

-20V P-CHANNEL ENHANCEMENT MODE MOSFET

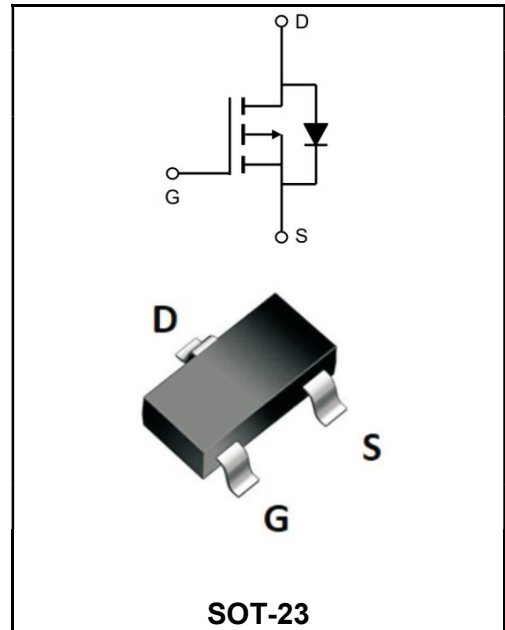
MAIN CHARACTERISTICS

I_D	-3.3A
V_{DSS}	-20V
$R_{DS(on)-typ}(@V_{GS}=-4.5V)$	< 80mΩ (Type:55 mΩ)



Application

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



Product Specification Classification

Part Number	Package	Marking	Pack
YFW2301A	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
Continuous Drain Current, $V_{GS} @ -4.5V^1 @ T_A=25^\circ C$	I_D	-3.3	A
Continuous Drain Current, $V_{GS} @ -4.5V^1 @ T_A=70^\circ C$	I_D	-2.6	A
Pulsed Drain Current ²	I_{DM}	-13	A
Total Power Dissipation ³ @ $T_A=25^\circ C$	P_D	1.4	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	$R_{\theta JA}$	125	°C/W
Thermal Resistance Junction-ambient ¹ (t≤10s)	$R_{\theta JA}$	90	°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	-22	-	V
Static Drain-Source on-Resistance ²	$V_{GS}=-4.5V, I_D=-3A$	$R_{DS(ON)}$	-	55	80	mΩ
	$V_{GS}=-2.5V, I_D=-2A$		-	75	100	
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-0.5	-0.7	-1.2	V
Drain-Source Leakage Current	$V_{DS}=-20V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=-20V, V_{GS}=0V, T_J=55^\circ C$		-	-	-5	
Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Forward Transconductance	$V_{DS}=-5V, I_D=-3A$	g_{fs}	-	12.2	-	S
Total Gate Charge(-4.5V)	$V_{DS}=-15V$ $V_{GS}=-4.5V$ $I_D=-3A$	Q_g	-	10.1	-	nC
Gate-Source Charge		Q_{gs}	-	1.21	-	
Gate-Drain Charge		Q_{gd}	-	2.46	-	
Turn-on delay time	$V_{DD}=-10V$ $V_{GS}=-4.5V$ $I_D=-3A$ $R_{GEN}=3.3\Omega$	$t_{d(on)}$	-	5.6	-	ns
Rise Time		T_r	-	32.2	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	45.6	-	
Fall Time		t_f	-	29.2	-	
Input Capacitance	$V_{DS}=-15V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	677	-	μF
Output Capacitance		C_{oss}	-	82	-	
Reverse Transfer Capacitance		C_{rss}	-	73	-	
Continuous Source Current ^{1,4}	$V_G=V_D=0V$, Force Current	I_S	-	-	-3	A
Diode Forward Voltage ²	$I_F=-1A, V_{GS}=0V, T_J=25^\circ C$	V_{SD}	-	-	-1	V

Note :

- 1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 20Z copper.
- 2、 The data tested by pulsed , pulse width $\cong 300\mu s$, duty cycle $\cong 2\%$
- 3、 The power dissipation is limited by 150°C 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

