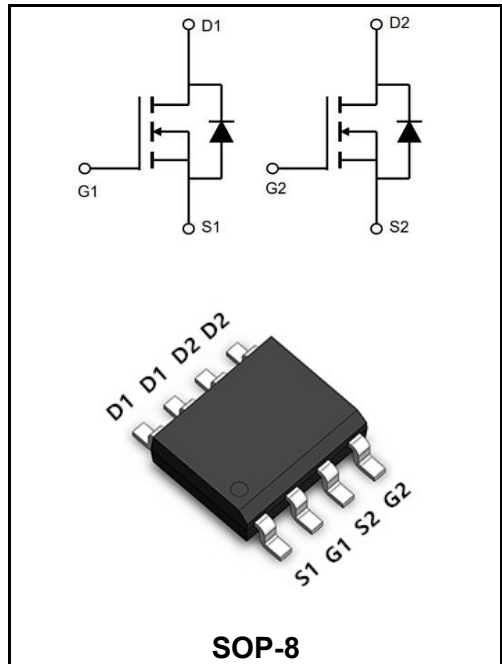


**30V N+N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	7.8A
<b>V<sub>DSS</sub></b>	30V
<b>R<sub>DS(on)-typ</sub>(@V<sub>GS</sub>=10V)</b>	< 22mΩ( <b>Type:15 mΩ</b> )



**Application**

- ↕Wireless impulse
- ↕Load switch
- ↕Uninterruptible power supply

**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW6H03S	SOP-8	YFW 6H03S XXXXX	3000PCS/Tape

**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	30	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous Drain Current, V <sub>GS</sub> @ 10V @T <sub>c</sub> =25°C	<b>I<sub>D</sub></b>	7.8	<b>A</b>
Continuous Drain Current, V <sub>GS</sub> @ 10V @T <sub>c</sub> =100°C	<b>I<sub>D</sub></b>	5	<b>A</b>
Pulsed Drain Current <sup>2</sup>	<b>I<sub>DM</sub></b>	25	<b>A</b>
Single Pulse Avalanche Energy <sup>3</sup>	<b>E<sub>AS</sub></b>	8.1	<b>mJ</b>
Avalanche Current	<b>I<sub>AS</sub></b>	12.7	<b>A</b>
Total Power Dissipation <sup>4</sup> @T <sub>A</sub> =25°C	<b>P<sub>D</sub></b>	1.5	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction-ambient 1	<b>R<sub>θJA</sub></b>	85	<b>°C/W</b>
Thermal Resistance Junction-Case1	<b>R<sub>θJC</sub></b>	25	<b>°C/W</b>

