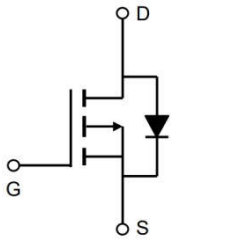
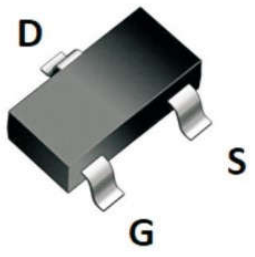
-20V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-7A
V_{DSS}	-20V
R_{DSON}-typ(@V_{GS}=-4.5V)	< 25mΩ(Type:20 mΩ)





SOT-23

Application

- Quick charge
- electronic cigarette
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW2307A	SOT-23	2307A	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, V_{GS} @ -4.5V[1] @T_A=25℃	I_D	-7	A
Continuous Drain Current, V_{GS} @ -4.5V[1] @T_A=70℃	I_D	-4.8	A
Pulsed Drain Current[2]	I_{DM}	-23.8	A
Total Power Dissipation[3] @T_A=25℃	P_D	2	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient [1]	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	80	°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=-250uA	V(BR)DSS	-20	-22	-	V
Zero Gate Voltage Drain Current	V_{DS}=-20V , 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	-0.7	-1.2	V
Static Drain-Source on-Resistance note2	V_{GS}=-4.5V, I_D=-6A	$R_{DS(ON)}$	-	20	25	mΩ
	V_{GS}=-2.5V, I_D=-5A		-	28	35	
Input Capacitance	V_{DS}=-10V V_{GS}=0V f=1MHz	C_{iss}	-	2000	-	pF
Output Capacitance		C_{oss}	-	242	-	
Reverse Transfer Capacitance		C_{rss}	-	231	-	
Total Gate Charge	V_{DS}=-10V V_{GS}=-4.5V I_D=-3A	Q_g	-	15.3	-	nC
Gate-Source Charge		Q_{gs}	-	2.2	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	4.4	-	
Turn-on delay time	V_{DD}=-10V V_{GS}=-4.5V I_D=-7A R_{GEN}=2.5Ω	$t_{d(on)}$	-	10	-	ns
Turn-on Rise Time		T_r	-	31	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	28	-	
Turn-Off Fall Time		t_f	-	8	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	-7	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	-28	A
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-7A	V_{SD}	-	-0.8	-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