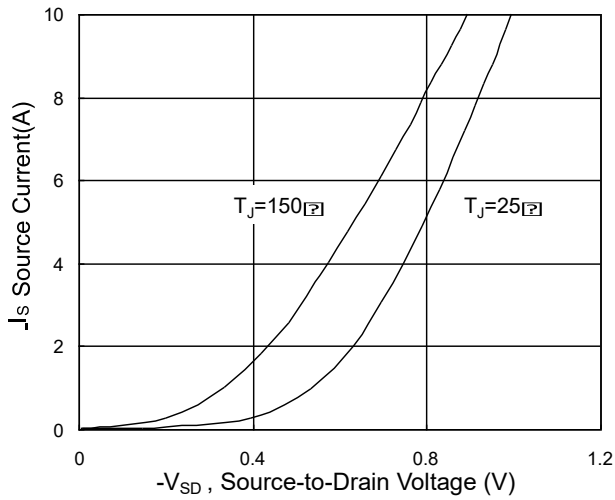


Fig.1 Typical Output Characteristics

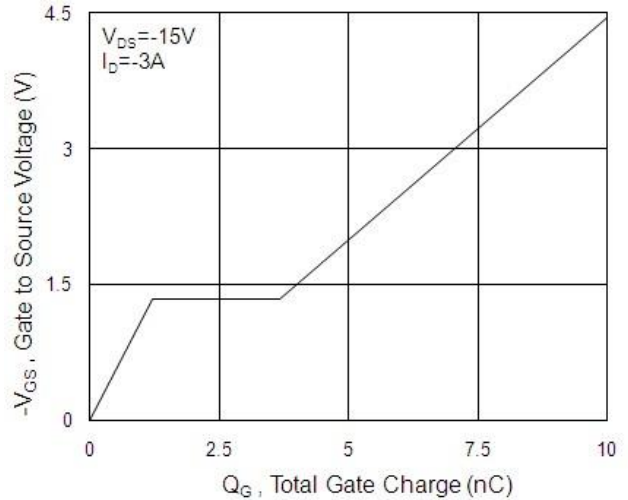
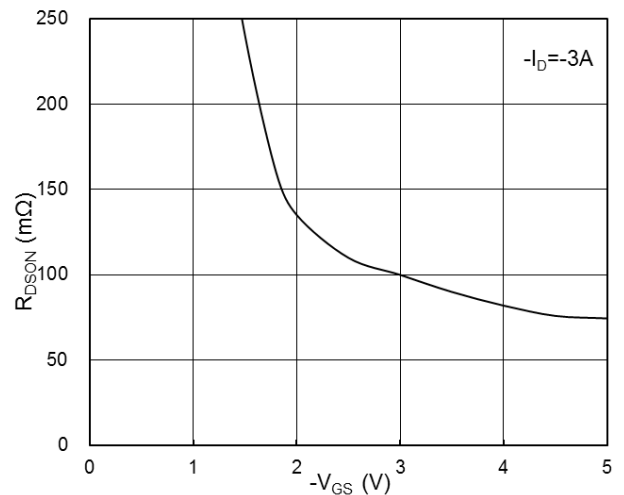
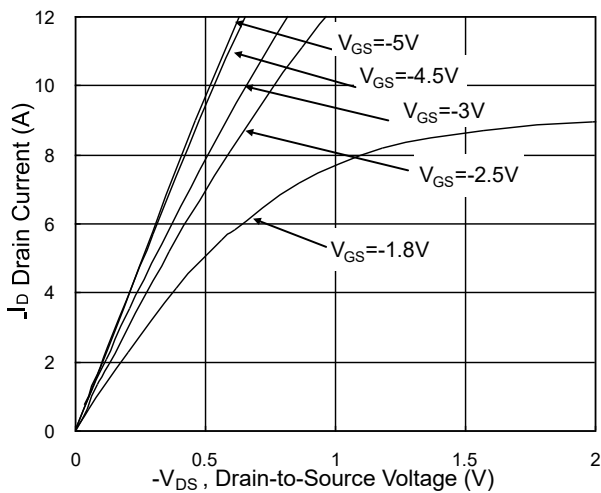


