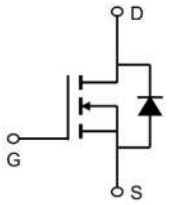
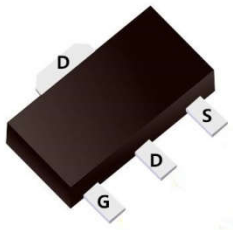
30V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	6A
V_{DSS}	30V
R_{DSON}-typ(@V_{GS}=4.5V)	< 35mΩ(Type:29 mΩ)





SOT89

Pb lead-free ROHS

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW6N03SI	SOT89	YFW HD36	1000PCS/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_A=25℃	I_D	6	A
Continuous Drain Current, V_{GS} @ 10V[1]@T_A=70℃	I_D	4.7	A
Pulsed Drain Current[2]	I_{DM}	30	A
Total Power Dissipation[3] @T_A=25℃	P_D	1.5	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance, Junction-to-Ambient [1]	$R_{\theta JA}$	85	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	30	°C/W

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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	BV_{DSS}	30	-	-	V
BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	$\Delta BV_{DSS/\Delta TJ}$	-	0.021	-	V/°C
Static Drain-Source On-Resistance[2]	V_{GS}=4.5V, I_D=5A	$R_{DS(ON)}$	-	29	35	mΩ
	V_{GS}=2.5V, I_D=4A		-	36	40	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	0.5	0.9	1.5	V
VGS(th) Temperature Coefficient		$\Delta V_{GS(th)}$	-	-5	-	mV/°C
Gate -Source Leakage Current	V_{DS}=24V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=24V , V_{GS}=0V , T_J=55℃		-	-	5	
Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Forward Transconductance	V_{DS}=5V, I_D=5A	g_{FS}	-	7	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	2.5	5	Ω
Total Gate Charge(4.5V)	V_{DS}=15V V_{GS}=4.5V I_D=5A	Q_g	-	6	8.4	nC
Gate-Source Charge		Q_{gs}	-	2.5	3.5	
Gate-Drain Charge		Q_{gd}	-	2.1	2.9	
Turn-on delay time	V_{DD}=15V V_{GS}=10V R_G=3.3 I_D=5A	$t_{d(on)}$	-	2.4	4.8	ns
Rise Time		T_r	-	7.8	14	
Turn-Off Delay Time		$t_{d(OFF)}$	-	22	44	
Fall Time		t_f	-	4	8	
Input Capacitance	V_{DS}=15V V_{GS}=0V f=1.0MHz	C_{iss}	-	572	800	pF
Output Capacitance		C_{oss}	-	81	112	
Reverse Transfer Capacitance		C_{rss}	-	65	91	
Continuous Source Current[1,4]	V_G=V_D=0V , Force Current	I_S	-	-	5.8	A
Pulsed Source Current[2,4]		I_{SM}	-	-	30	A
Diode Forward Voltage [2]	V_{GS}=0V , I_S=3A , T_J=25℃	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_F=5A , dI/dt=100A/μs , T_J=25℃	t_{rr}	-	19	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.04	-	nC

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.

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Ratings and Characteristic Curves

