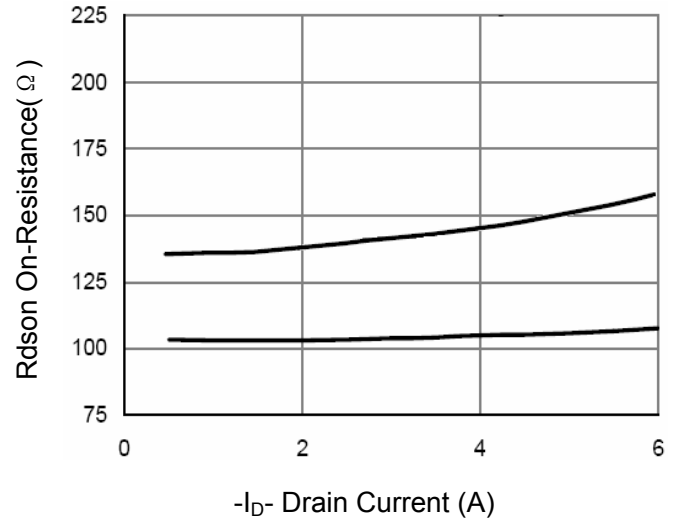


Figure 4 Drain-Source On-Resistance

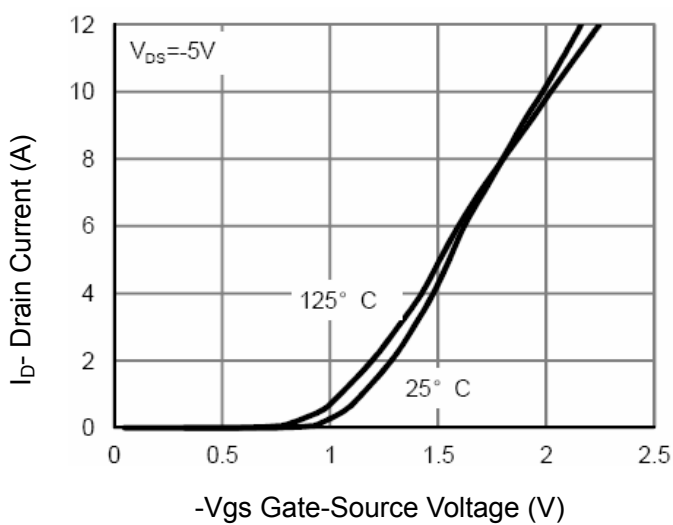


Figure 5 Transfer Characteristics

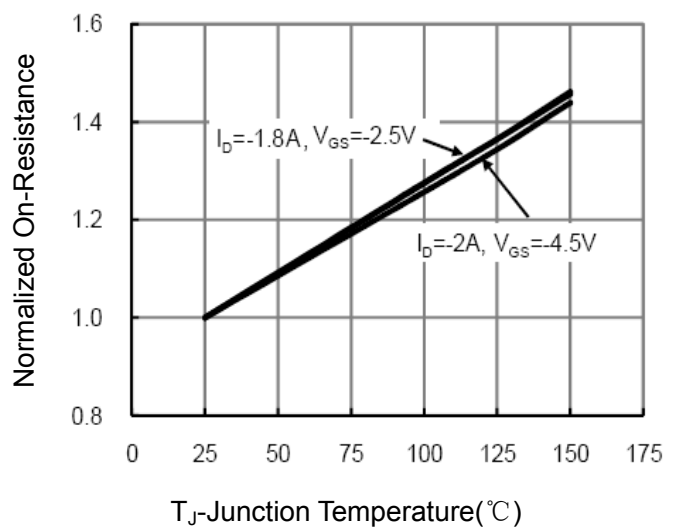


Figure 6 Drain-Source On-Resistance

