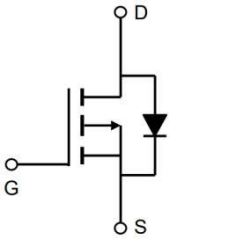
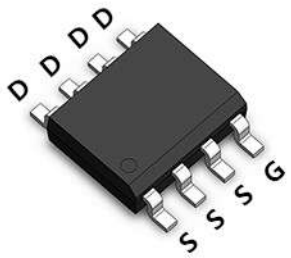
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-9.3A
V_{DSS}	-30V
R_{DSON}-typ(@V_{GS}=-10V)	< 20mΩ(Type:16 mΩ)





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Application

- Lithium battery protection
- Wireless impact
- Mobile phone fast charging

Product Specification Classification

Part Number	Package	Marking	Pack
YFW4435BS	SOP-8	YFW 4435BS XXXXX	3000PCS/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}	±20	V
Continuous Drain Current, V_{GS} @ -10V[1] @T_A=25℃	I_D	-9.3	A
Continuous Drain Current, V_{GS} @ -10V[1] @T_A=70℃	I_D	-7.0	A
Pulsed Drain Current [2]	I_{DM}	-50	A
Total Power Dissipation[4] @T_A=25℃	P_D	3.1	W
Total Power Dissipation[4] @T_A=70℃	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] (t≤10s)	$R_{\theta JA}$	33.8	°C/W
Thermal Resistance Junction to Case[1]	$R_{\theta JC}$	24	°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	-30	-33	-	V
Zero Gate Voltage Drain Current	V_{DS}=-30V , V_{GS}=0V	I_{DSS}	-	-	1	μA
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=-250μA	$V_{GS(th)}$	-1.2	-1.5	-2.5	V
Static Drain-Source on-Resistance note3	V_{GS}=-10V, I_D=-10A	$R_{DS(ON)}$	-	16	20	mΩ
	V_{GS}=-4.5V, I_D=-5A		-	25	30	
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	C_{iss}	-	1550	-	pF
Output Capacitance		C_{oss}	-	327	-	
Reverse Transfer Capacitance		C_{rss}	-	278	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-10V I_D=-9.1A	Q_g	-	30	-	nC
Gate-Source Charge		Q_{gs}	-	5.3	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	7.6	-	
Turn-on delay time	V_{DD}=-15V V_{GS}=-10V I_D=-6A R_{GEN}=2.5Ω	$t_{d(on)}$	-	14	-	ns
Turn-on Rise Time		T_r	-	20	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	95	-	
Turn-Off Fall Time		t_f	-	65	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	-10	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	-40	A
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-11A	V_{SD}	-	-0.8	-1.2	V

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 EAS data shows Max. rating . The test condition is VDD=-25V,VGS=-10V,L=0.1mH,IAS=-5A
4、The power dissipation is limited by 150℃ junction temperature
5、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