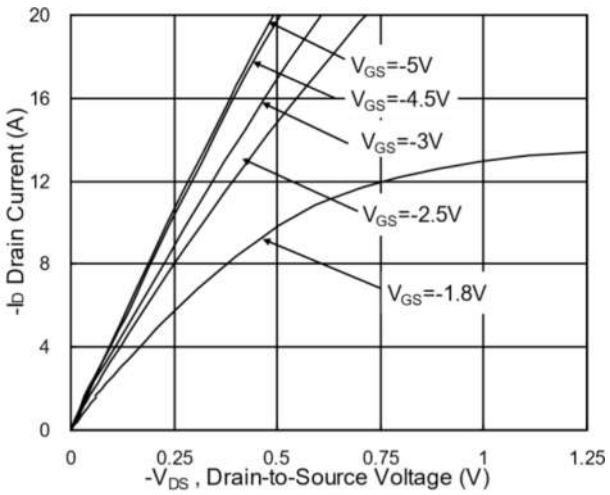


Fig.1 Typical Output Characteristics

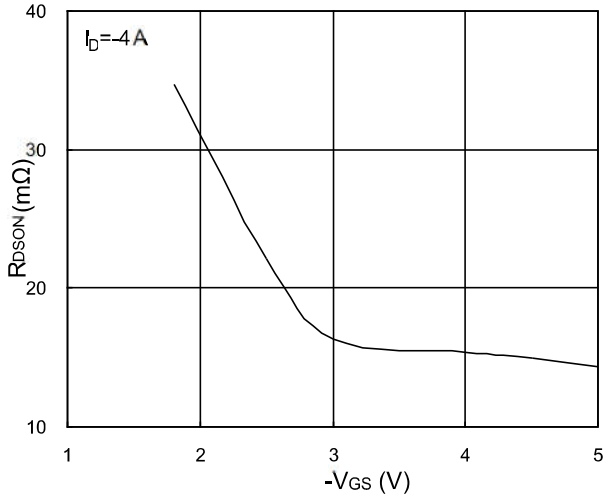


Fig.2 On-Resistance vs. Gate-Source

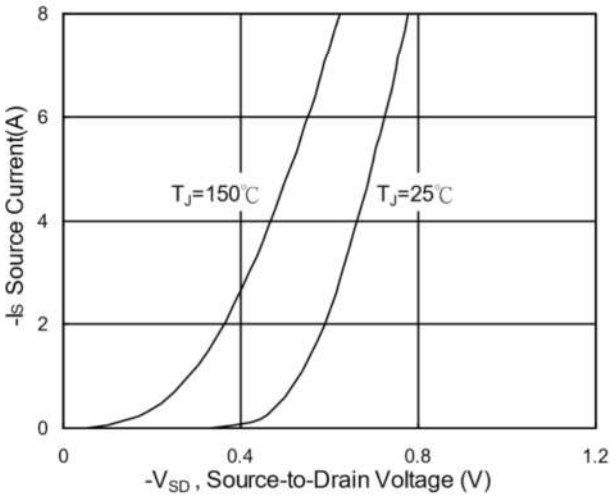


Fig.3 Forward Characteristics Of Reverse

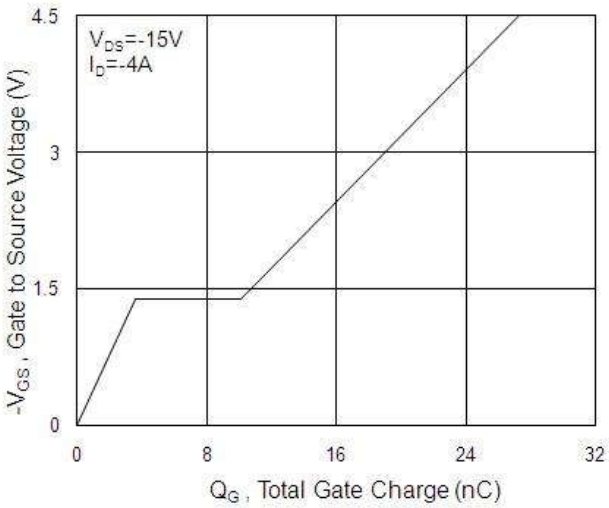


Fig.4 Gate-Charge Characteristics

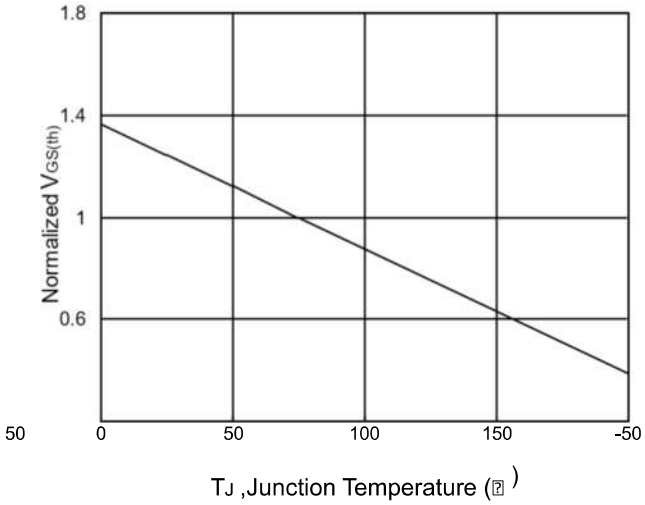


