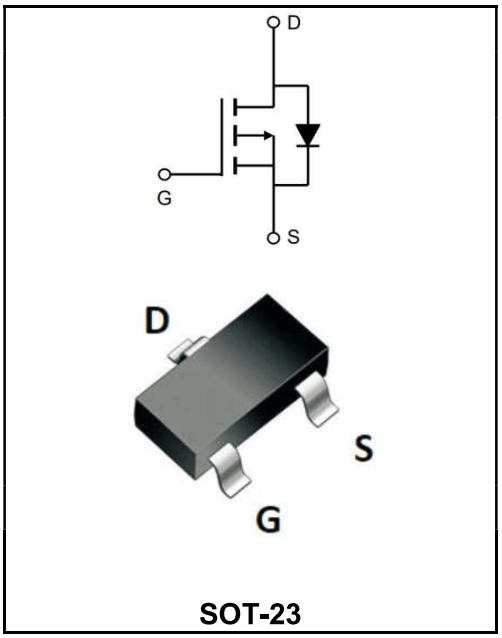
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-4.2A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=10V)	< 50mΩ(Type:45 mΩ)
R_{DSON}-typ(@V_{GS}=4.5V)	< 68mΩ(Type:53 mΩ)



SOT-23

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3401B	SOT-23	A19T.	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-30	V
Gate - Source Voltage	V_{GS}	±12	V
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=25℃	I_D	-4.2	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=100℃	I_D	-2.7	A
Pulsed Drain Current[note1]	I_{DM}	-16.8	A
Power Dissipation T_A=25℃	P_D	1.5	W
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	125	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	124	°C/W
Operating 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	**V(BR)DSS**	-30	-	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=-30V , V_{GS}=0V	**I_{DSS}**	-	-	1	**μA**
Gate to Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=-250μA	**$V_{GS(th)}$**	-0.5	-0.9	-1.5	**V**
Static Drain-Source on-Resistance note2	V_{GS}=-10V, I_D=-4A	**$R_{DS(ON)}$**	-	45	55	**mΩ**
	V_{GS}=-4.5V, I_D=-3A		-	53	68	
	V_{GS}=-2.5V, I_D=-1A		-	72	96	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	**C_{iss}**	-	1500	-	**pF**
Output Capacitance		**C_{oss}**	-	80	-	
Reverse Transfer Capacitance		**C_{rss}**	-	2	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-10V I_D=-4.2A	**Q_g**	-	8.5	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	1.8	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	2.7	-	
Turn-on delay time	V_{DD}=-15V V_{GS}=-10V I_D=-1A R_{GEN}=2.5Ω	**$t_{d(on)}$**	-	7	-	**ns**
Turn-on Rise Time		**T_r**	-	3	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	20	-	
Turn-Off Fall Time		**t_f**	-	12	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	-4.2	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	-16.8	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-4.2A	**V_{SD}**	-	-0.8	-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 ID and IDM , in real applications , should be limited by total power dissipation

