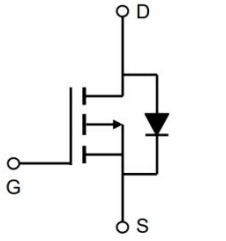
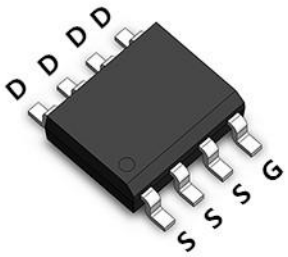
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-15A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=-10V)	＜9.0mΩ(Typ:7.2 mΩ)
R_{DSON}-typ(@V_{GS}=-4.5V)	＜12.5mΩ(Typ:10 mΩ)





SOP-8

Description

The YFW4407AS 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

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}	±20	V
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=25℃	I_D	-15	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_C=100℃	I_D	-10	A
Pulsed Drain Current[3]	I_{DM}	-60	A
Single Pulse Avalanche Energy[2]	E_{AS}	132	mJ
Total Power Dissipation[4] @T_A=25℃	P_D	1.7	W
Thermal Resistance Junction-Ambient[1]	$R_{\theta JA}$	73	°C/W
Operating Junction Temperature Range	T_J	-55 to +150	°C
Storage Temperature Range	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	BV_{DSS}	-30	-	-	V
Drain-Source Leakage Current	V_{DS}=-30V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1.0	μA
Gate –Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	$V_{GS(th)}$	-1.0	-1.5	-2.5	V
Static Drain-Source ON-Resistance(4)	V_{GS}=-10V, I_D=-15A	$R_{DS(ON)}$	-	7.2	9.0	mΩ
	V_{GS}=-4.5V, I_D=-10A		-	10.0	12.5	
Input Capacitance	V_{GS} = 0V, V_{DS} = -15V, f = 1MHz	C_{iss}	-	3366	-	pF
Output Capacitance		C_{oss}	-	471	-	
Reverse Transfer Capacitance		C_{rss}	-	324	-	
Total Gate Charge	V_{GS} = 0 to -10V V_{DS} = -15V, I_D = -10A	Q_g	-	59	-	nC
Gate-Source Charge		Q_{gs}	-	10	-	
Gate-Drain Charge		Q_{gd}	-	14	-	
Turn-on delay time	V_{GS} = -10V V_{DD} = -15V I_D= -10A R_{GEN} = 3Ω	$t_{d(on)}$	-	7	-	ns
Rise Time		T_r	-	6	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	112	-	
Fall Time		t_f	-	78	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	-15	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}			-60	A
Drain to Source Diode Forward Voltage	V_{GS} = 0V, I_S = -15A	V_{SD}	-	-	-1.2	V
Body Diode Reverse Recovery Time	I_F = -10A, di/dt = 100A/us	t_{rr}	-	21	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	10	-	nC

Notes:

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature.
2. E_{AS} condition: Starting T_J=25C, V_{DD}=-15V, V_G=-10V, R_G=25ohm, L=0.5mH, I_{AS}=-23A
3. $R_{\theta JA}$ is measured with the device mounted on a 1inch$_2$ pad of 2oz copper FR4 PCB
4. Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%.