Ratings and Characteristic Curves

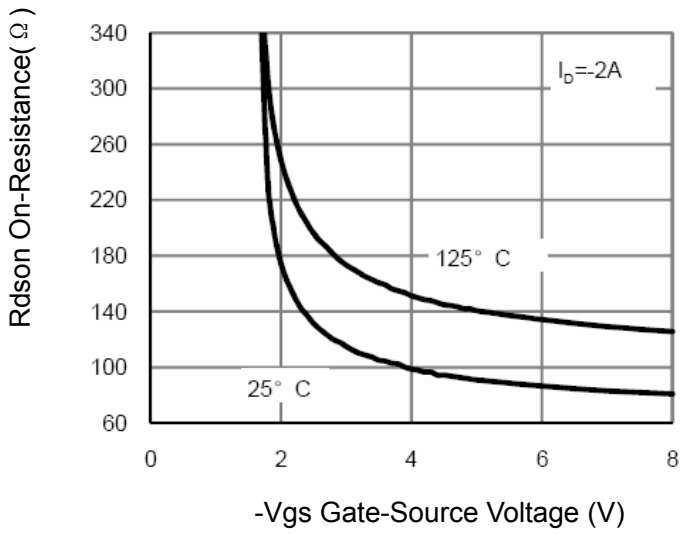


Figure 7 Rdson vs Vgs

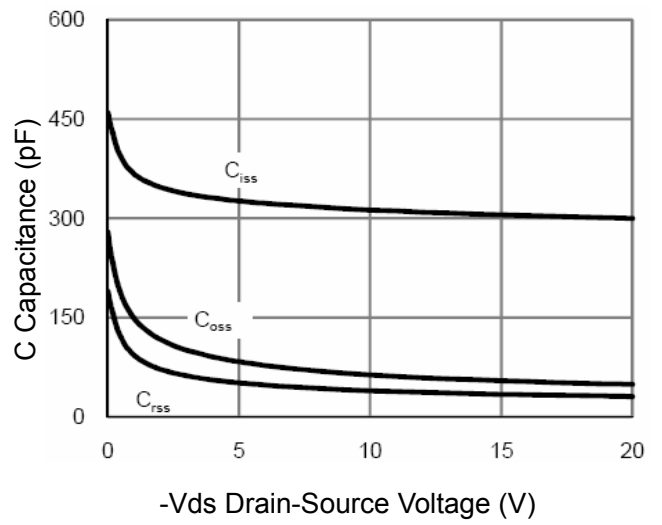


Figure 8 Capacitance vs Vds

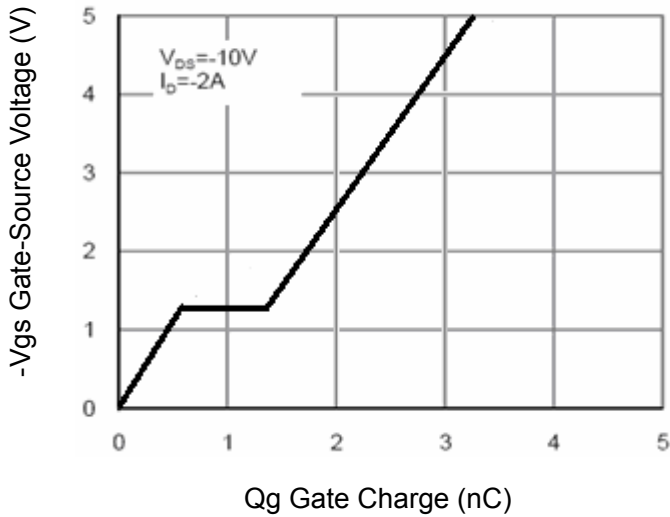


Figure 9 Gate Charge

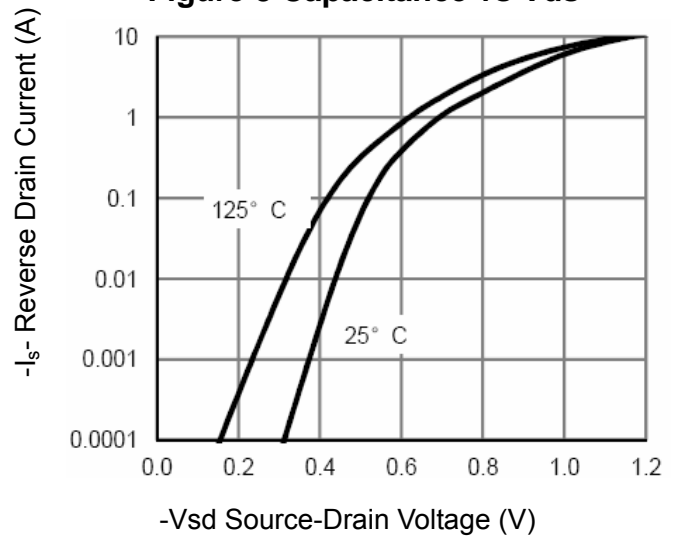


