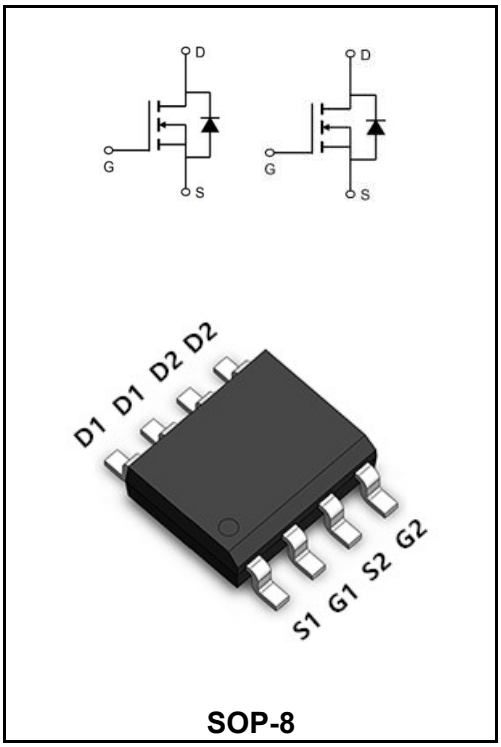
100V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	12A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 100mΩ(Type:72 mΩ)



SOP-8

Pb lead-free ROHS

Application

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFW10H10S	SOP-8	YFW 10H10S XXXXX	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current, V_{GS} @ 10V @T_C=25℃	I_D	12	A
Drain Current, V_{GS} @ 10V @T_C=100℃	I_D	7.5	A
Pulsed Drain Current[1]	I_{DM}	36	A
Total Power Dissipation @T_C=25℃	P_D	1.5	W
Single Pulse Avalanche Energy[4]	E_{AS}	6.1	mJ
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Maximum Thermal Resistance, Junctionambient	$R_{\theta JA}$	85	°C/W
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	5.1	°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	**V(BR)DSS**	100	107	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=100V, V_{GS}=0V	**I_{DSS}**	-	-	1.0	**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=250uA	**$V_{GS(th)}$**	1.2	2.0	2.5	**V**
Static Drain-Source On-Resistance note3	V_{GS}=10V, I_D=5A	**$R_{DS(ON)}$**	-	72	100	**mΩ**
	V_{GS}=4.5V, I_D=3A		-	85	120	**mΩ**
Forward Transconductance	V_{DS}=5V, I_D=5A	**g_{fs}**	-	14	-	**S**
Gate Resistance	V_{DS} = 0V, V_{GS} =0V,f =1MHz	**R_G**	-	3	-	**Ω**
Input Capacitance	V_{DS}=15V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	1100	-	**pF**
Output Capacitance		**C_{oss}**	-	55	-	
Reverse Transfer Capacitance		**C_{rss}**	-	40	-	
Total Gate Charge	V_{DS}=50V I_D=5A V_{GS}=10V	**Q_g**	-	11.9	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	2.8	-	
Gate-Drain(“Miller”) Charge		**Q_{gd}**	-	1.7	-	
Turn-on delay time	V_{DS} =30V I_D= 5A R_{GEN} = 1.8Ω V_{GS}=10V	**$t_{d(on)}$**	-	3.8	-	**ns**
Turn-on Rise Time		**T_r**	-	25.8	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	16	-	
Turn-Off Fall Time		**t_f**	-	8.8	-	
Continuous Source Current1,5	VG=VD=0V , Force Current	**I_S**	-	-	14.6	**A**
Pulsed Source Current2,5		**I_{SM}**	-	-	25	**A**
Diode Forward Voltage2	V_{GS}=0V , I_S=10A	**V_{SD}**	-	-	1.2	**V**

Notes:

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 =80V,VGS =10V,L=0.1mH,I AS =7A

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

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Ratings and Characteristic Curves

