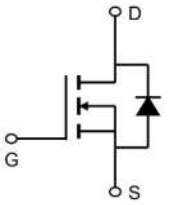
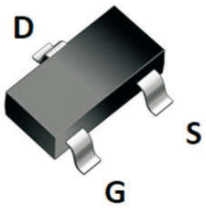
20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	3.2A
V_{DSS}	20V
R_{DSON}-typ(@V_{GS}=10V)	< 55mΩ(Type:45 mΩ)





SOT-23

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW3400D	SOT-23	A09T	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
Continuous Drain Current @T_A=25℃	I_D	3.2	A
Continuous Drain Current @T_A=100℃	I_D	2	A
Pulsed Drain Current	I_{DM}	12	A
Power Dissipation TA = 25℃	P_D	0.77	W
Thermal Resistance, Junction to Case	$R_{\theta JA}$	162	°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**	20	22	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=20V , V_{GS}=0V	**I_{DSS}**	-	-	1.0	**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=250uA	**$V_{GS(th)}$**	0.4	0.6	1.2	**V**
Static Drain-Source On-Resistance note2	V_{GS}=4.5V, I_D=3A	**$R_{DS(ON)}$**	-	45	55	**mΩ**
	V_{GS}=2.5V, I_D=2A		-	62	85	
Input Capacitance	V_{DS}=10V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	184	-	**pF**
Output Capacitance		**C_{oss}**	-	38	-	
Reverse Transfer Capacitance		**C_{rss}**	-	28	-	
Total Gate Charge	V_{DS}=10V I_D=3A V_{GS}=4.5V	**Q_g**	-	2.7	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	0.4	-	
Gate-Drain(“Miller”) Charge		**Q_{gd}**	-	0.5	-	
Turn-on delay time	V_{DS}=10V I_D=3A R_{GEN} =3Ω V_{GS} =4.5V	**$t_{d(on)}$**	-	2.3	-	**ns**
Turn-on Rise Time		**T_r**	-	3.1	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	9.2	-	
Turn-Off Fall Time		**t_f**	-	2.5	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	3	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	12	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=3A	**V_{SD}**	-	-	1.2	**V**

Note :
1、The data tested by surface mounted on a 1 inch2 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