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

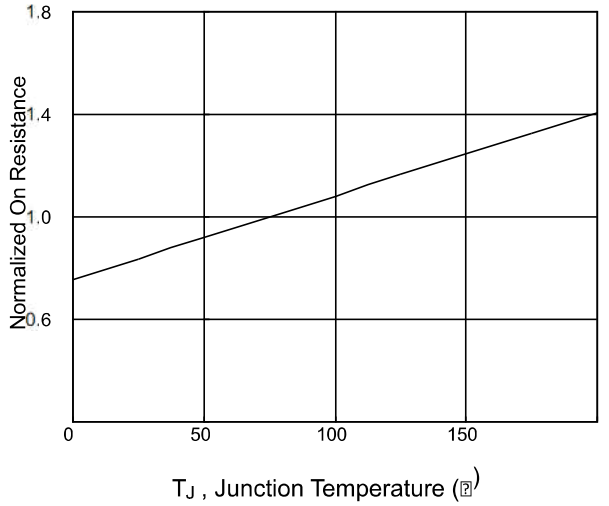


Fig.6 Normalized R_{DSON} vs. T_J

Ratings and Characteristic Curves

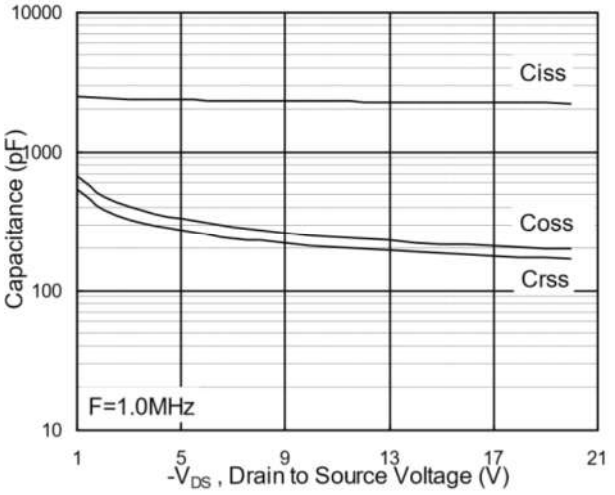


Fig.7 Capacitance

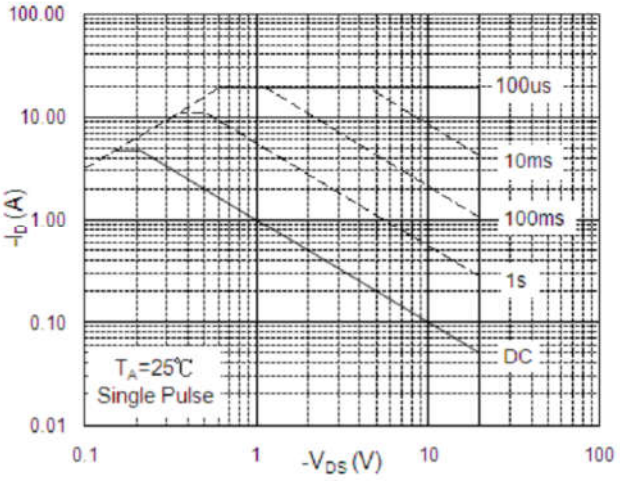


Fig.8 Safe Operating Area

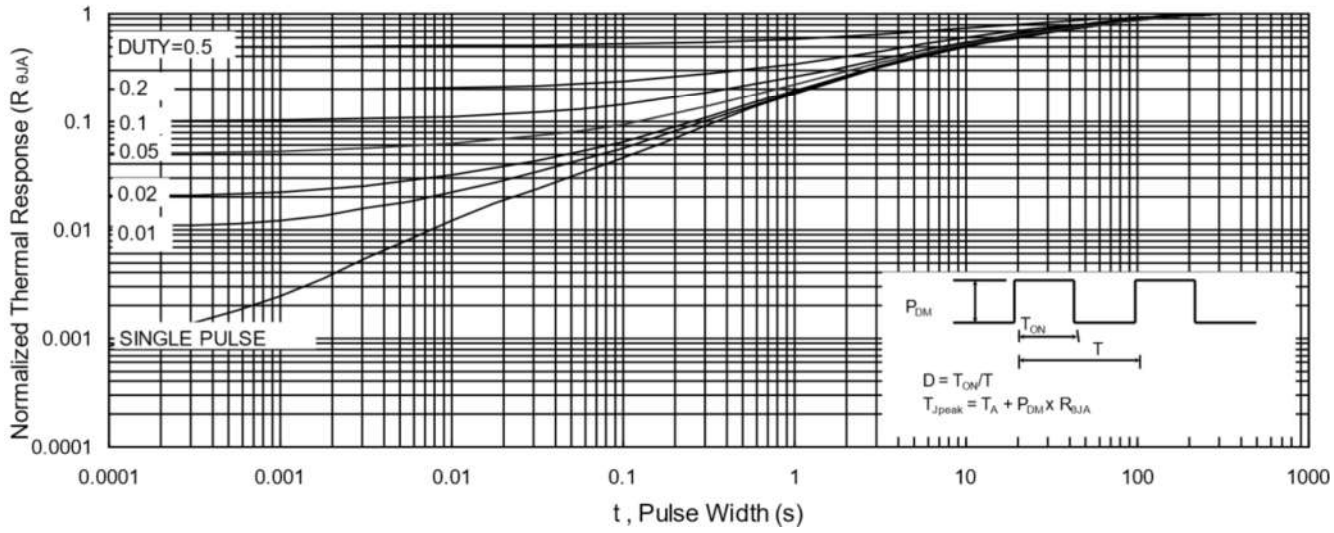