Typical Characteristics

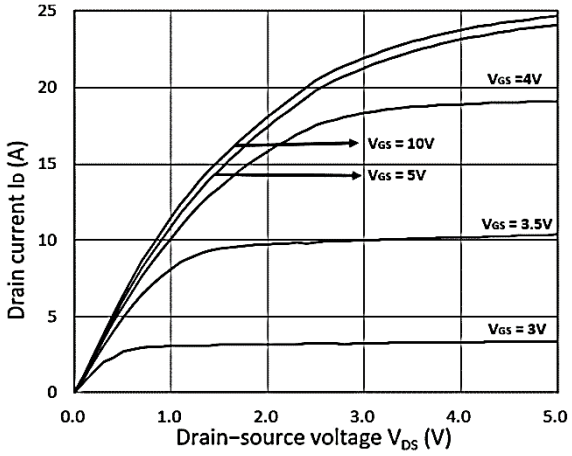


Figure 1. Output Characteristics

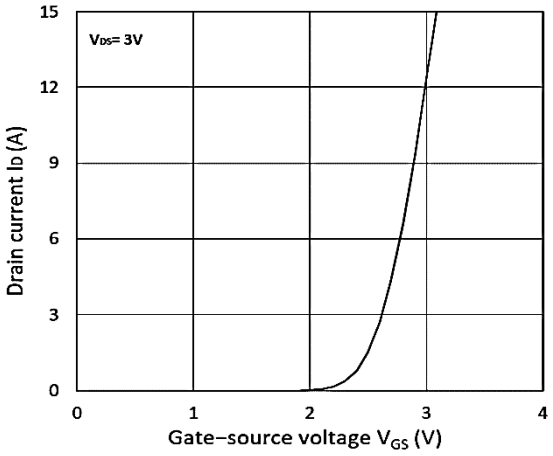


Figure 2. Transfer Characteristics

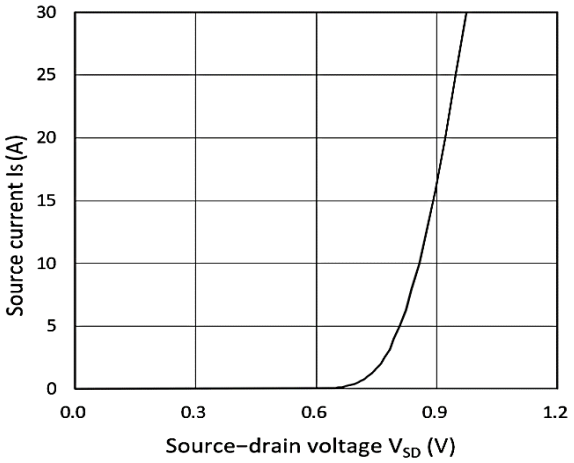


Figure 3. Forward Characteristics of Reverse

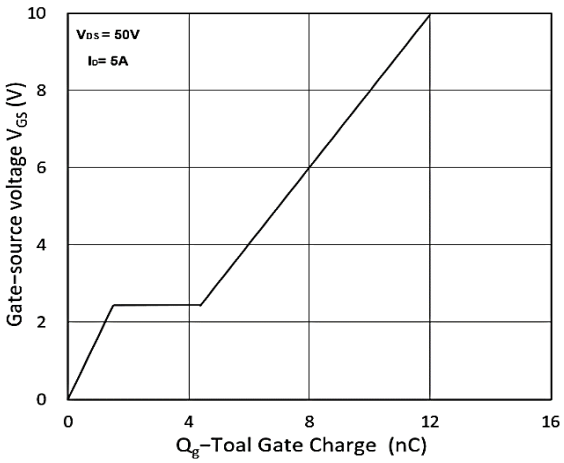


Figure 4. Gate Charge Characteristics

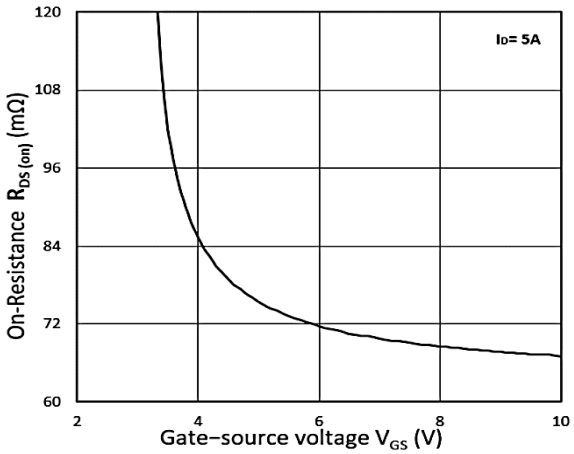


Figure 5. R DS(on) vs. V GS

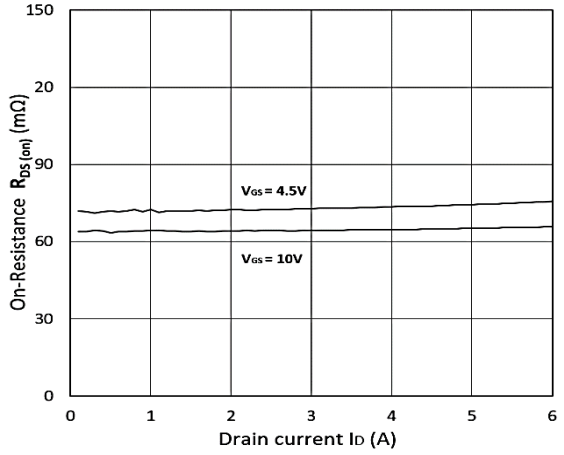


Figure 6. R DS(on) vs. ID

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Ratings and Characteristic Curves