**Maximum Ratings at Tc=25°C unless otherwise specified**

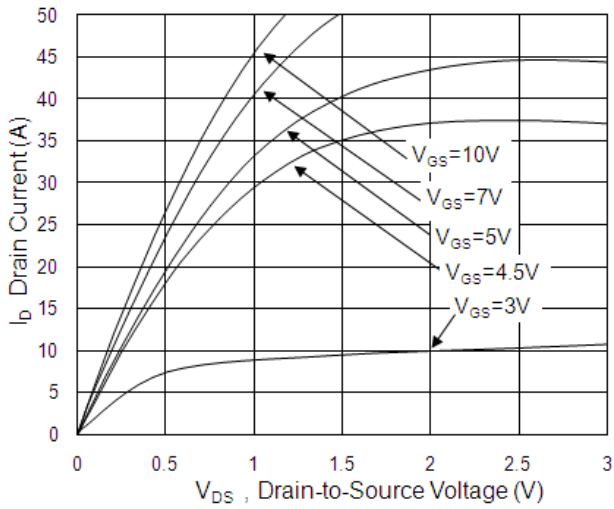
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	<b>B<sub>VDSS</sub></b>	30	32.5	-	<b>V</b>
Static Drain-Source On-Resistance <sup>2</sup>	$V_{GS}=10V, I_D=10A$	<b>R<sub>DS(ON)</sub></b>	-	15	22	<b>mΩ</b>
	$V_{GS}=4.5V, I_D=5A$		-	20	30	<b>mΩ</b>
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	<b>V<sub>GS(th)</sub></b>	1.0	1.6	2.5	<b>V</b>
Drain-Source Leakage Current	$V_{DS}=24V, V_{GS}=0V, T_J=25^\circ C$	<b>I<sub>DSS</sub></b>	-	-	1	<b>uA</b>
	$V_{DS}=24V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	<b>I<sub>GSS</sub></b>	-	-	±100	<b>nA</b>
Forward Transconductance	$V_{DS} = 5V, I_D = 10A$	<b>g<sub>fs</sub></b>	-	16	-	<b>S</b>
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	<b>R<sub>g</sub></b>	-	2.5	5	<b>Ω</b>
Total Gate Charge ( 4.5V )	$V_{DS}=20V$ $V_{GS}=4.5V$ $I_D=10A$	<b>Q<sub>g</sub></b>	-	7.2	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	1.4	-	<b>nC</b>
Gate-Drain Charge		<b>Q<sub>gd</sub></b>	-	2.2	-	<b>nC</b>
Turn-on delay time	$V_{DD} = 15V$ $V_{GS}=10V$ $R_G = 3.3\Omega$ $I_D = 5A$	<b>t<sub>d(on)</sub></b>	-	4.1	-	<b>ns</b>
Rise Time		<b>T<sub>r</sub></b>	-	9.8	-	<b>ns</b>
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	15.5	-	<b>ns</b>
Fall Time		<b>t<sub>f</sub></b>	-	6.0	-	<b>ns</b>
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	<b>C<sub>iss</sub></b>	-	572	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	81	-	<b>pF</b>
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	65	-	<b>pF</b>
Continuous Source Current <sup>1,5</sup>	$V_G=V_D=0V, \text{ Force Current}$	<b>I<sub>S</sub></b>	-	-	10	<b>A</b>
Diode Forward Voltage <sup>2</sup>	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	<b>V<sub>SD</sub></b>	-	-	1.2	<b>V</b>

**Notes:**

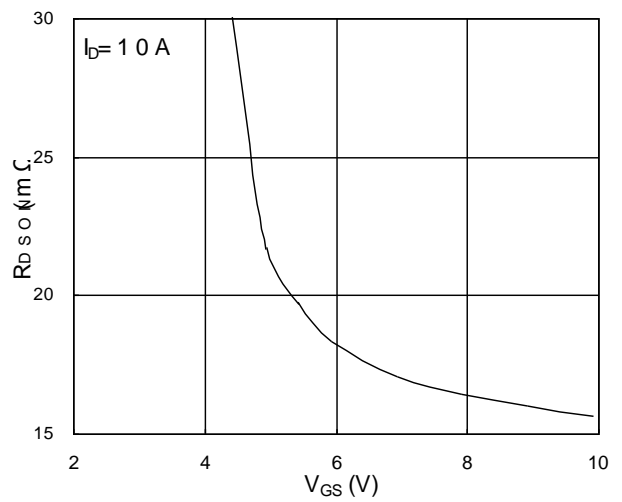
- 1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width .The EAS data shows Max. rating .
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