Fig.2 On-Resistance vs. G-S Voltage



Source Drain Forward Characteristics

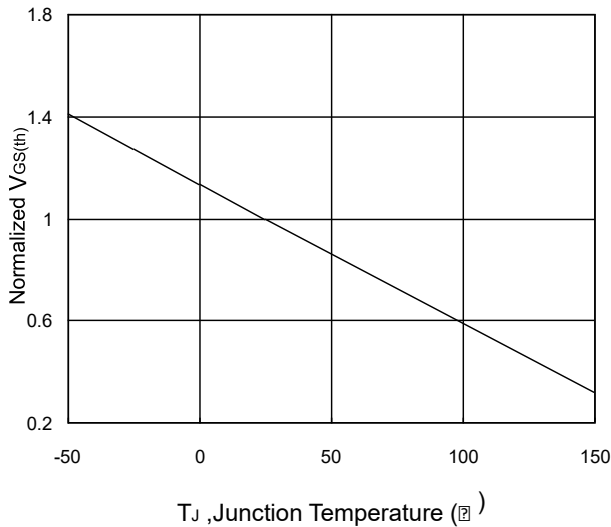
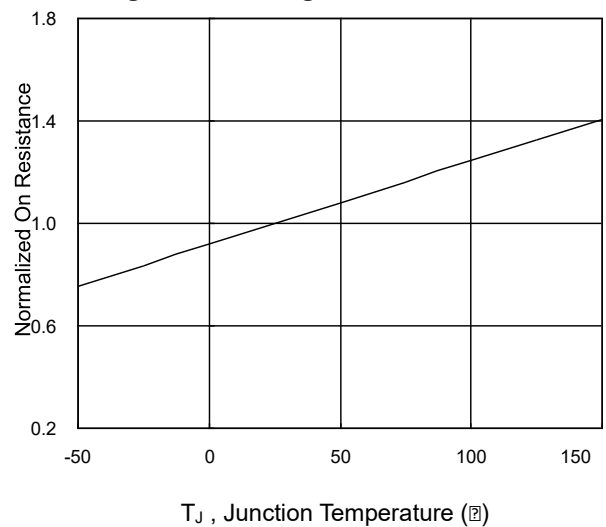