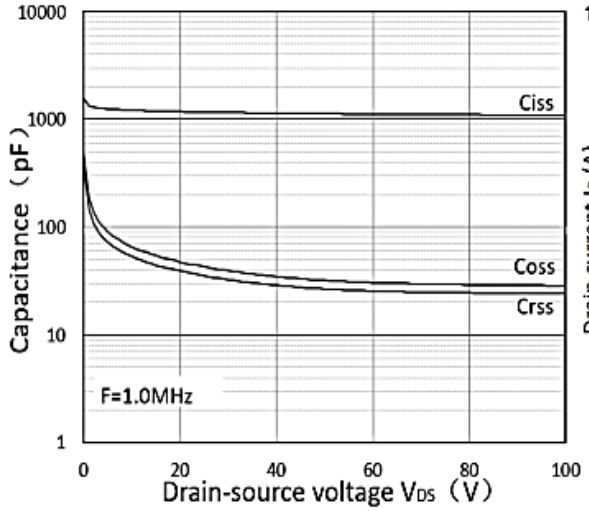


Figure 7. Capacitance Characteristics

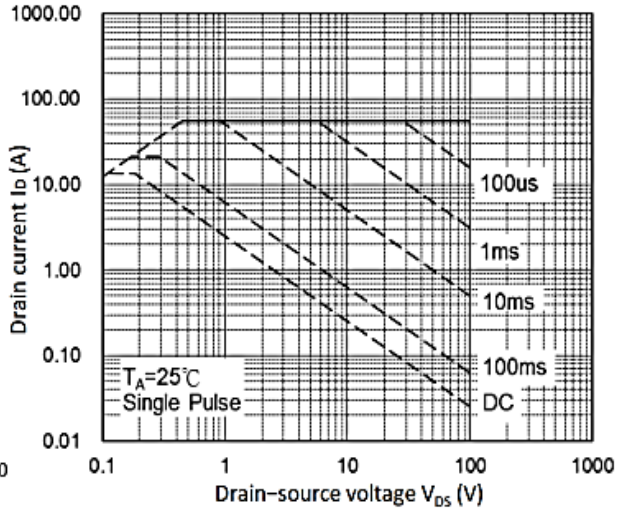


Figure 8. Safe Operating Area

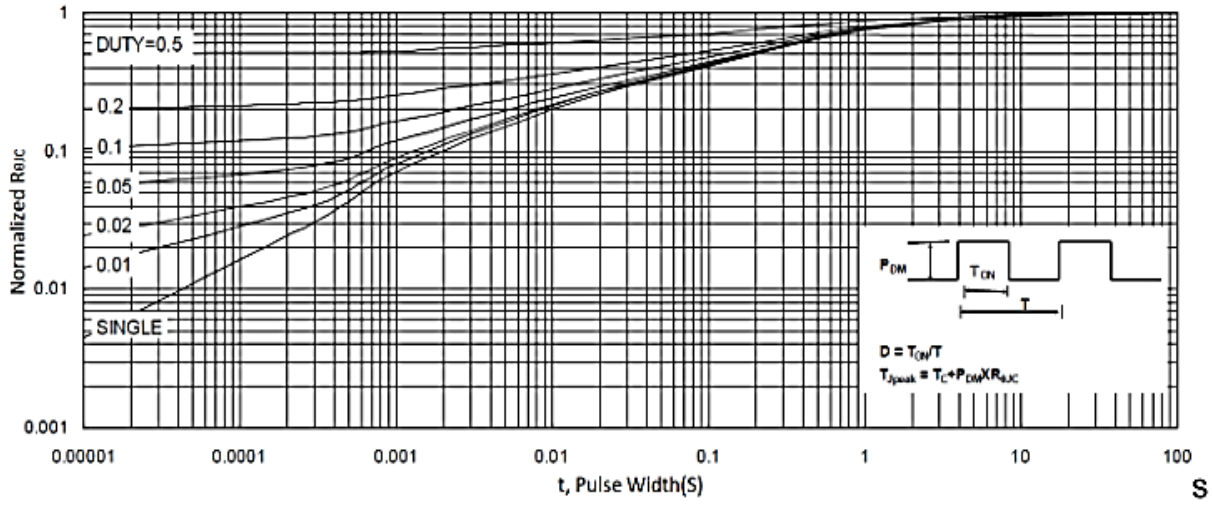
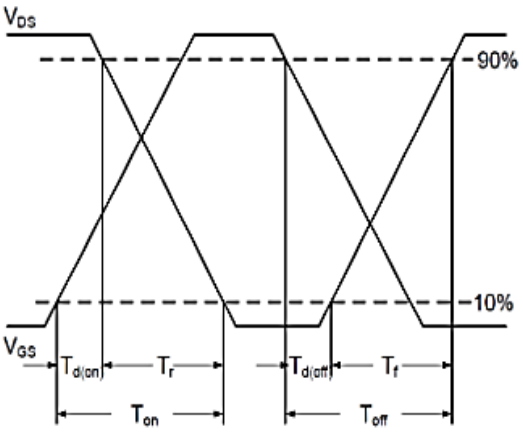
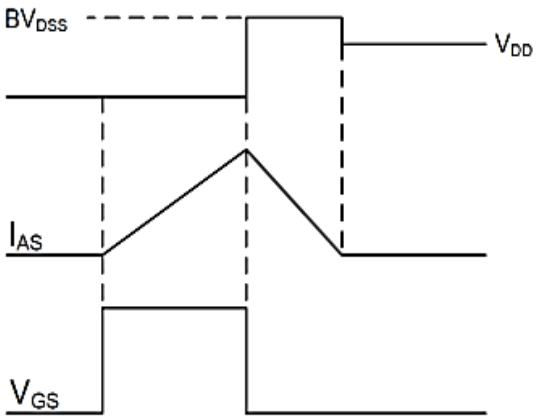