Ratings and Characteristic Curves

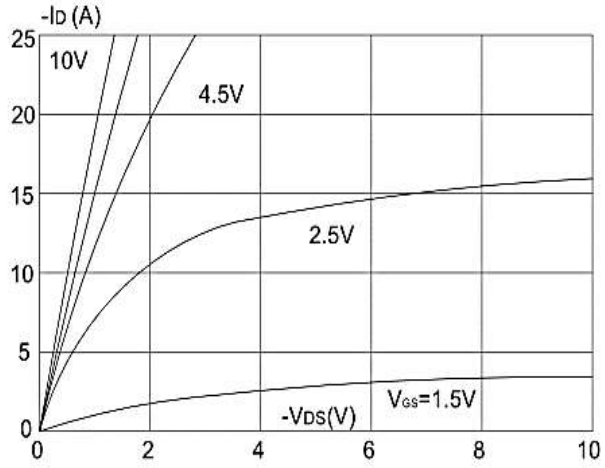


Figure1: Output Characteristics

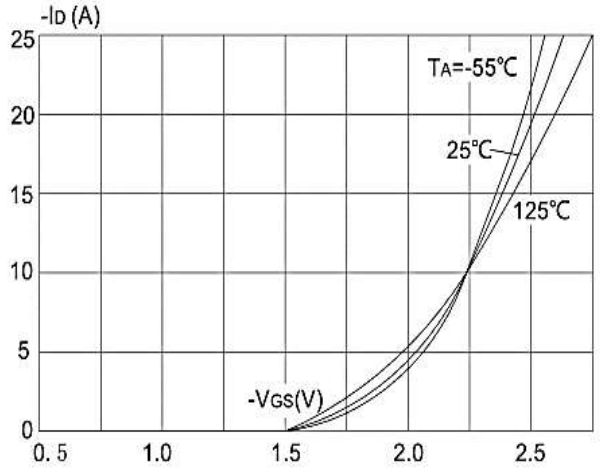


Figure 2: Typical Transfer Characteristics

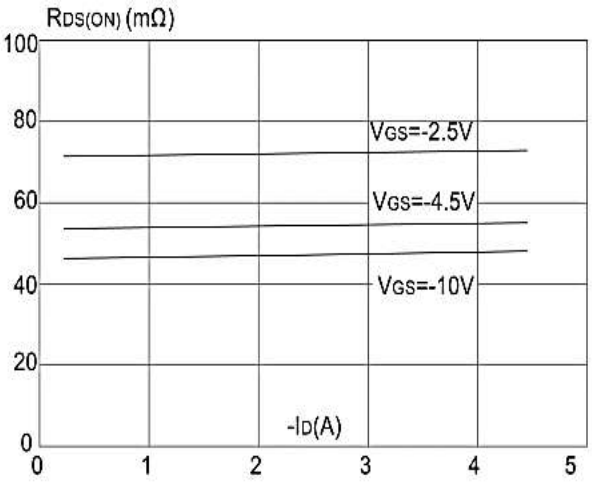


Figure 3:On-resistance vs. Drain Current

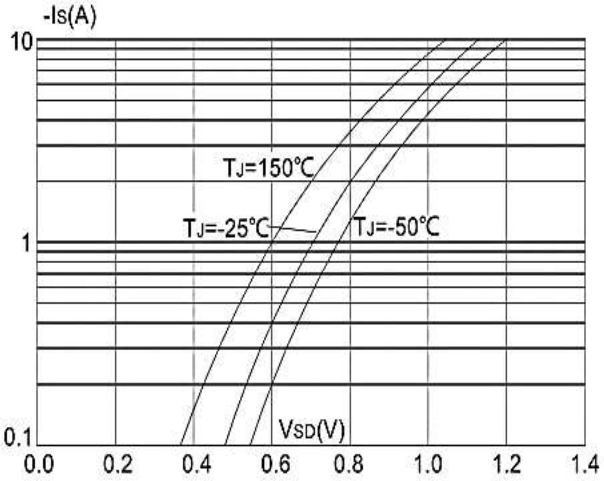


Figure 4: Body Diode Characteristics