Typical Characteristics

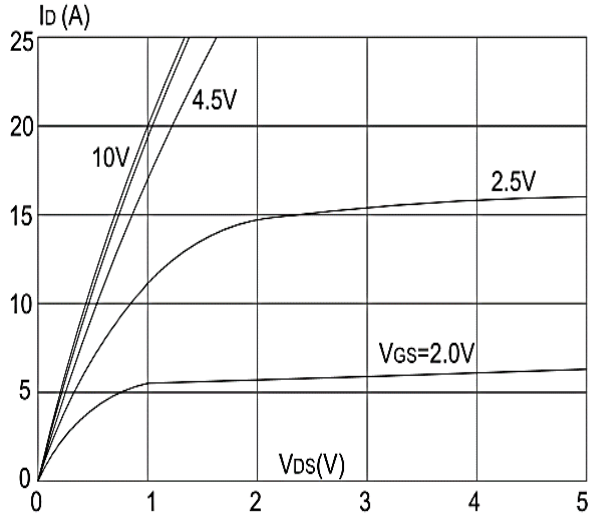


Figure1: Output Characteristics

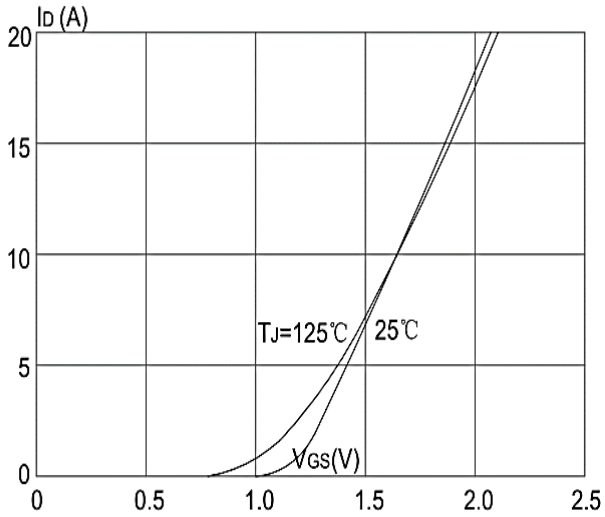


Figure 2: Typical Transfer Characteristics

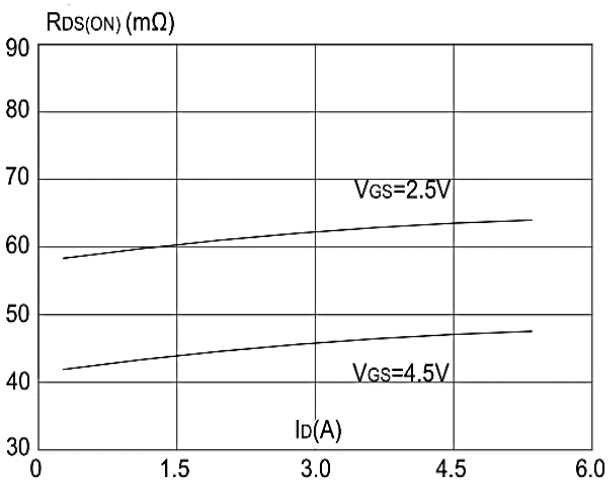


Figure 3:On-resistance vs. Drain Current

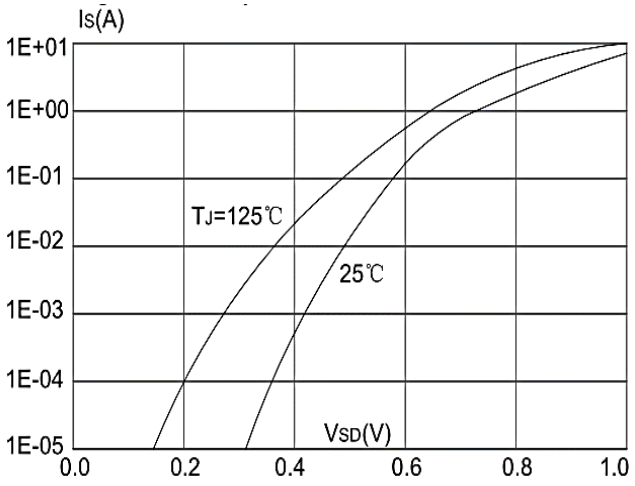


Figure 4: Body Diode Characteristics

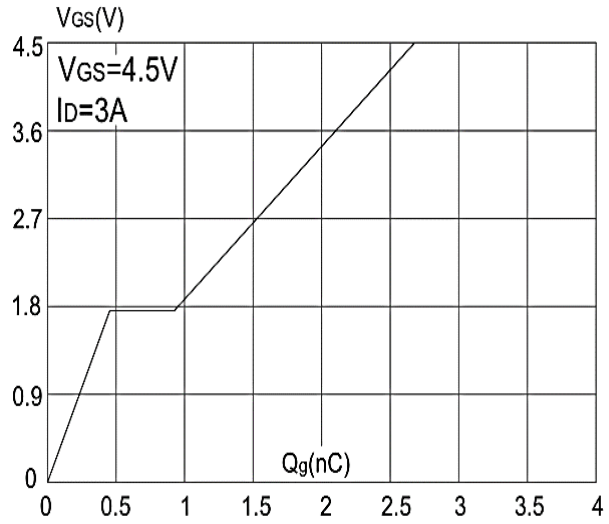