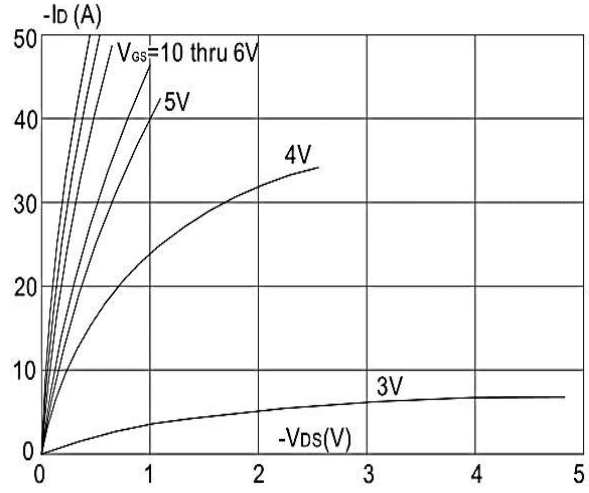

Figure1: Output Characteristics

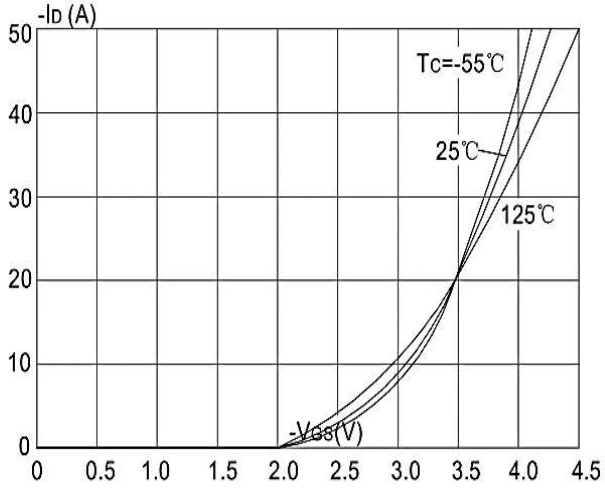

Figure 2: Typical Transfer Characteristics

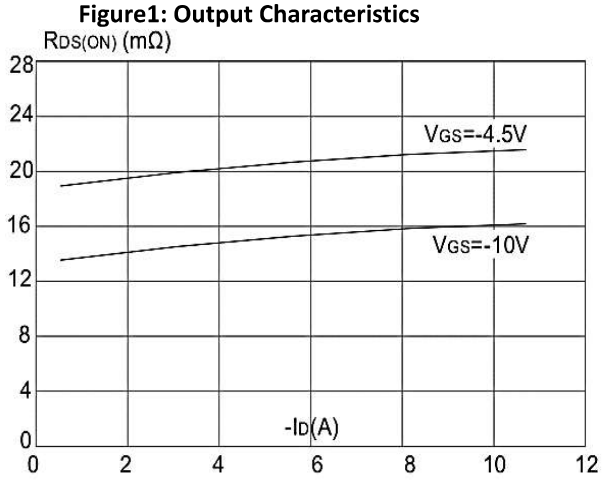

Figure 3:On-resistance vs. Drain Current

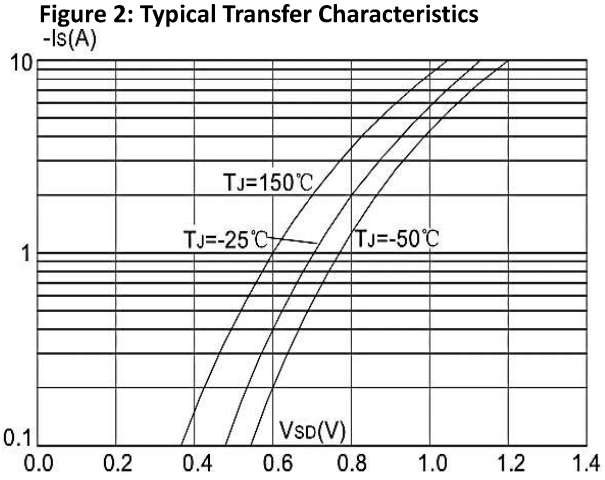

Figure 4: Body Diode Characteristics

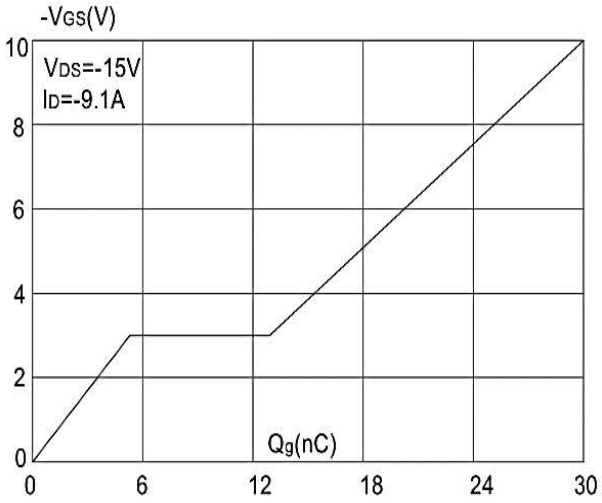

Figure 5: Gate Charge Characteristics

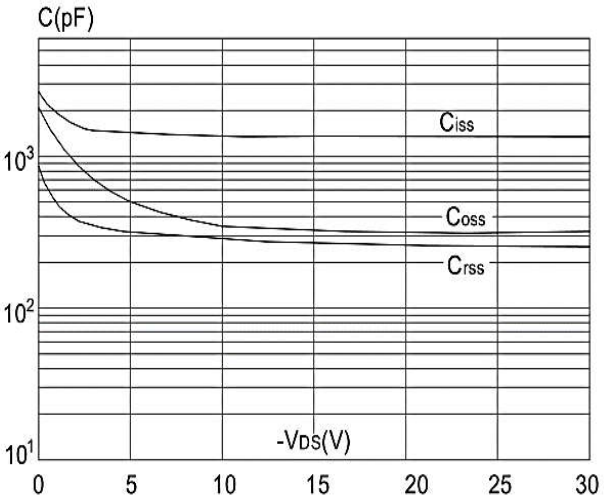

Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

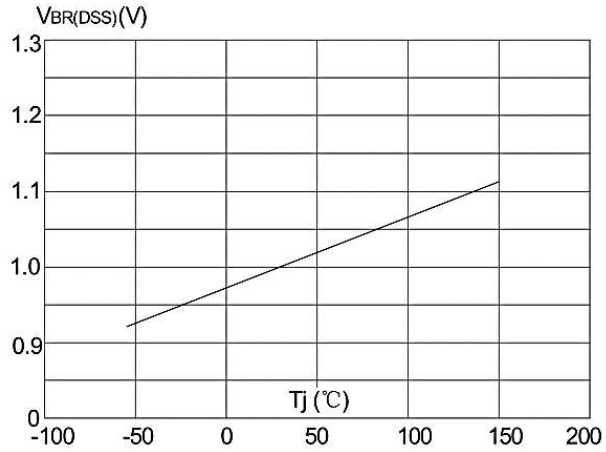

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

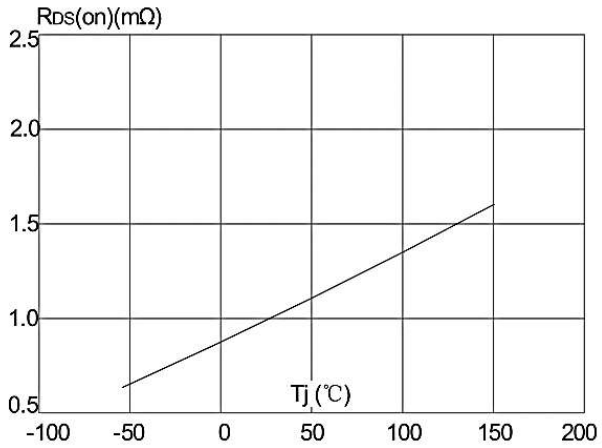

Figure 8: Normalized on Resistance vs. Junction Temperature

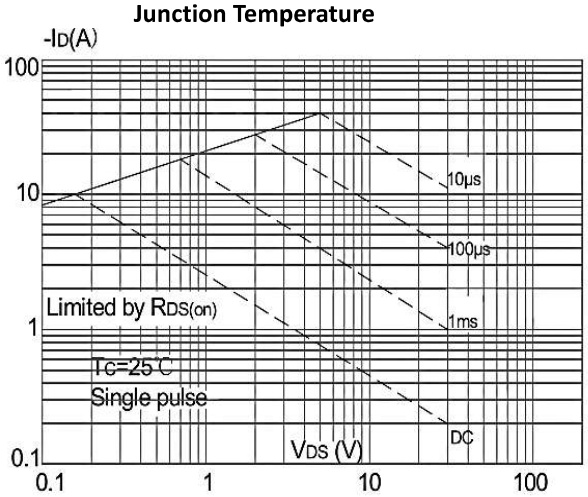

Figure 9: Maximum Safe Operating Area

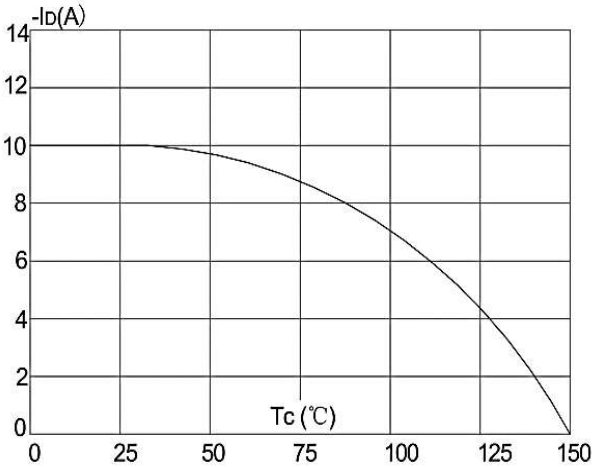

Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