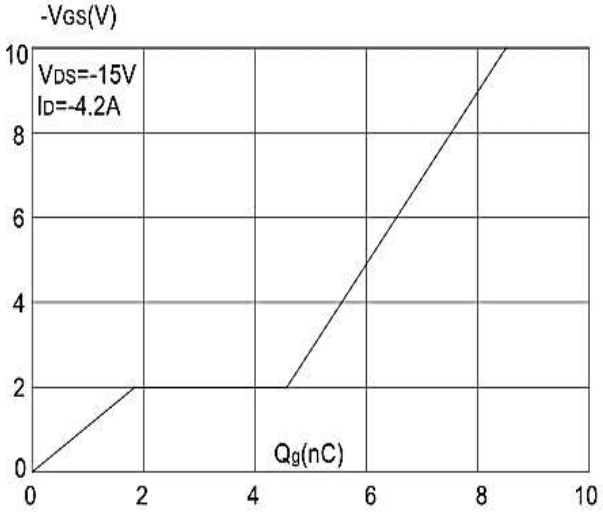


Figure 5: Gate Charge Characteristics

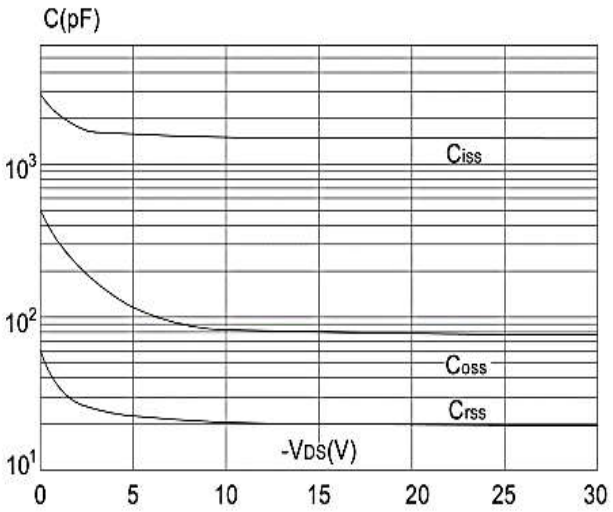


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

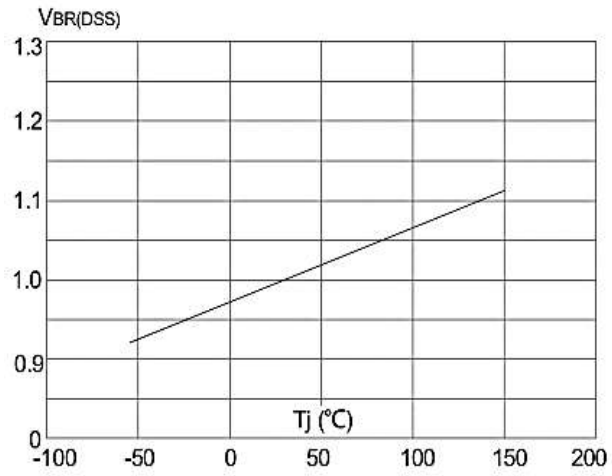


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

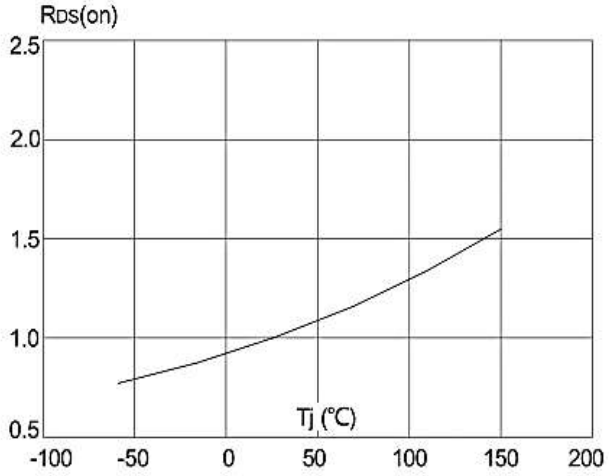


Figure 8: Normalized on Resistance vs. Junction Temperature