Fig.9 Normalized Maximum Transient Thermal Impedance

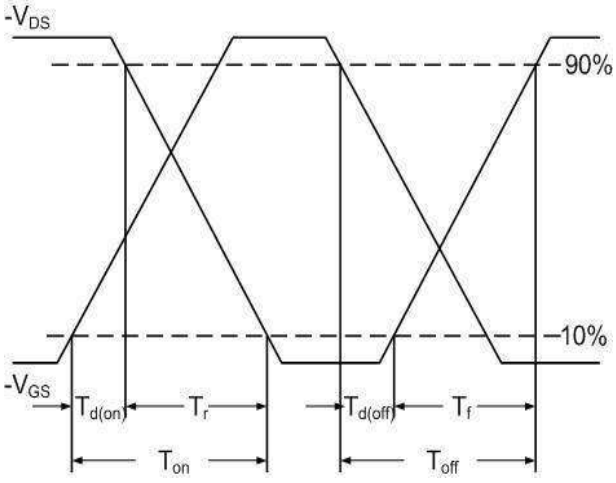


Fig.10 Switching Time Waveform

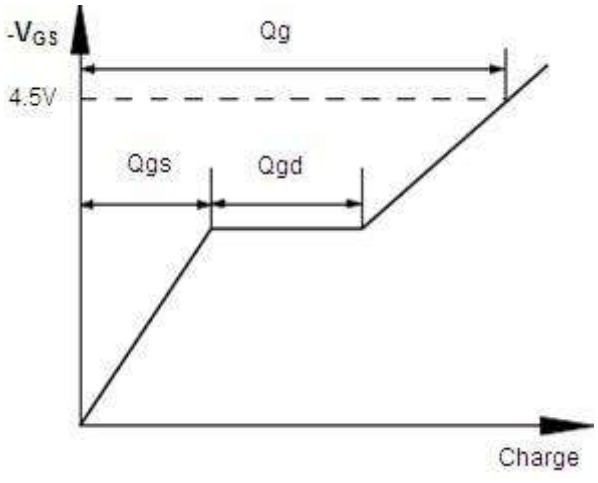


Fig.11 Gate Charge Waveform

Package Outline Dimensions Millimeters

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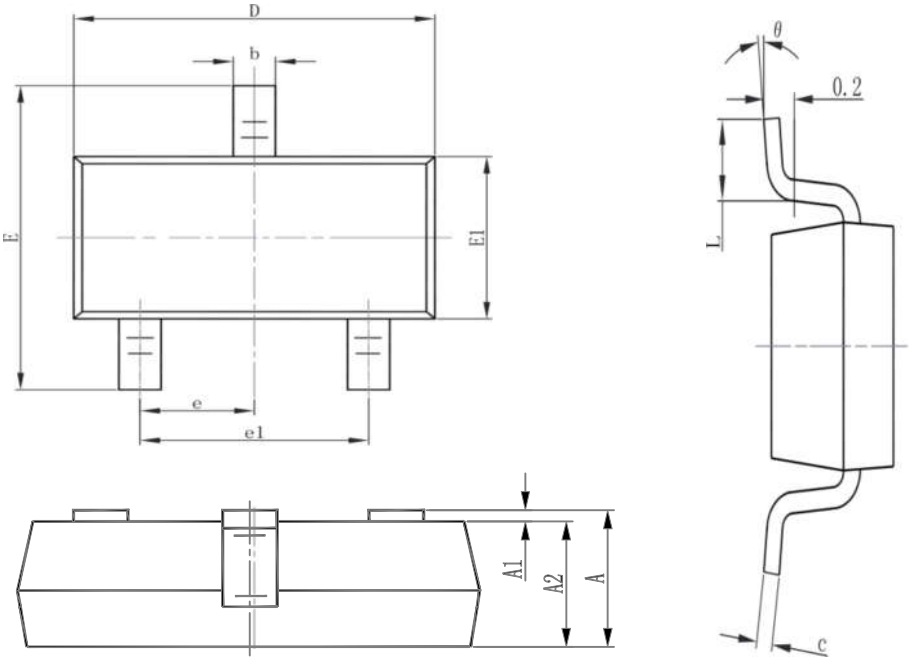

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°