

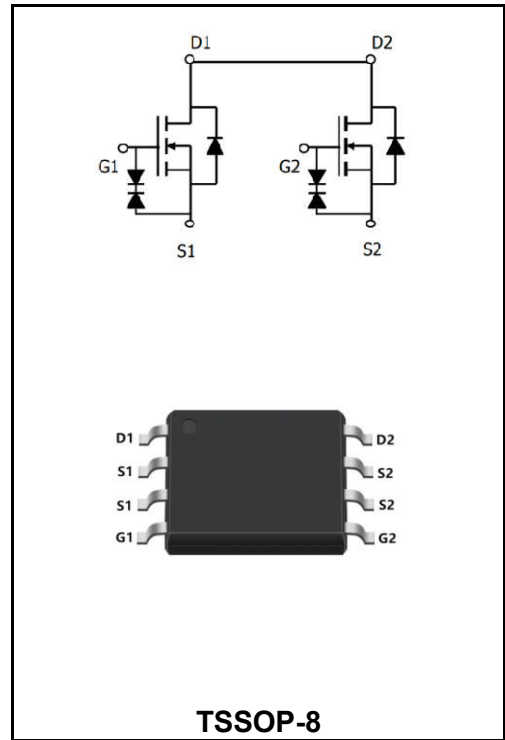
**20V N+N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	9.5A
<b>V<sub>DSS</sub></b>	20V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 15mΩ ( <b>Type:11.5 mΩ</b> )

**Application**

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



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW8810E-11TS	TSSOP-8	YFW 8810E-11TS XXXXX	5000PCS/Tape

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

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>VDSS</b>	20	<b>V</b>
Gate - Source Voltage	<b>VGSS</b>	± 12	<b>V</b>
Continuous Drain Current, VGS @ 4.5V @TA=25°C	<b>I<sub>D</sub></b>	9.5	<b>A</b>
Continuous Drain Current, VGS @ 4.5V @TA=70°C	<b>I<sub>D</sub></b>	5.6	<b>A</b>
Pulsed Drain Current <small>note1</small>	<b>I<sub>DM</sub></b>	80	<b>A</b>
Power Dissipation	<b>P<sub>D@TA=25°C</sub></b>	2	<b>W</b>
Thermal Resistance, Junction to Case	<b>R<sub>θJC</sub></b>	62.5	<b>°C/W</b>
Operating and Storage Temperature Range	<b>T<sub>J</sub> T<sub>STG</sub></b>	-55 to +175	<b>°C</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>V(BR)DSS</b>	20	24	-	<b>V</b>
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	<b>I<sub>DSS</sub></b>	-	-	1.0	<b>μA</b>
Gate-Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	<b>I<sub>GSS</sub></b>	-	-	±100	<b>nA</b>
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	<b>V<sub>GS(th)</sub></b>	0.5	0.75	1.2	<b>V</b>
Static Drain-Source on-Resistance note3	$V_{GS}=4.5V, I_D=15A$	<b>R<sub>DS(ON)</sub></b>	-	11.5	15	<b>mΩ</b>
	$V_{GS}=2.5V, I_D=10A$		-	16	23	<b>mΩ</b>
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	<b>C<sub>iss</sub></b>	-	850	-	<b>PF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	81	-	<b>PF</b>
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	70	-	<b>PF</b>
Total Gate Charge	$V_{DS}=10V$ $I_D=15A$ $V_{GS}=4.5V$	<b>Q<sub>g</sub></b>	-	11.2	-	<b>nC</b>
Gate-Source Charge		<b>Q<sub>gs</sub></b>	-	1.6	-	<b>nC</b>
Gate-Drain("Miller") Charge		<b>Q<sub>gd</sub></b>	-	2.9	-	<b>nC</b>
Turn-on delay time	$V_{DD}=10V$ $I_D=15A$ $V_{GS}=4.5V$ $R_{GEN}=3\Omega$	<b>t<sub>d(on)</sub></b>	-	30	-	<b>ns</b>
Turn-on Rise Time		<b>T<sub>r</sub></b>	-	250	-	<b>ns</b>
Turn-Off Delay Time		<b>t<sub>d(OFF)</sub></b>	-	450	-	<b>ns</b>
Turn-Off Fall Time		<b>t<sub>f</sub></b>	-	700	-	<b>ns</b>
Maximum Continuous Drain to Source Diode Forward Current		<b>I<sub>S</sub></b>	-	-	9.5	<b>A</b>
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=1$	<b>V<sub>SD</sub></b>	-	-	1.2	<b>V</b>

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  $\leq 300\mu s$  , duty cycle  $\leq 2\%$
- 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.

