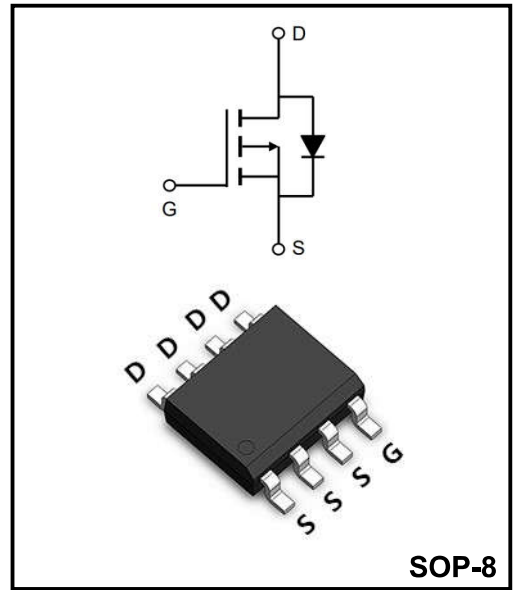


-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-7.8A
V_{DSS}	-30V
R_{DS(ON)-typ(@V_{GS}=10V)}	<42mΩ (Type:35 mΩ)



Description

The YFW9435AS uses advanced Trench technology to provide excellent R_{DS(ON)}, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

Application

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

Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Max.	Units
Drain-Source Voltage	V _{DSS}	-30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current, V _{GS} @ -10V ¹	I _{D@T_C=25°C}	-7.8	A
Continuous Drain Current, V _{GS} @ -10V ¹	I _{D@T_C=100°C}	-4.2	A
Pulsed Drain Current ^{note1}	I _{DM}	-20.4	A
Single Pulse Avalanche Energy ³	E _{AS}	90	mJ
Power Dissipation T _A = 25°C	P _D	2.15	W
Thermal Resistance, Junction to Ambient	R _{θJA}	85	°C/W
Thermal Resistance from Junction to Ambient ²	R _{θJC}	5.6	°C/W
Operating and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Electrical Characteristics (T_J=25°C, unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V _{DS} = -30V, V _{GS} = 0V	-	-	-1	μA
Gate-Source Leakage	I_{GSS}	V _{DS} = 0V, V _{GS} = ±20V	-	-	±100	nA
Gate-Source Threshold voltage	V_{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.5	-2.5	V
Drain-Source on-State Resistance ³	R_{DS(on)}	V _{GS} = -10V, I _D = -4.1A	-	35	42	mΩ
		V _{GS} = -4.5V, I _D = -3A	-	52	65	
Input Capacitance	C_{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1.0MHz	-	530	-	pF
Output Capacitance	C_{oss}		-	70	-	
Reverse Transfer Capacitance	C_{rss}		-	56	-	
Total Gate Charge	Q_g	V _{GS} = -10V, V _{DS} = -15V, I _D = -4.1A	-	6.8	-	nC
Gate-Source Charge	Q_{gs}		-	1.0	-	
Gate-Drain Charge	Q_{gd}		-	1.4	-	
Turn-on Delay Time	t_{d(on)}	V _{GS} = -10V, V _{DS} = -15V, R _L = 15Ω, R _{GEN} = 2.5Ω	-	14	-	ns
Rise Time	t_r		-	61	-	
Turn-off Delay time	t_{d(off)}		-	19	-	
Fall Time	t_f		-	10	-	
Diode Forward Voltage ³	V_{SD}	I _S = -4.1A, V _{GS} = 0V	-	-	-1.2	V
Continuous Source Current	I_S		-	-	-4.1	A

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°C junction temperature
- 4、 The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Typical Characteristics