**Ratings and Characteristic Curves**

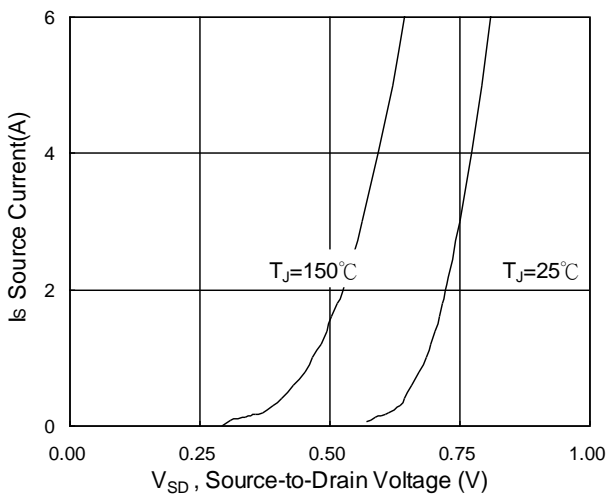
**Typical Characteristics**



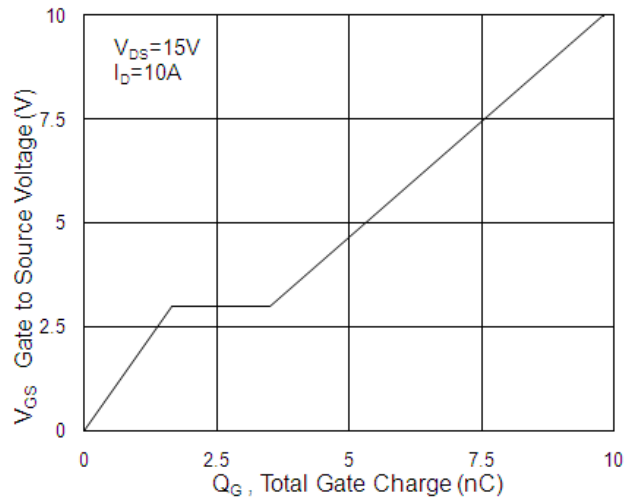
**Fig.1 Typical Output Characteristics**



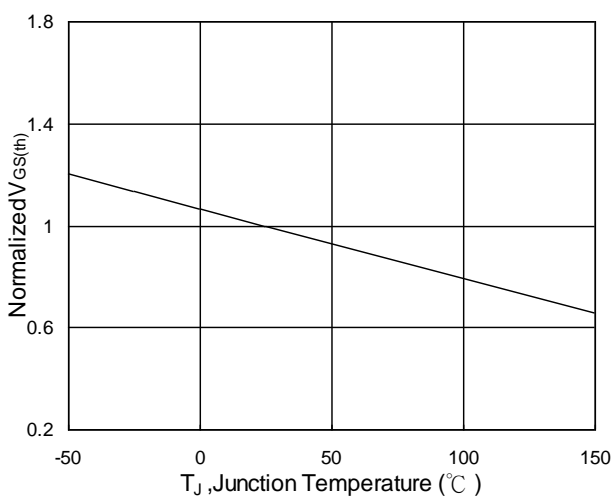
**Fig.2 On-Resistance vs. Gate-Source**



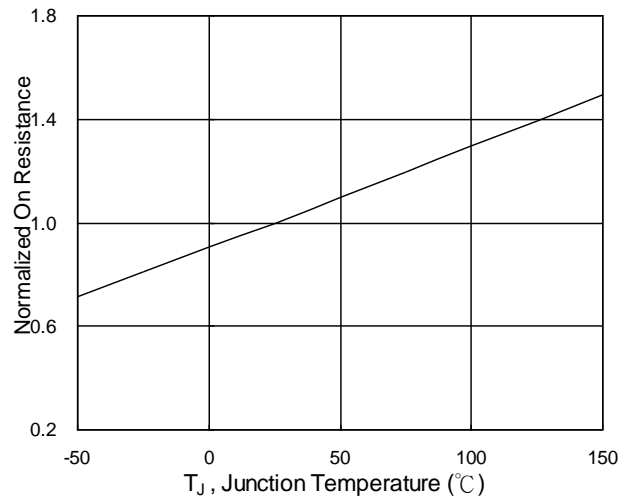
**Fig.3 Forward Characteristics Of Reverse**