Ratings and Characteristic Curves

Typical Characteristics

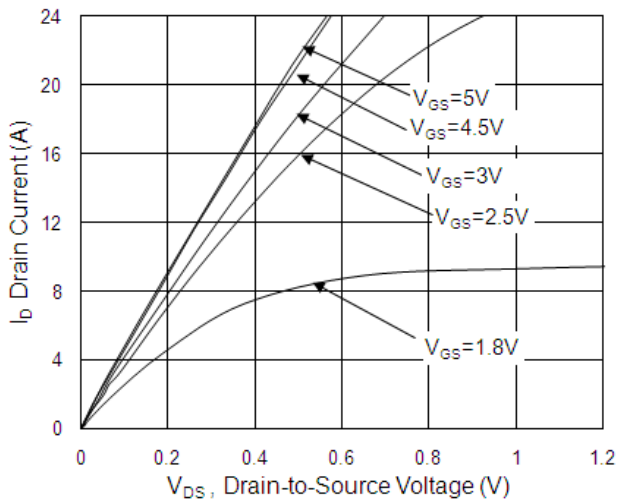


Fig.1 Typical Output Characteristics

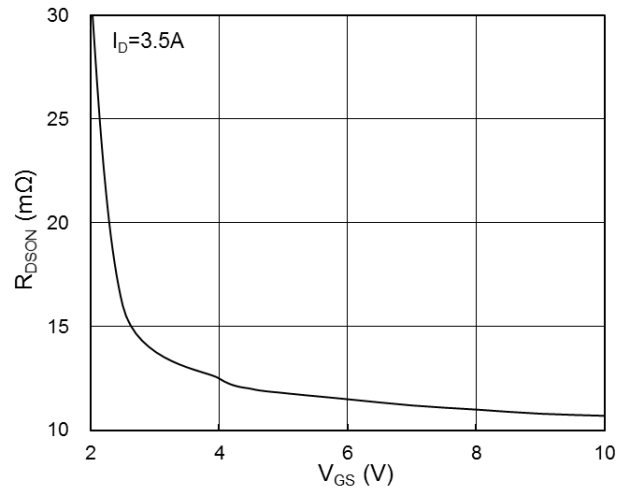


Fig.2 On-Resistance vs. Gate-Source Voltage

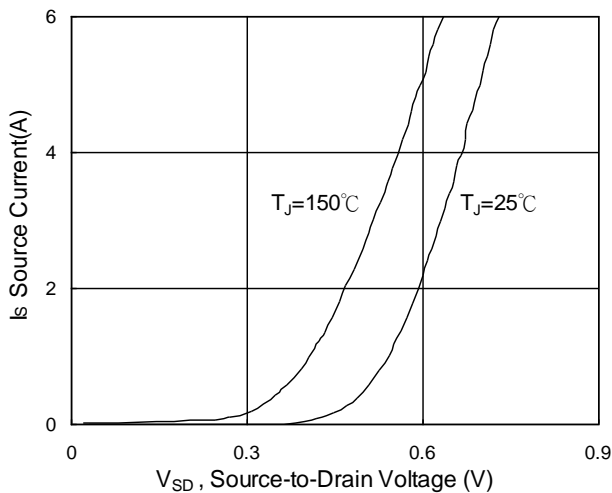