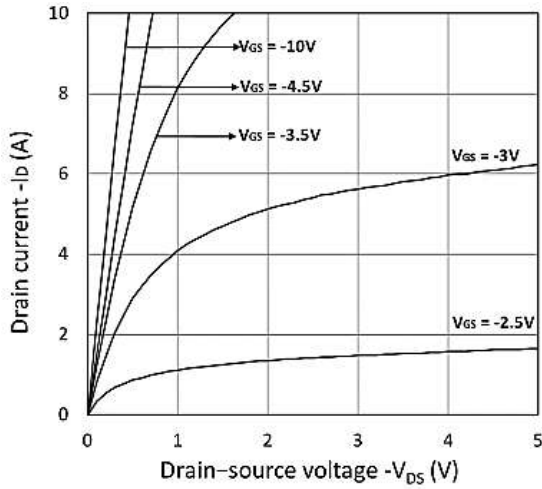


Figure 1. Output Characteristics

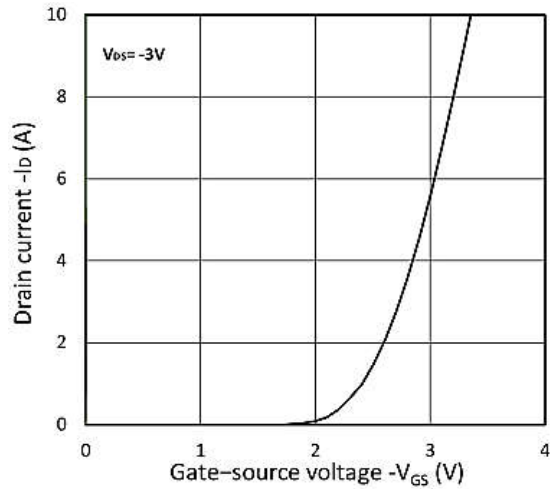


Figure 2. Transfer Characteristics

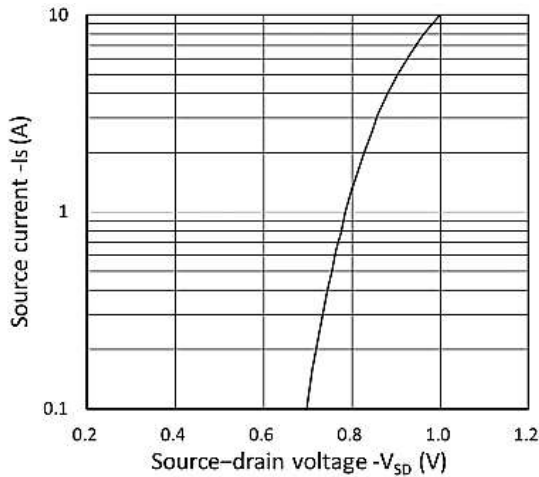


Figure 3. Forward Characteristics of Reverse

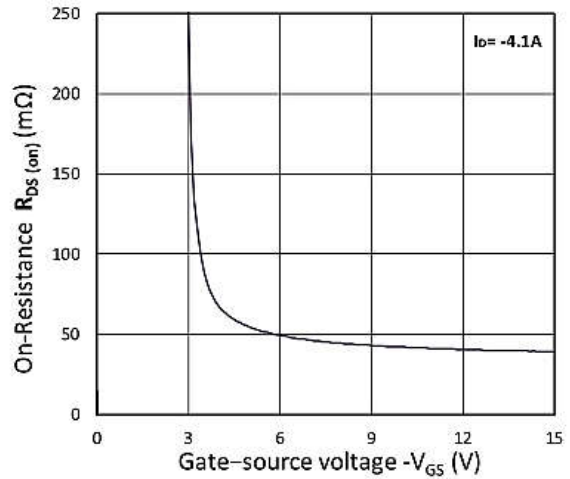


Figure 4. $R_{DS(ON)}$ vs. V_{GS}

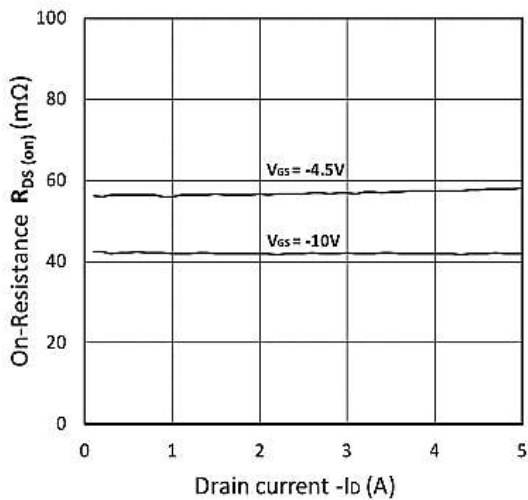


Figure 5. $R_{DS(ON)}$ vs. I_D

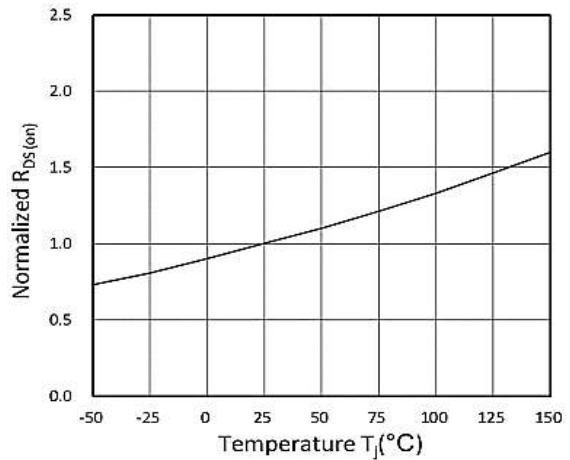


Figure 6. Normalized $R_{DS(on)}$ vs. Temperature

Typical Characteristics

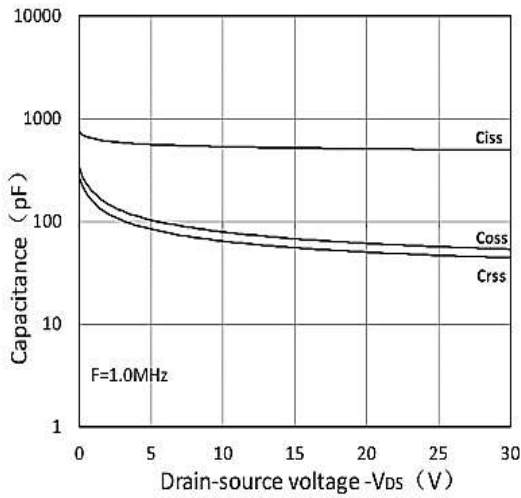