Figure 10 Source- Drain Diode Forward

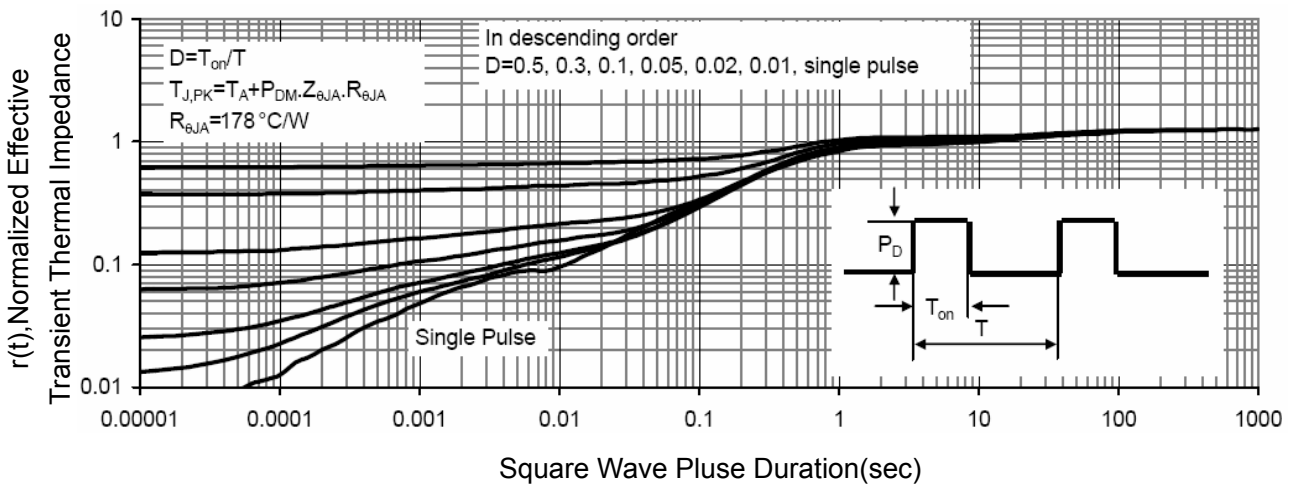
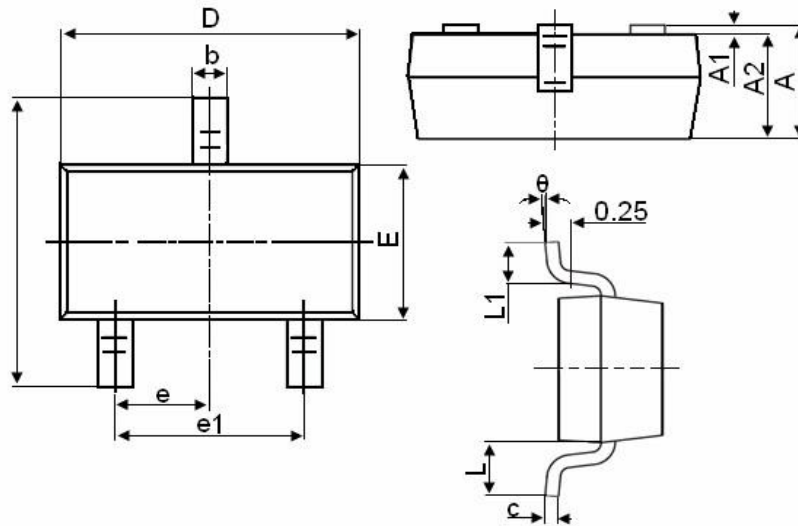


Figure 11 Normalized Maximum Transient Thermal Impedance

**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°