Figure 5: Gate Charge Characteristics

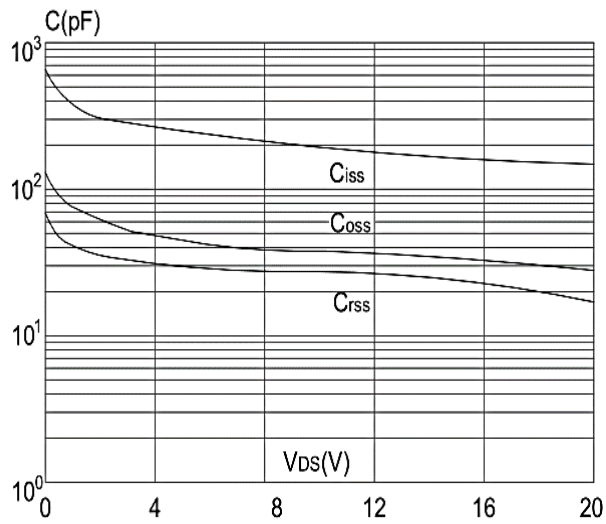


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

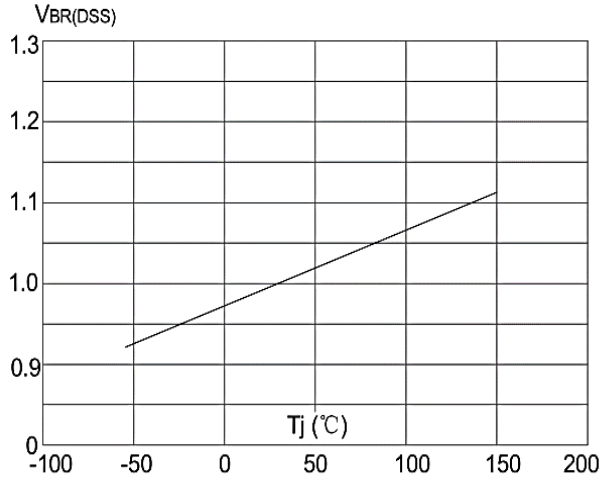


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

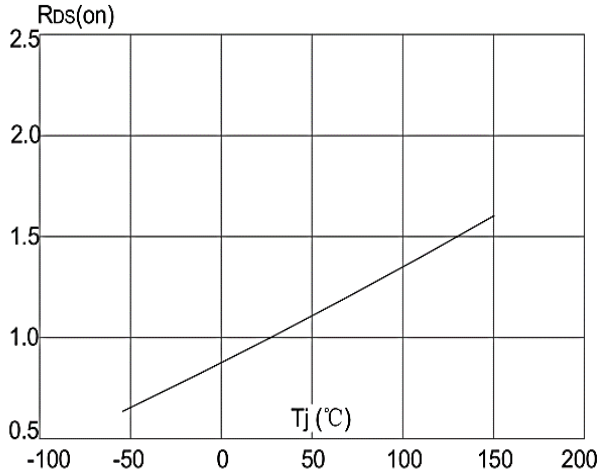


Figure 8: Normalized on Resistance vs. Junction Temperature

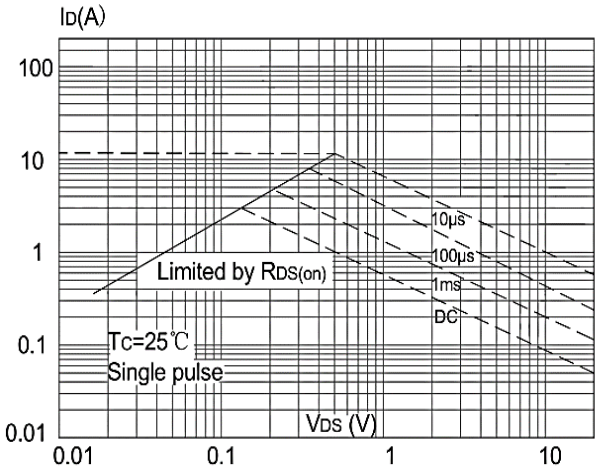


Figure 9: Maximum Safe Operating Area