Figure 7. Capacitance Characteristics

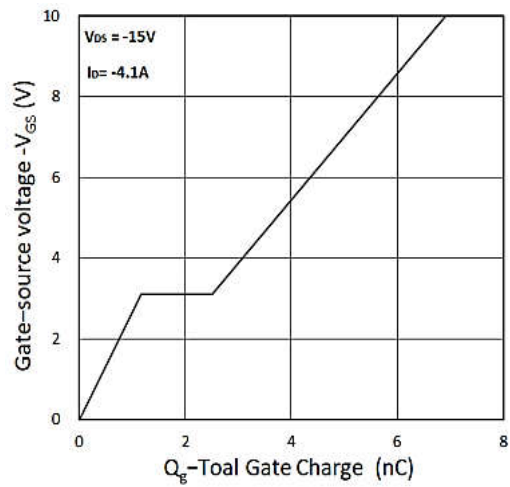


Figure 8. Gate Charge Characteristics

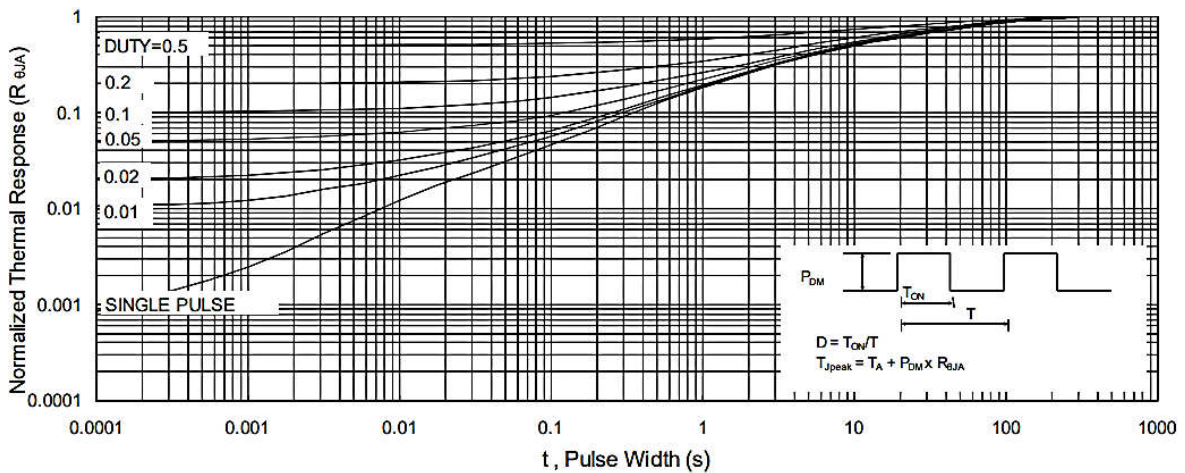


Figure 9 Normalized Maximum Transient Thermal Impedance

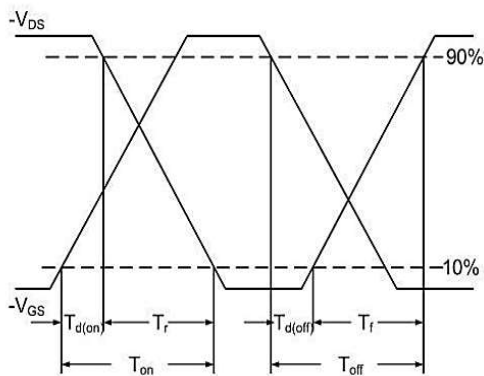


Figure.10 Switching Time Waveform

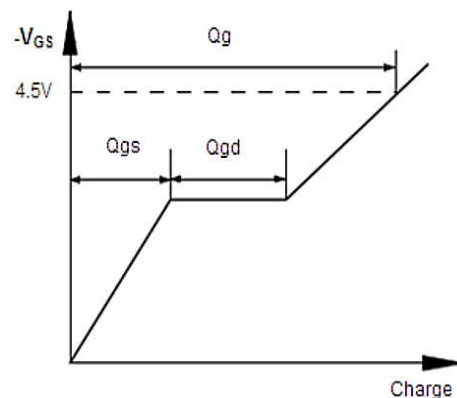
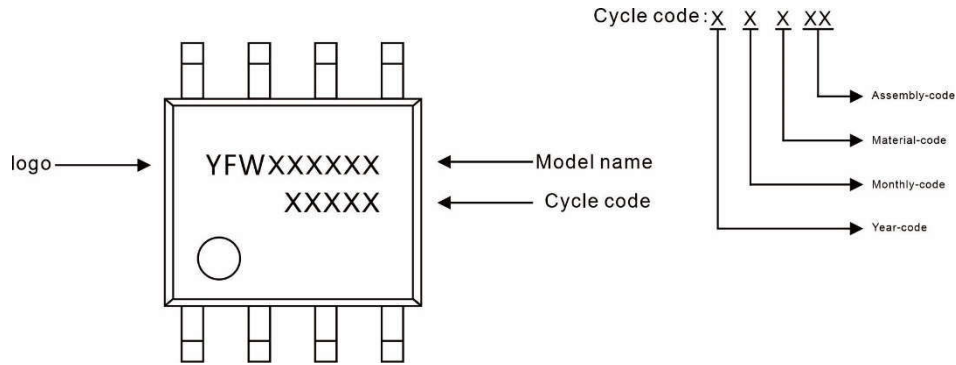


Figure.11 Gate Charge Waveform

Marking Diagram



Ordering information

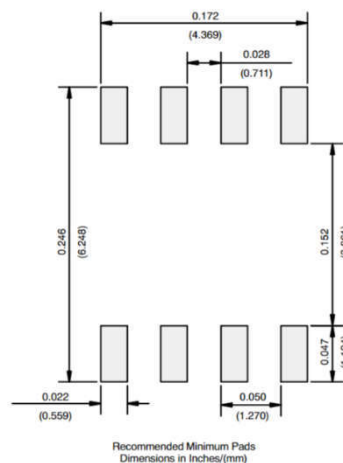
Package	Packing Description	Packing Quantity
SOP-8	Tape/Reel, 13" reel	3000PCS/Reel 30000PCS/Carton

Package Dimensions

SOP-8

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	1.35	1.75	0.053	0.069
A1	0.10	0.25	0.004	0.010
A2	1.35	1.50	0.053	0.059
b	0.35	0.55	0.014	0.022
c	0.15	0.25	0.006	0.010
D	4.80	5.00	0.189	0.197
D1	3.10	3.50	0.122	0.138
E	5.80	6.20	0.228	0.244
E1	3.80	4.00	0.150	0.157
E2	2.20	2.60	0.087	0.102
e	1.27 (BSC)		0.050 (BSC)	
L	0.40	1.27	0.016	0.050
θ	0°	8°	0°	8°

The recommended mounting pad size



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