Fig.3 Forward Characteristics of Reverse

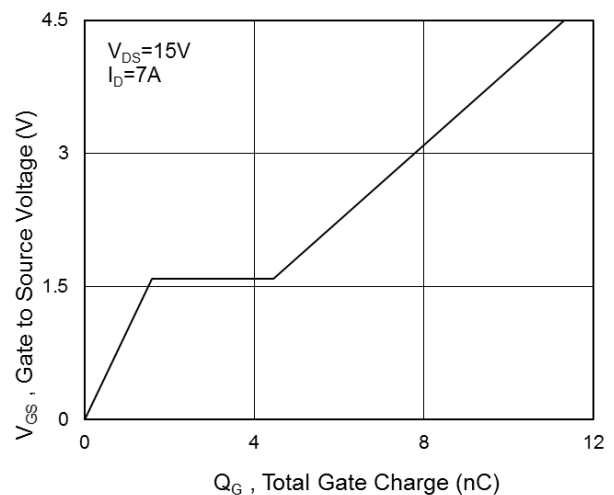


Fig.4 Gate-Charge Characteristics

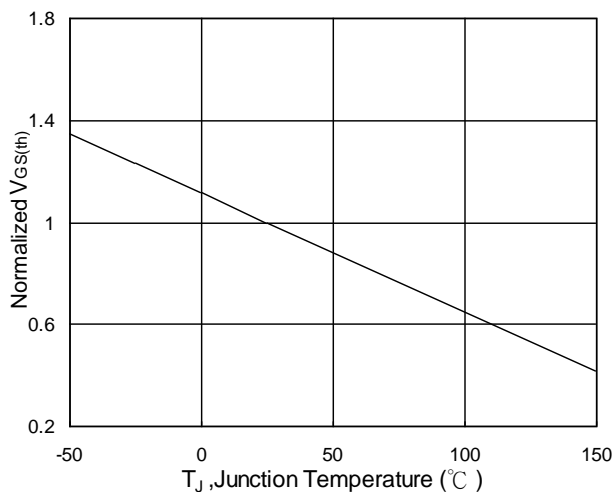


Fig.5  $V_{GS(th)}$  vs.  $T_J$

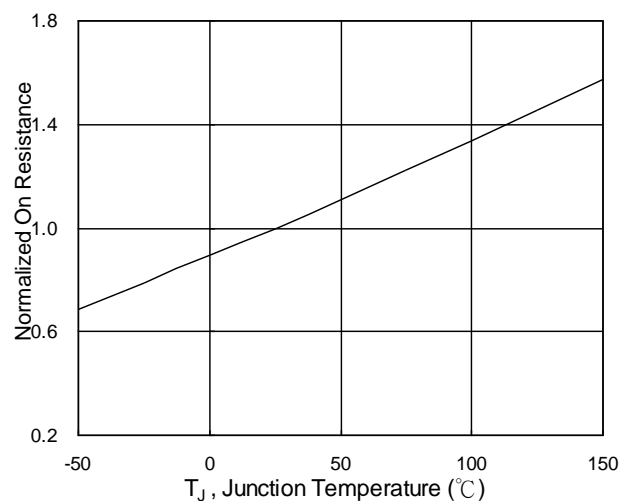


Fig.6 Normalized  $R_{DS(on)}$  vs.  $T_J$

Ratings and Characteristic Curves