**Fig.4 Gate-Charge Characteristics**

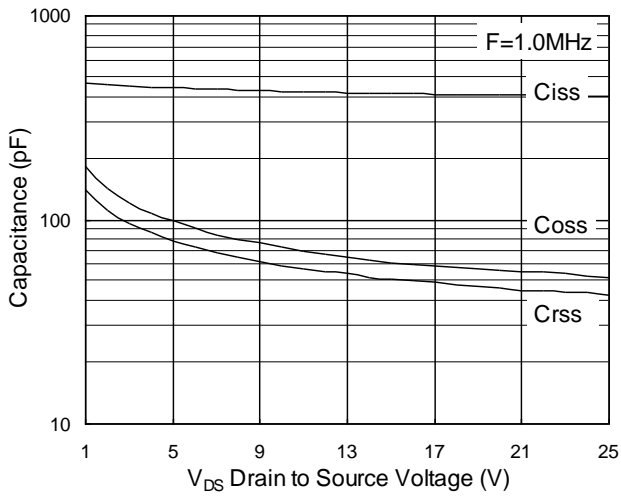


**Fig.5 Normalized  $V_{GS(th)}$  vs.  $T_J$**

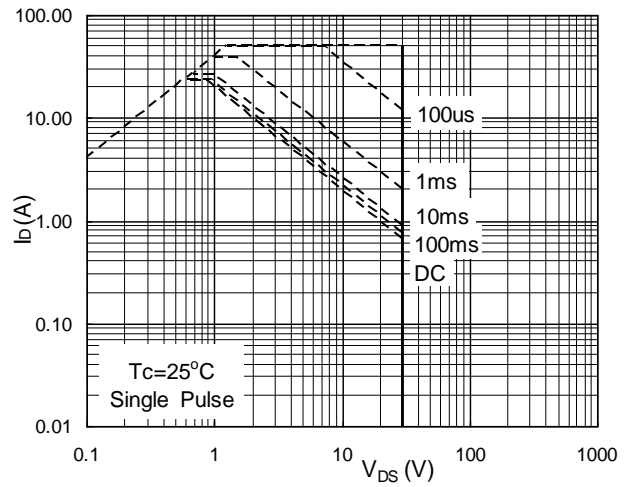


**Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$**

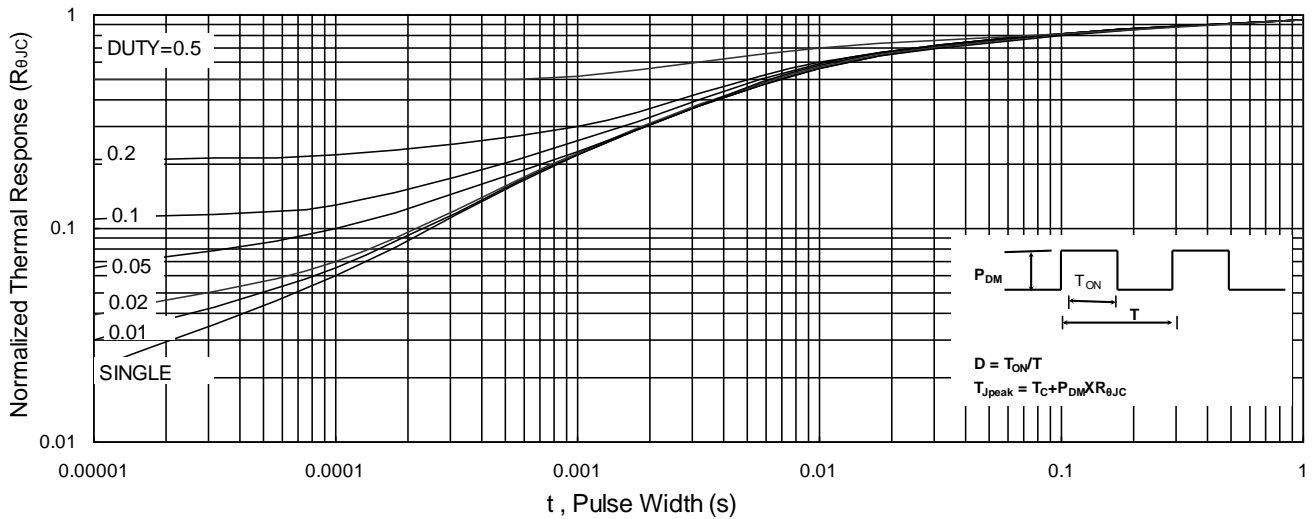
**Ratings and Characteristic Curves**



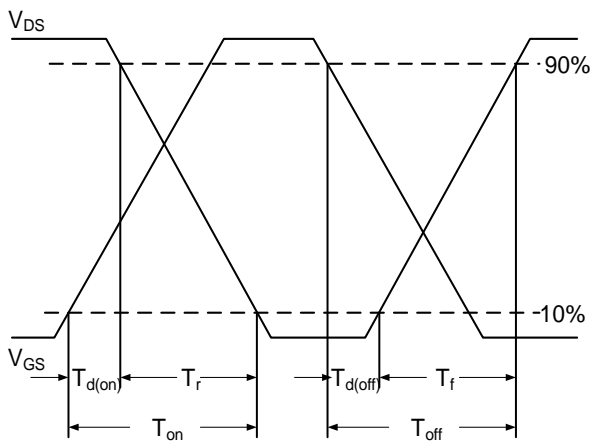