Typical Characteristics

Figure 1: Output Characteristics

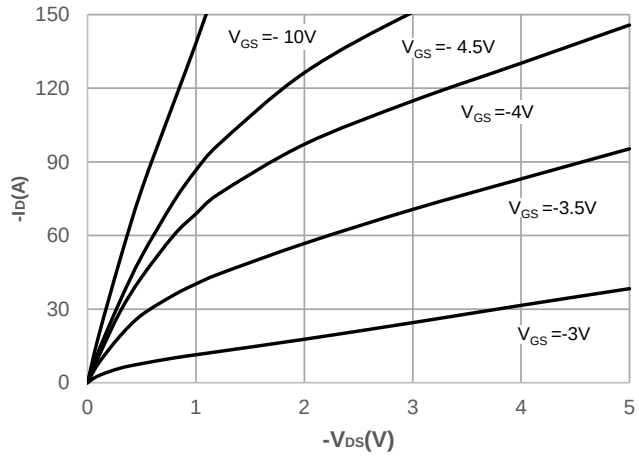


Figure 2: Typical Transfer Characteristics

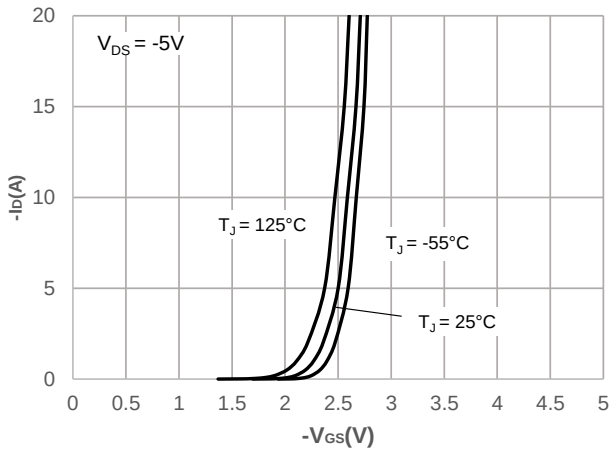


Figure 3: On-resistance vs. Drain Current

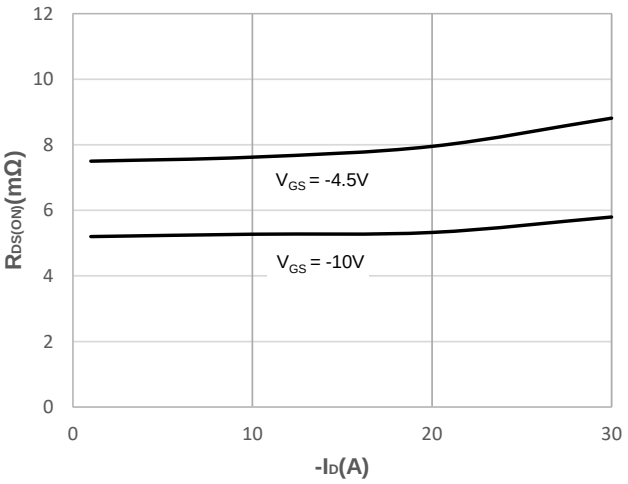


Figure 4: Body Diode Characteristics

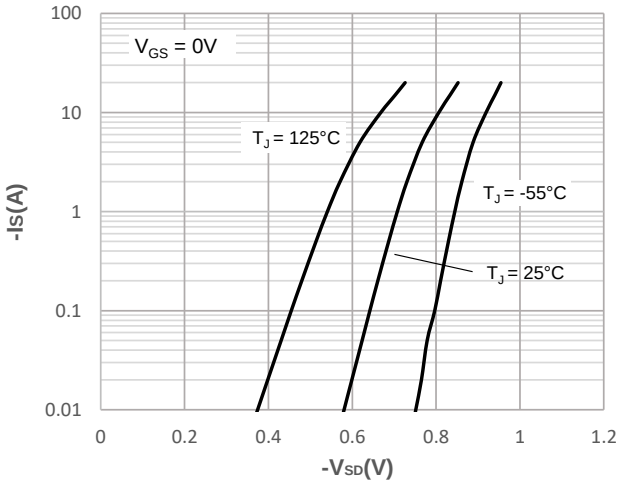


Figure 5: Gate Charge Characteristics

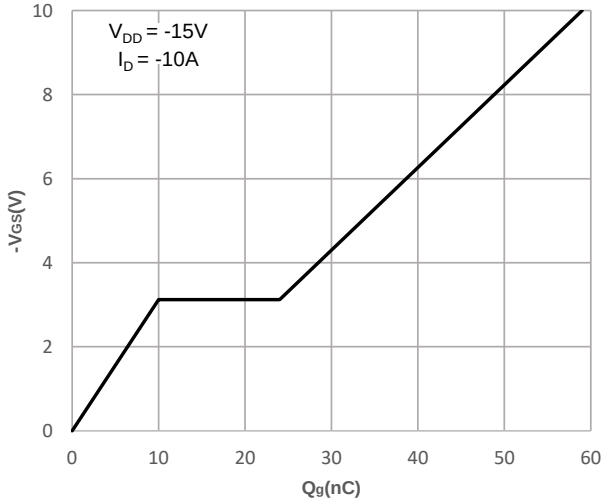
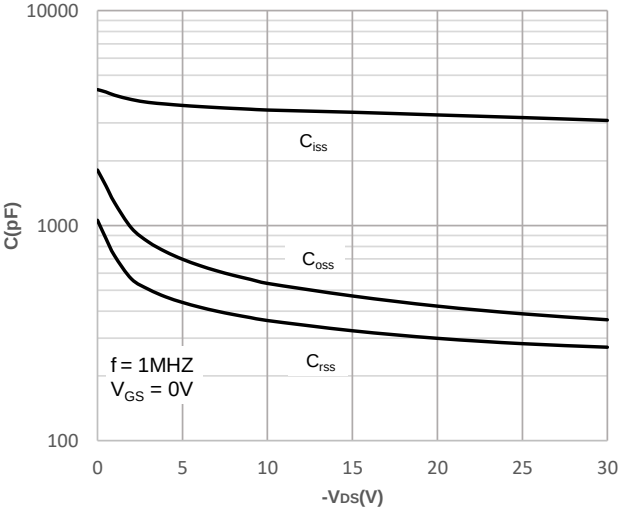