Fig.4 Gate-Charge Characteristics



Ratings and Characteristic Curves

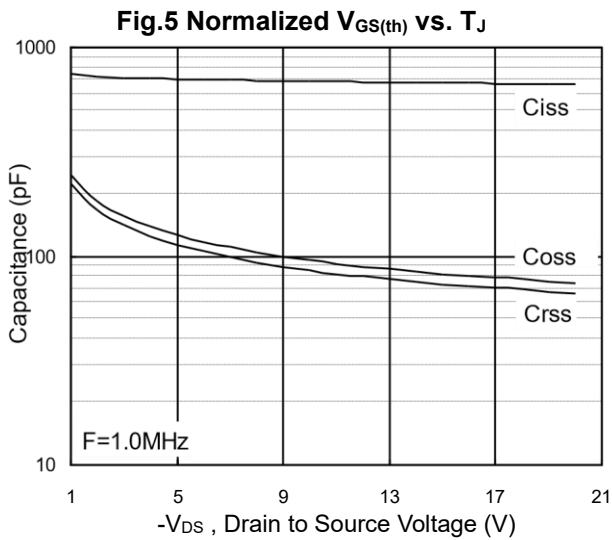


Fig.7 Capacitance

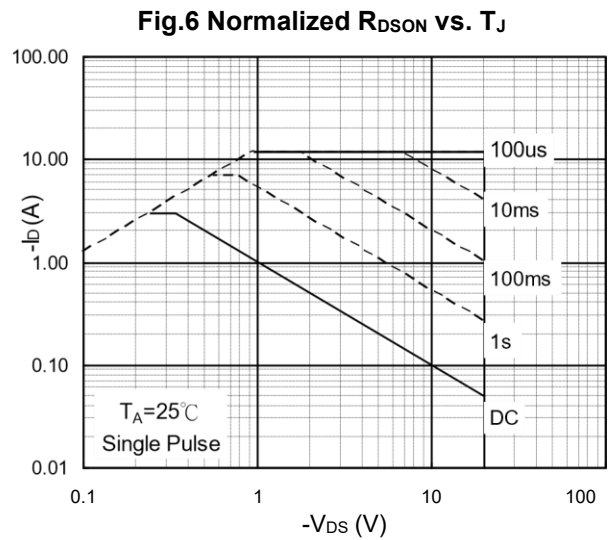


Fig.8 Safe Operating Area

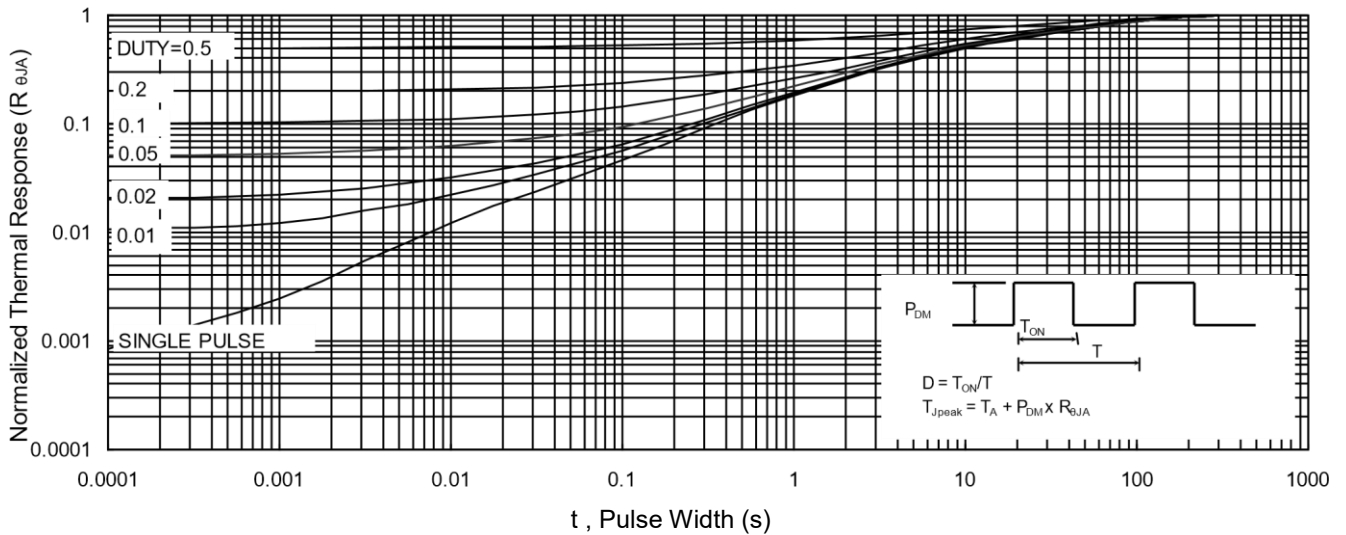


Fig.9 Normalized Maximum Transient Thermal Impedance

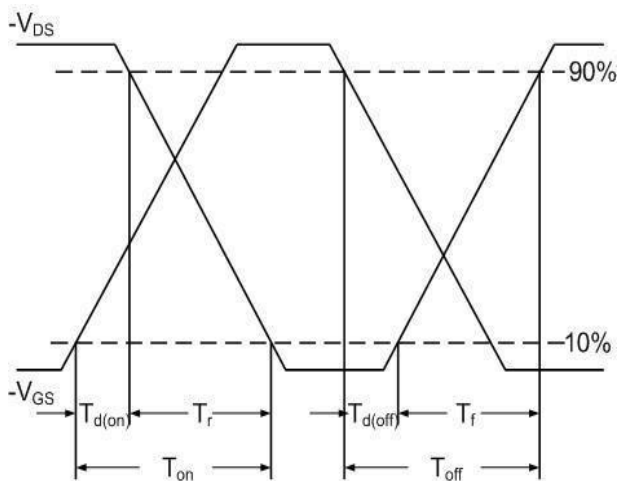


Fig.10 Switching Time Waveform

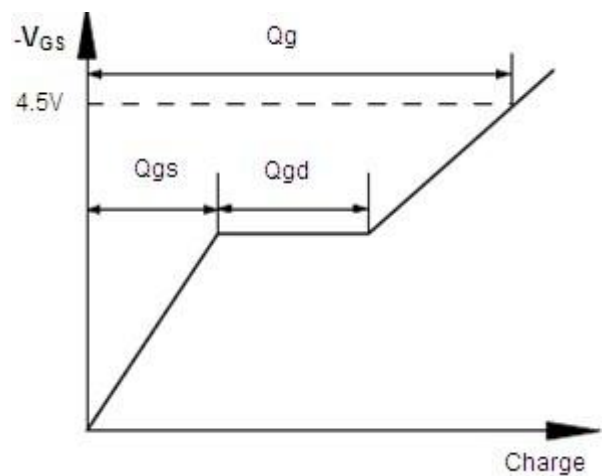
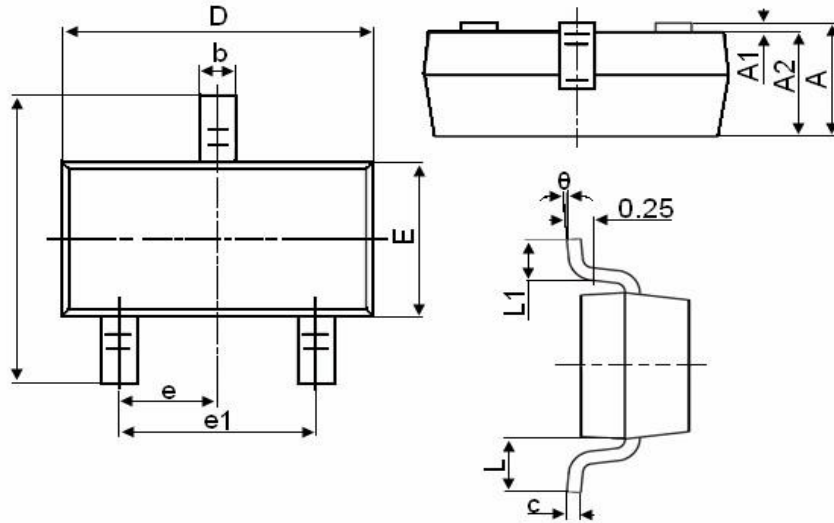


Fig.11 Gate Charge Waveform

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°

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [MOSFET](#) category:

Click to view products by [YFW Electronics](#) manufacturer:

Other Similar products are found below :

[IRFD120](#) [JANTX2N5237](#) [2SK2267\(Q\)](#) [BUK455-60A/B](#) [TK100A10N1,S4X\(S](#) [MIC4420CM-TR](#) [VN1206L](#) [NDP4060](#) [SI4482DY](#)