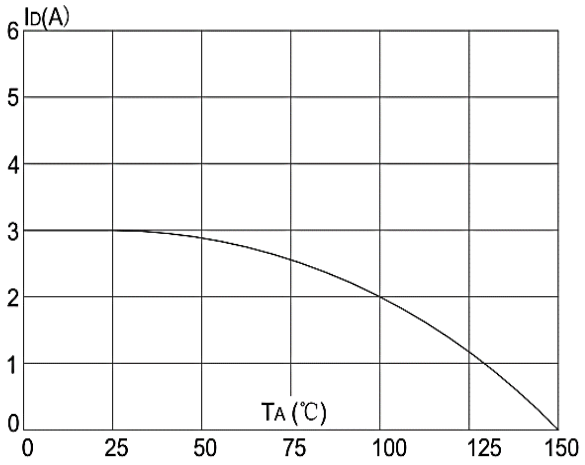


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

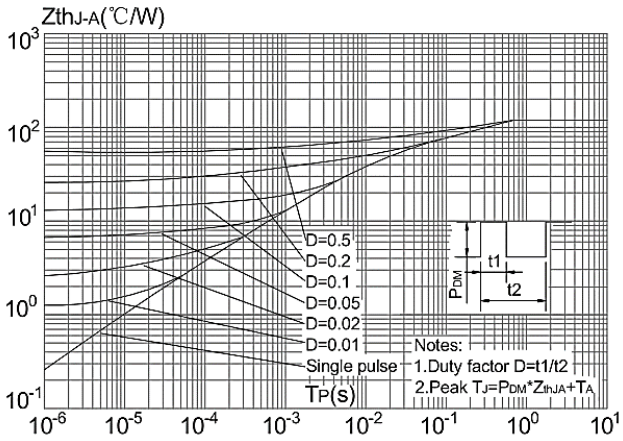


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

Package Outline Dimensions Millimeters

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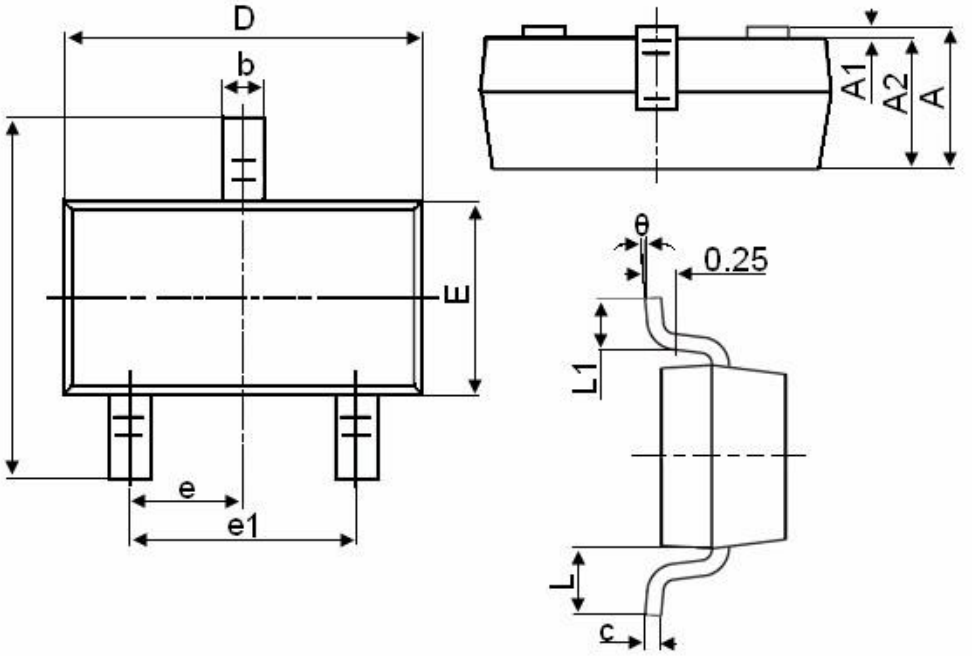

Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°