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown voltage vs. Junction Temperature

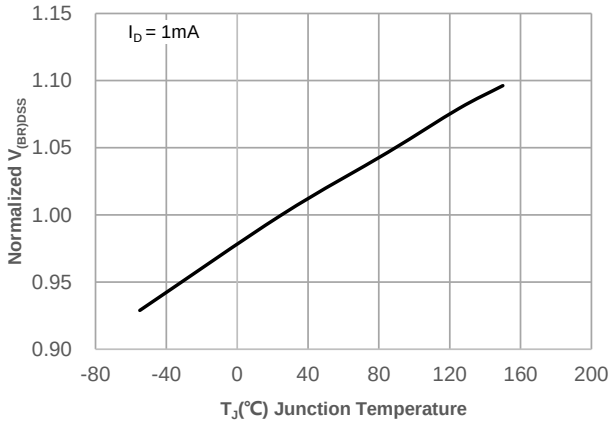


Figure 8: Normalized on Resistance vs. Junction Temperature

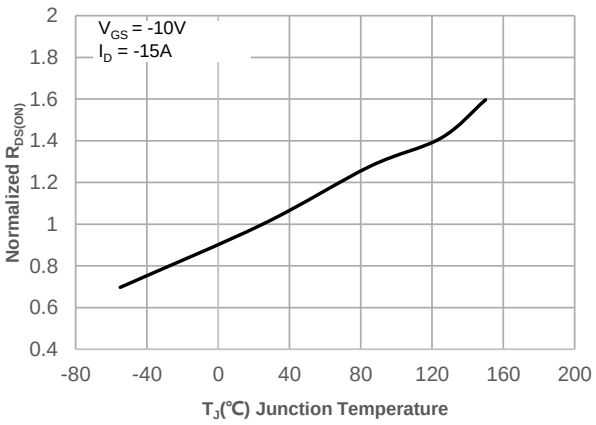


Figure 9: Maximum Safe Operating Area

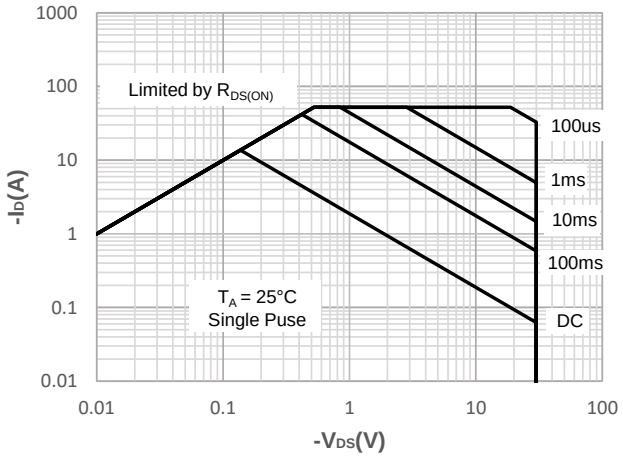


Figure 10: Maximum Continuous Drian Current vs. Ambient Temperature

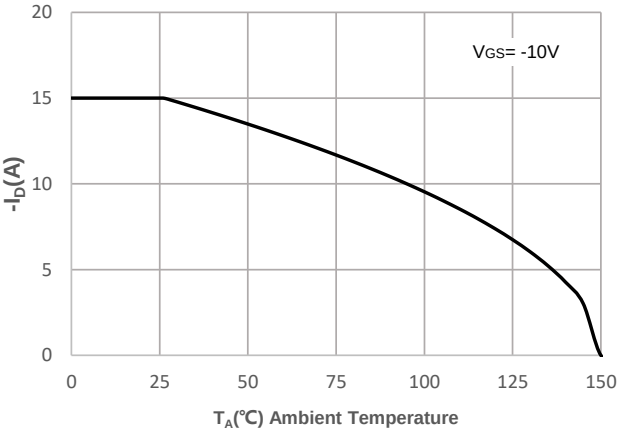


Figure 11: Normalized Maximum Transient Thermal Impedance