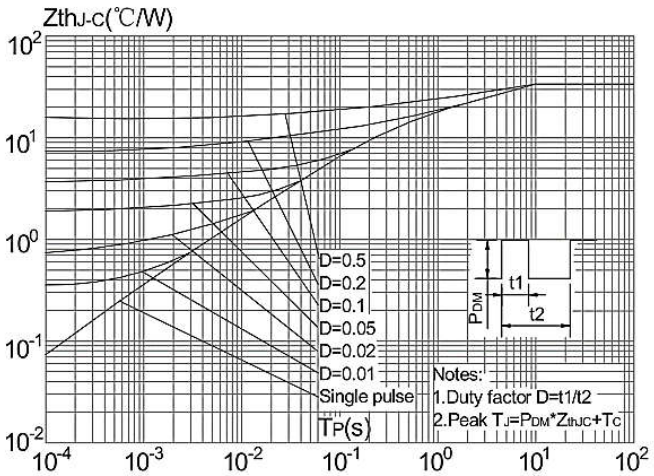

Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

Package Outline Dimensions Millimeters

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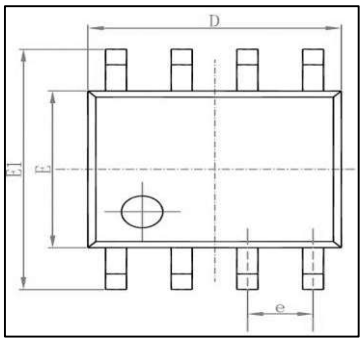
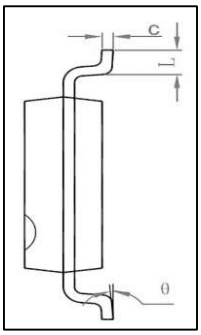
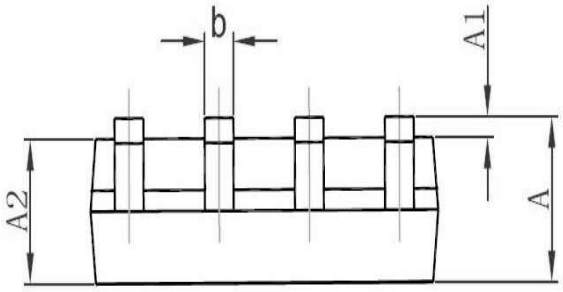
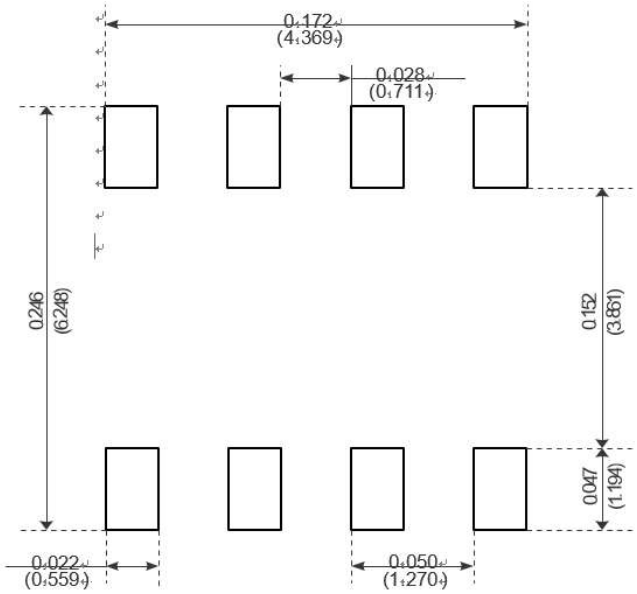






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°



Recommended Minimum Pads