Figure 9. Normalized Maximum Transient Thermal Impedance



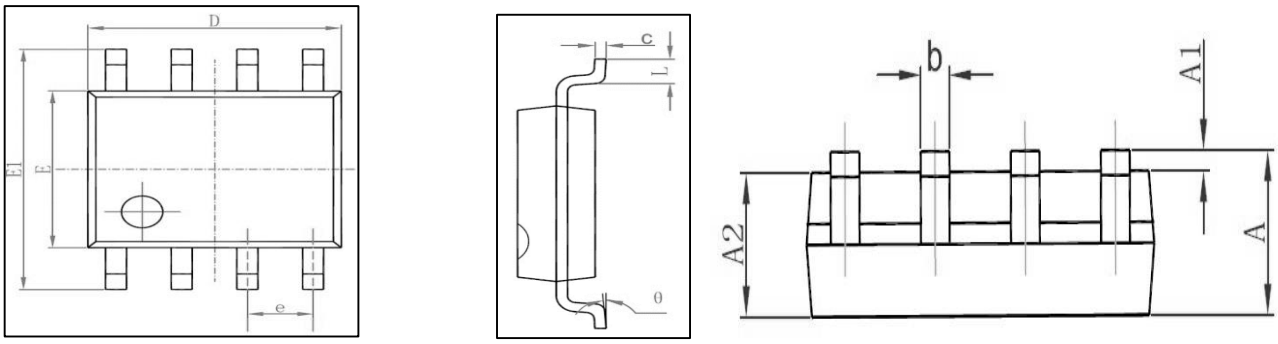
$$EAS = \frac{1}{2} L \times I_{AS}^2 \times \frac{BV_{DSS}}{BV_{DSS}-V_{DD}}$$



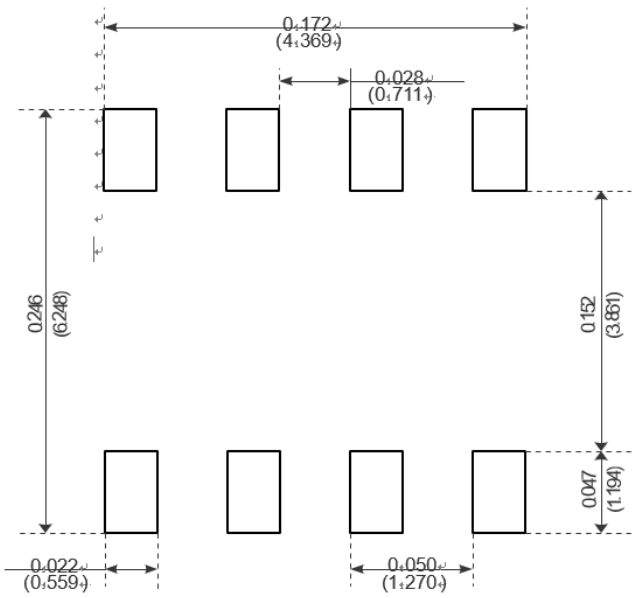
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Package Outline Dimensions Millimeters

SOP-8



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

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