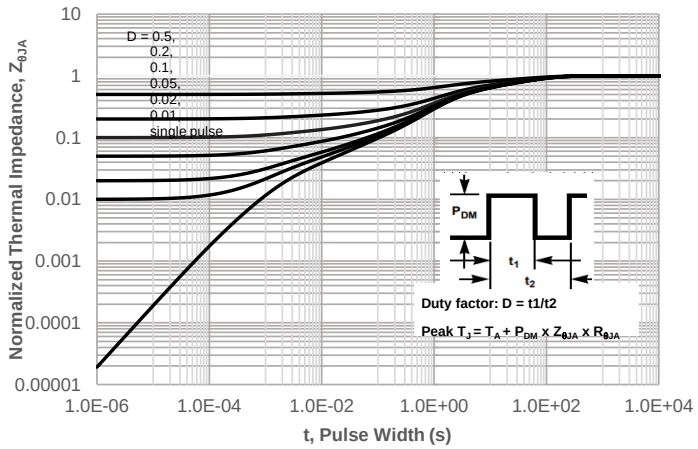
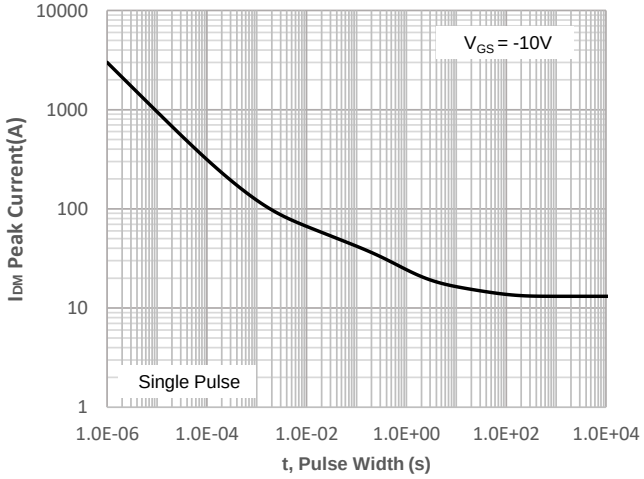
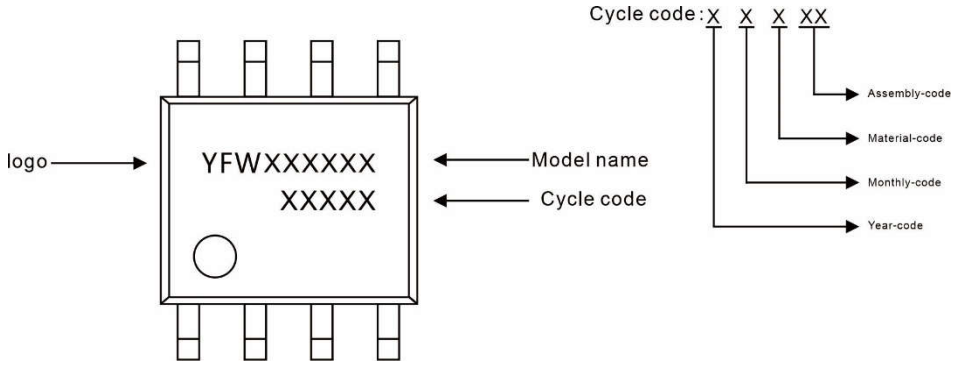


Figure 12: Peak Current Capacity



Marking Diagram

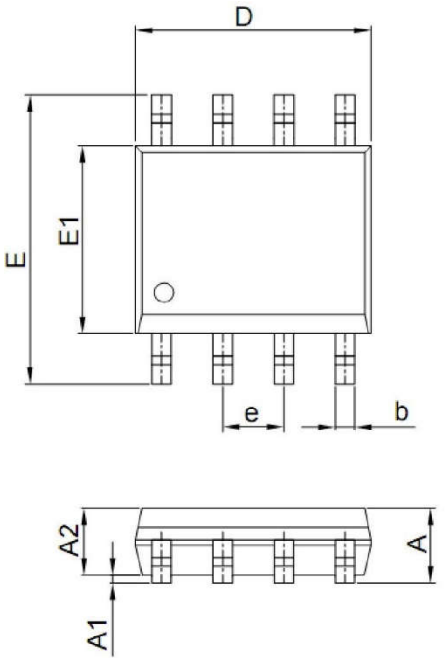


Ordering information

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

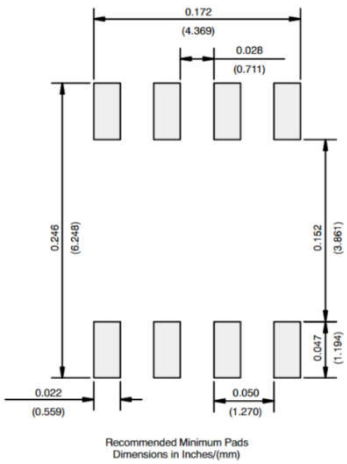
Package Dimensions

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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