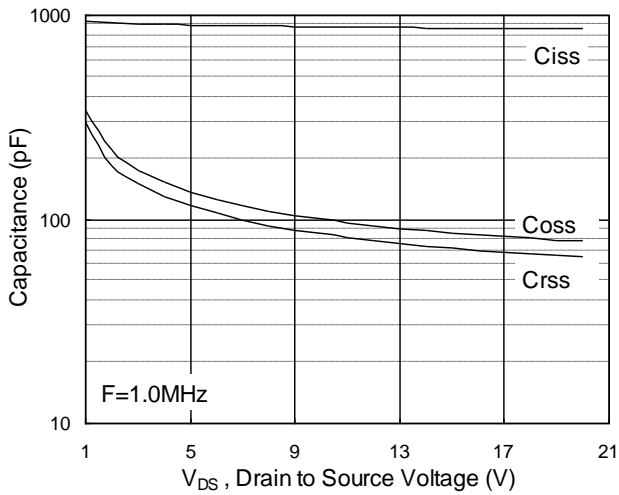


Fig.7 Capacitance

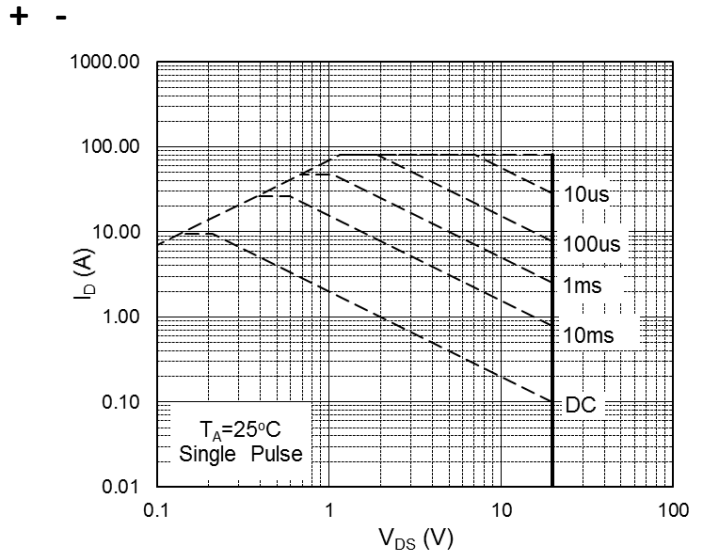


Fig.8 Safe Operating Area

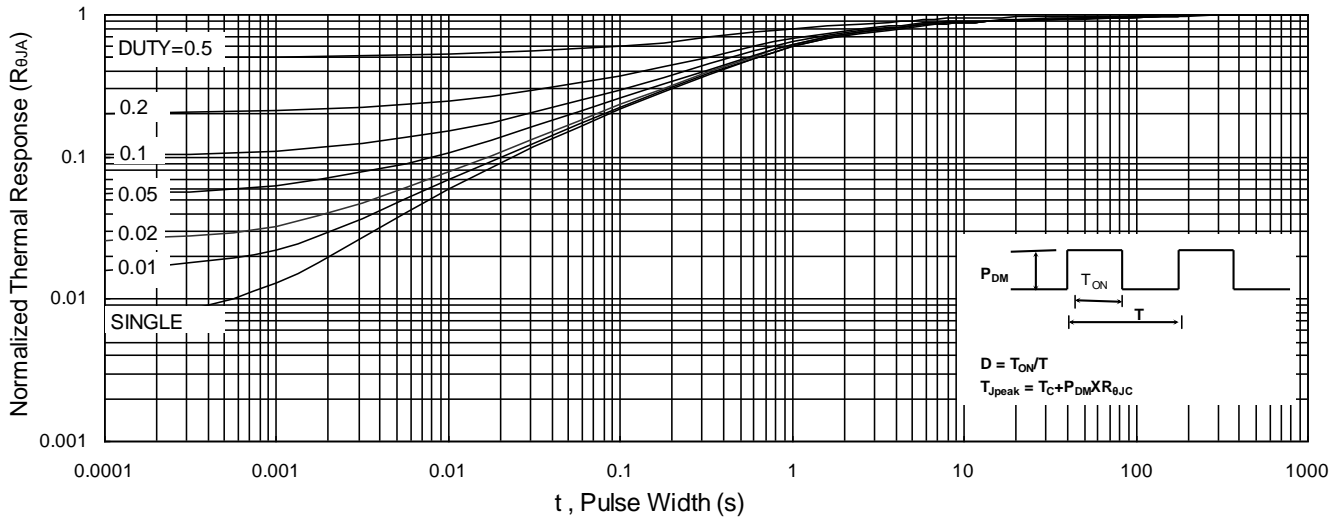


Fig.9 Normalized Maximum Transient Thermal Impedance

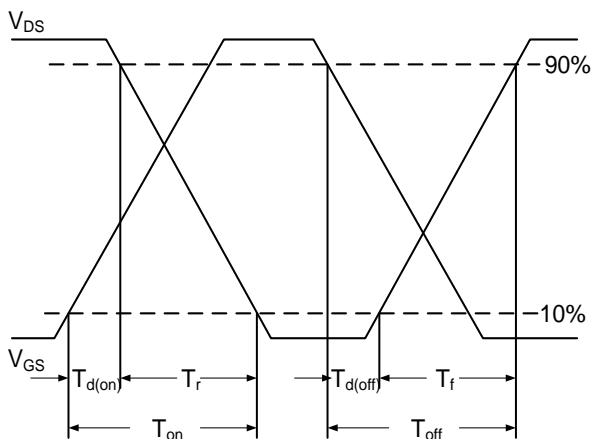


Fig.10 Switching Time Waveform