Typical Characteristics

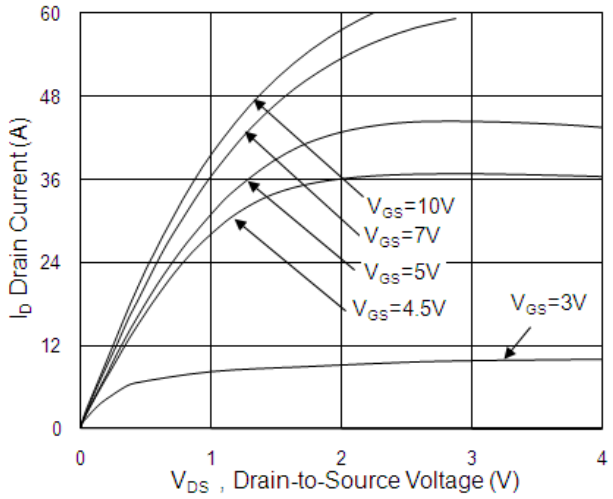


Fig.1 Typical Output Characteristics

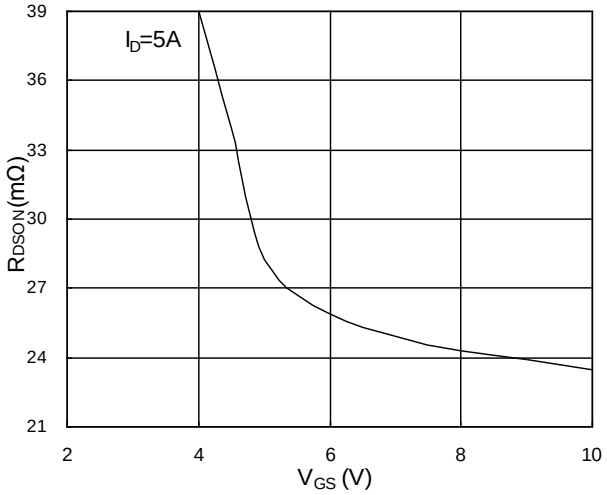


Fig.2 On-Resistance vs. G-S Voltage

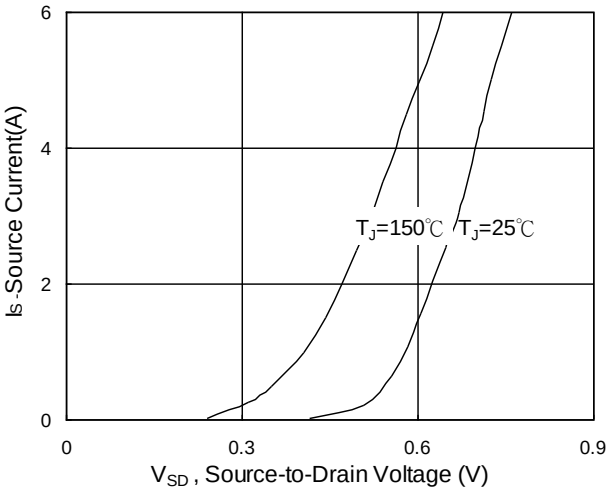


Fig.3 Forward Characteristics Of Reverse

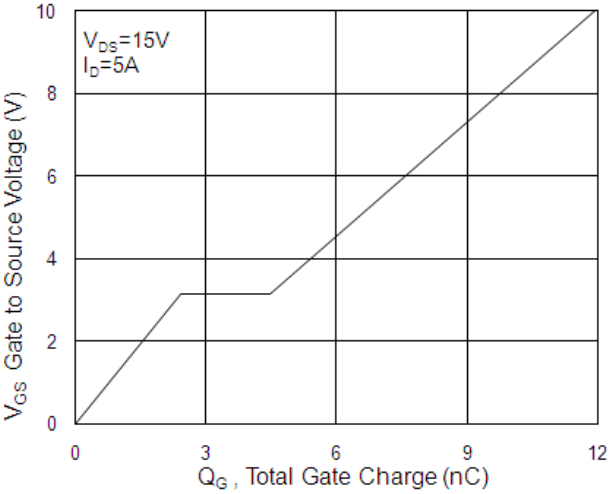


Fig.4 Gate-Charge Characteristics

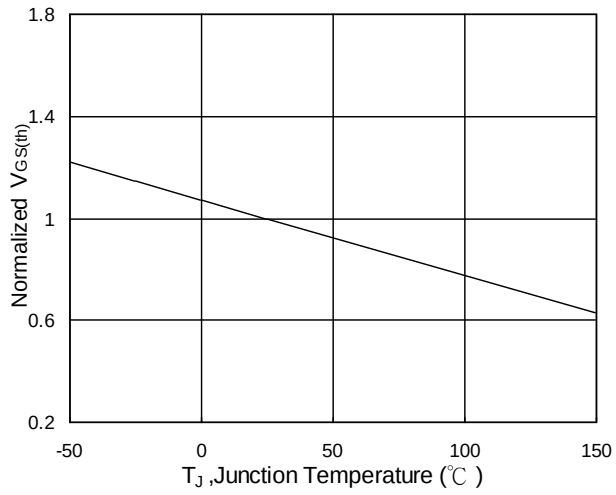


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

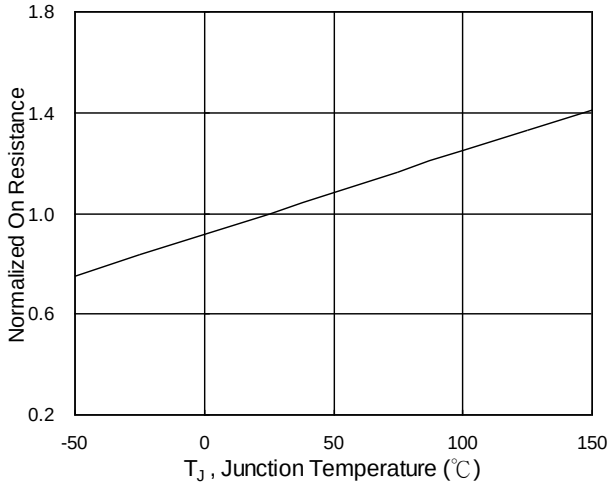


Fig.6 Normalized R_{DSON} vs. T_J

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Ratings and Characteristic Curves