[IRS2092STRPBF-EL](#) [IPS70R2K0CEAKMA1](#) [TK31J60W5,S1VQ\(O](#) [TK31J60W,S1VQ\(O](#) [TK16J60W,S1VQ\(O](#) [2SK2614\(TE16L1,Q\)](#)
[DMN1017UCP3-7](#) [EFC2J004NUZTDG](#) [P85W28HP2F-7071](#) [NTE2384](#) [DMC2700UDMQ-7](#) [DMN2080UCB4-7](#) [DMN61D9UWQ-13](#)
[US6M2GTR](#) [DMN31D5UDJ-7](#) [DMP22D4UFO-7B](#) [IPS60R3K4CEAKMA1](#) [DMN1006UCA6-7](#) [DMN16M9UCA6-7](#) [STF5N65M6](#)
[IRF40H233XTMA1](#) [STU5N65M6](#) [DMN6022SSD-13](#) [DMN13M9UCA6-7](#) [DMTH10H4M6SPS-13](#) [IPS60R360PFD7SAKMA1](#)
[DMN2990UFB-7B](#) [SSM3K35CT,L3F](#) [IPLK60R1K0PFD7ATMA1](#) [2N7002W-G](#) [MCAC30N06Y-TP](#) [IPWS65R035CFD7AXKSA1](#)
[MCQ7328-TP](#) [SSM3J143TU,LXHF](#) [DMN12M3UCA6-7](#) [PJMF280N65E1_T0_00201](#) [PJMF380N65E1_T0_00201](#)
[PJMF280N60E1_T0_00201](#) [PJMF600N65E1_T0_00201](#) [PJMF900N65E1_T0_00201](#) [PJMF900N60E1_T0_00201](#)