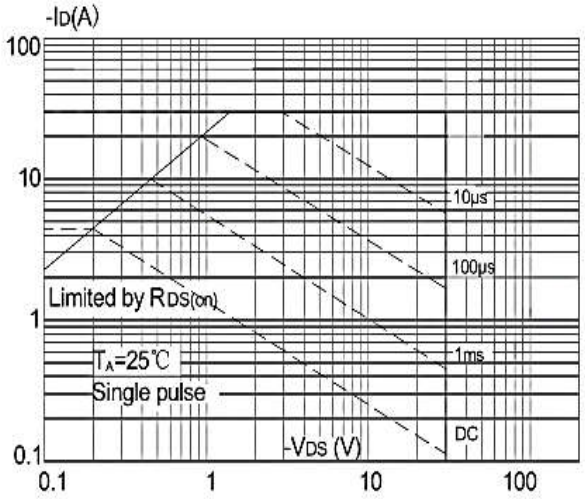


Figure 9: Maximum Safe Operating Area

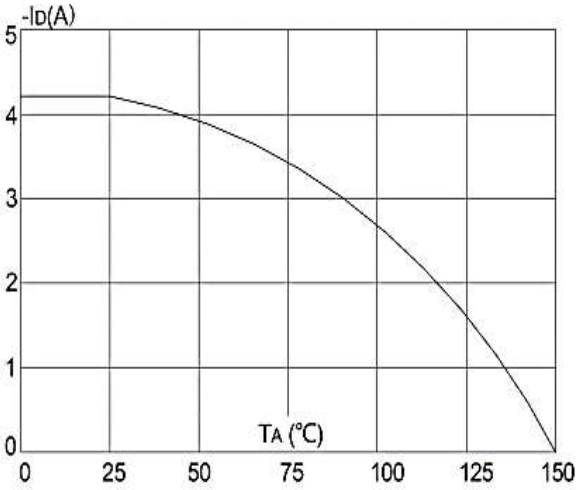


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

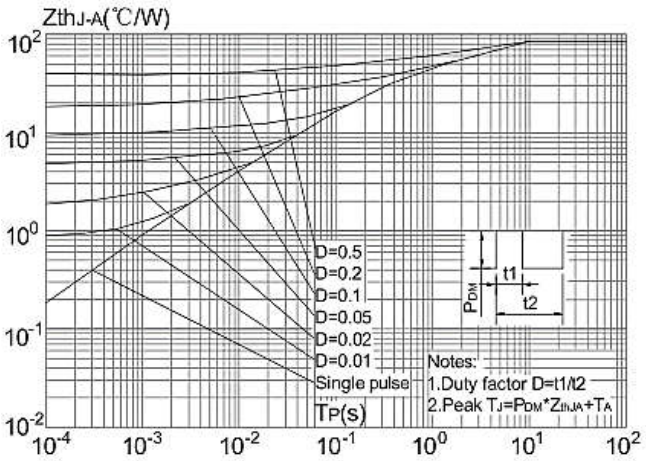
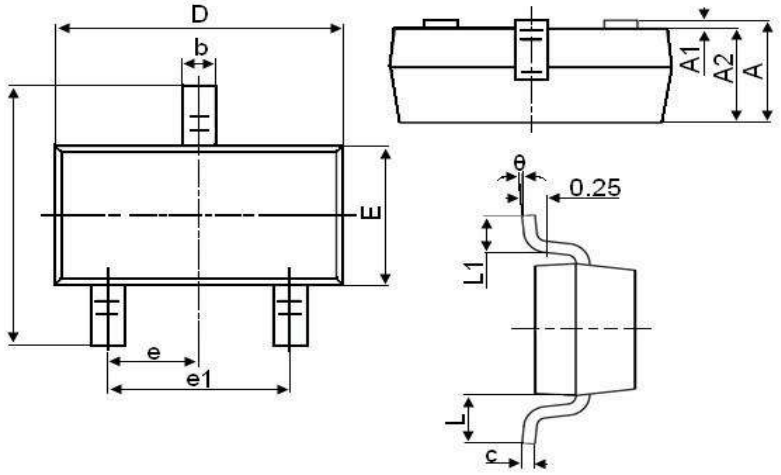


Figure.11: Maximum Effective TransientThermal Impedance, Junction-to-Ambient

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°