**Fig.7 Capacitance**



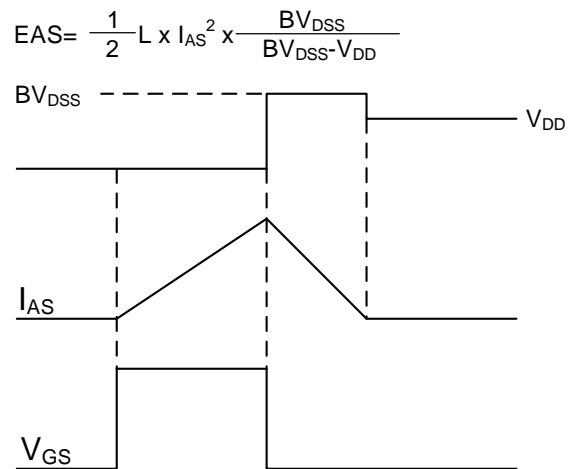
**Fig.8 Safe Operating Area**



**Fig.9 Normalized Maximum Transient Thermal Impedance**

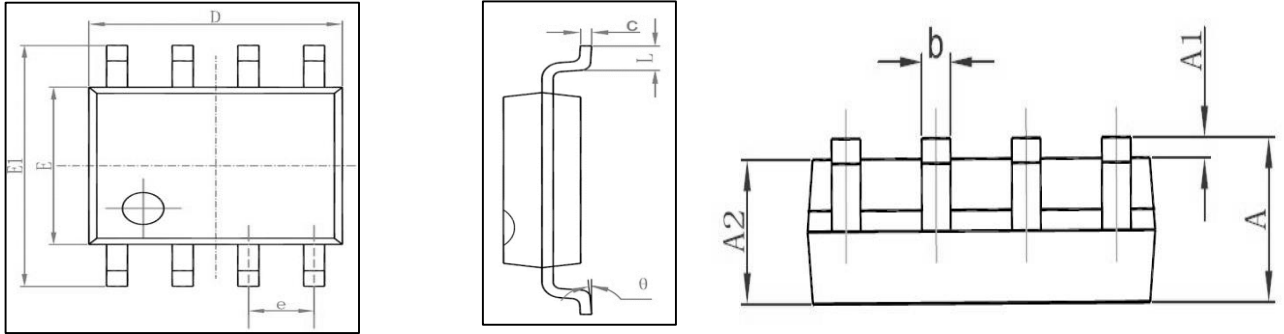


**Fig.10 Switching Time Waveform**

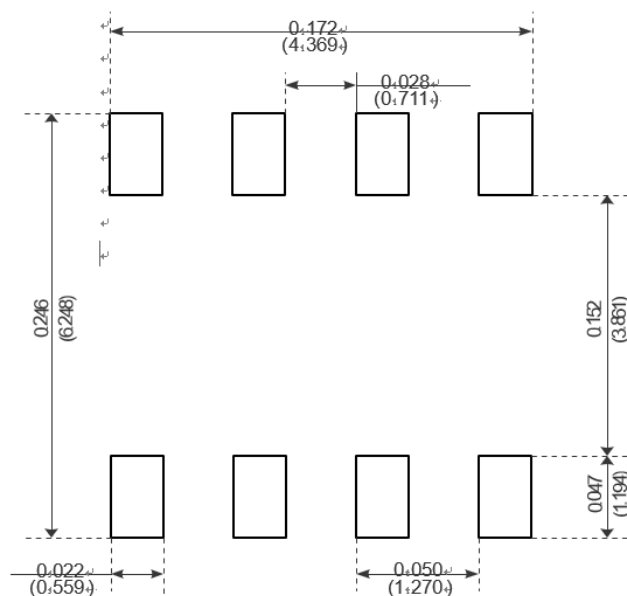


**Fig.11 Unclamped Inductive Switching Waveform**

**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