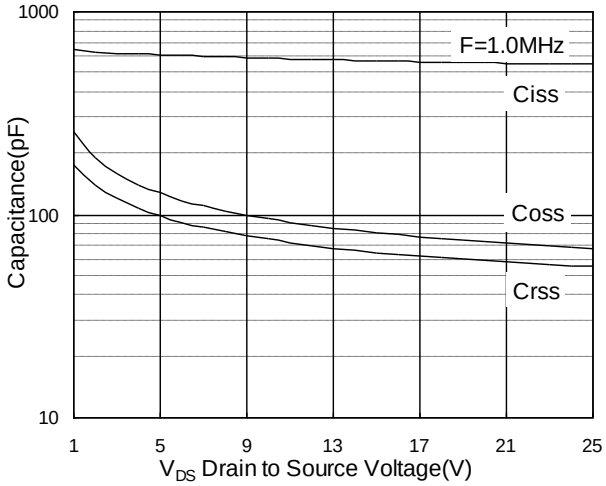


Fig.7 Capacitance

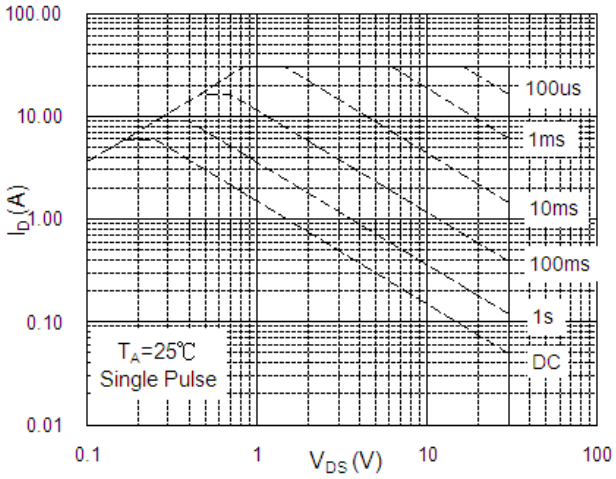


Fig.8 Safe Operating Area

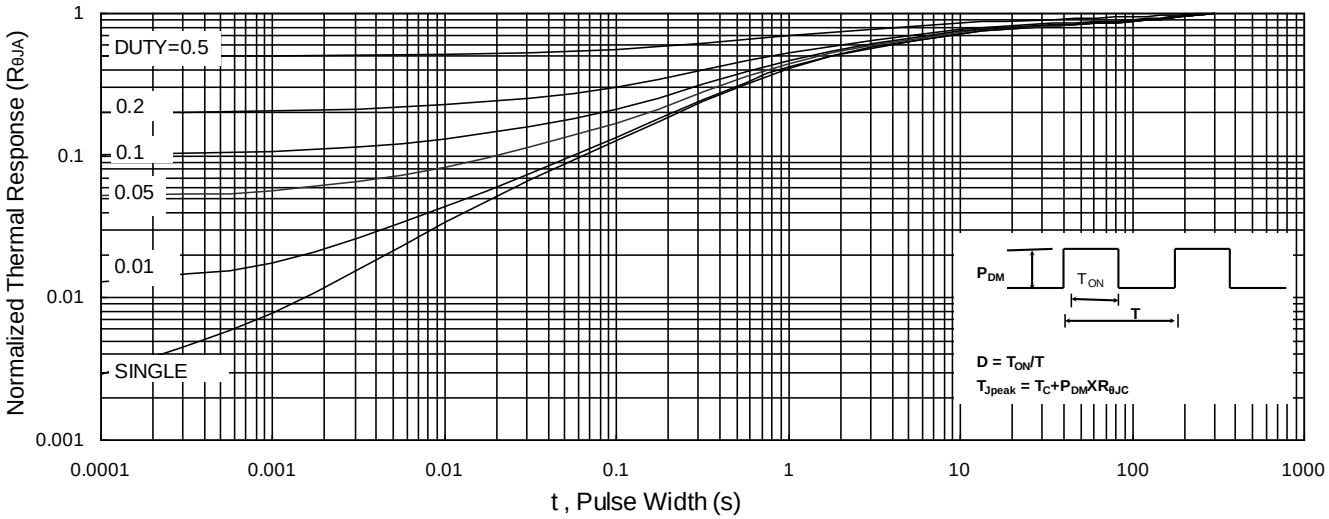


Fig.9 Normalized Maximum Transient Thermal Impedance

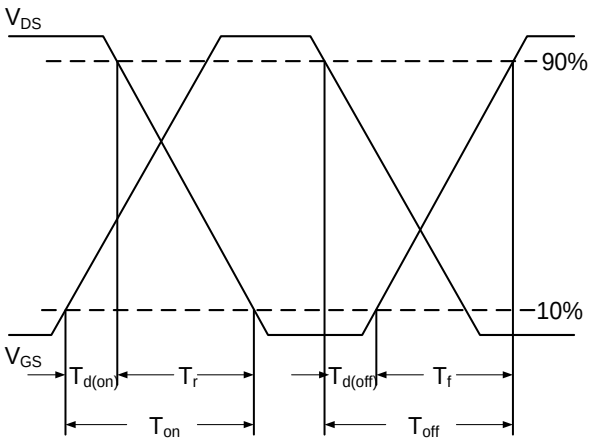


Fig.10 Switching Time Waveform

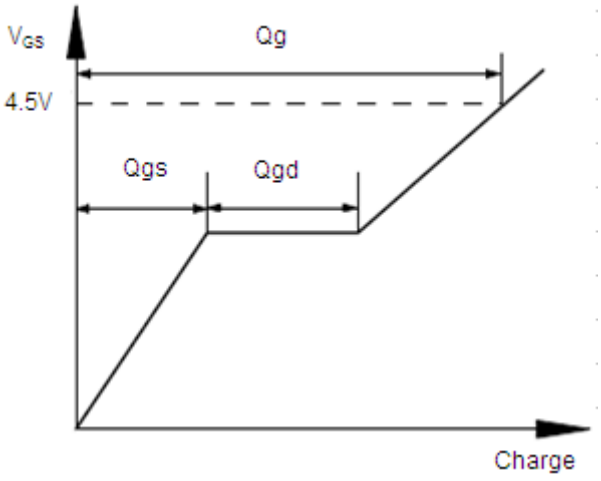
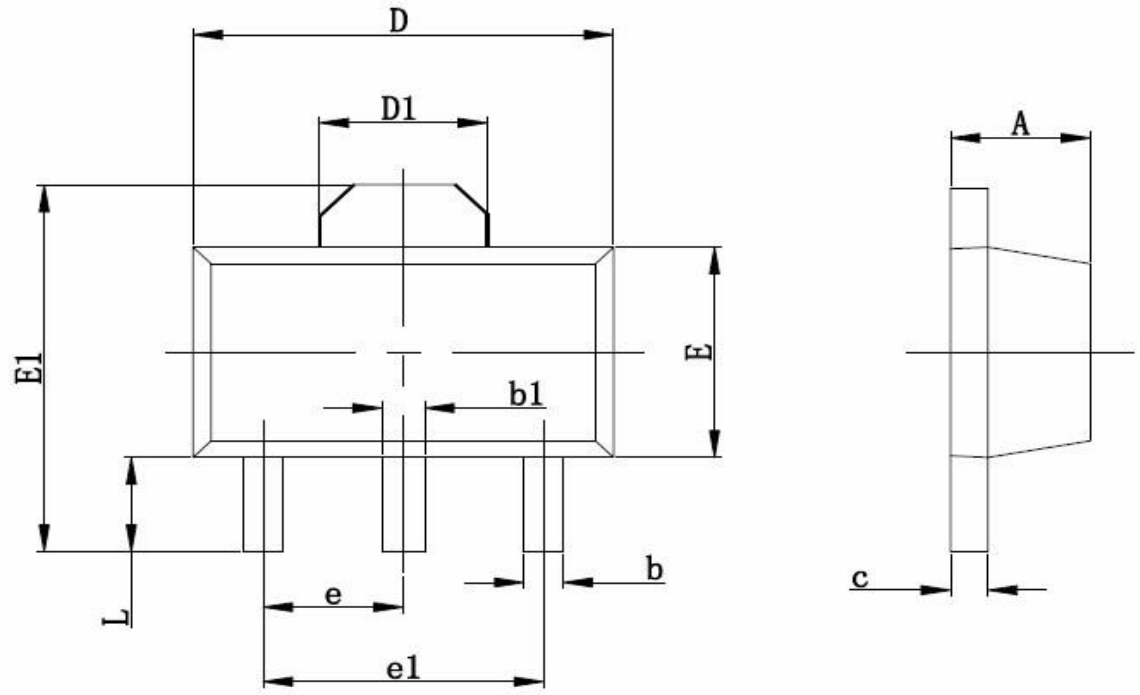


Fig.11 Gate Charge Waveform

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Package Outline Dimensions Millimeters

SOT-89



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.400	1.600	0.055	0.063
b	0.350	0.520	0.013	0.197
b1	0.400	0.580	0.016	0.023
c	0.350	0.440	0.014	0.017
D	4.400	4.600	0.173	0.181
D1	1.550 REF		0.061 REF	
E	2.350	2.550	0.091	0.102
E1	3.940	4.250	0.155	0.167
e	1.500 TYP		0.060TYP	
e1	3.000 TYP		0.118TYP	
L	0.900	1.100	0.035	0.047

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