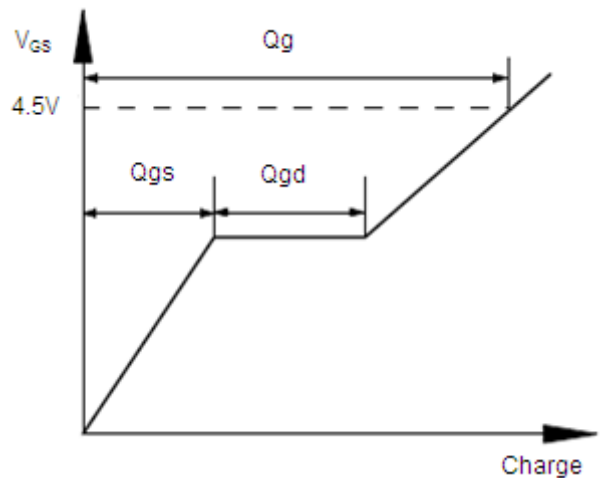
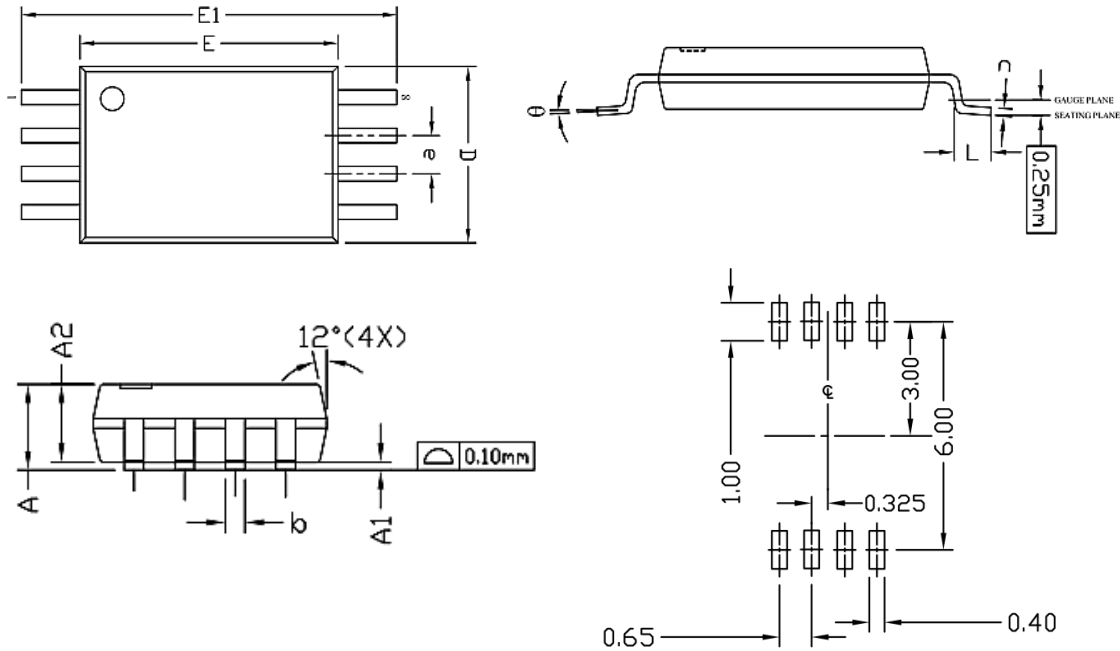


Fig.11 Gate Charge Waveform

**TSSOP-8**



Symbol	Common		
	mm		
	Mim	Nom	Max
A	/	/	1.20
A1	0.05	/	0.15
A2	0.80	1.00	1.05
b	0.19	/	0.30
c	0.09	/	3.45
D	2.90	3.00	3.1
E1	6.40BSC		
E	4.30	4.40	4.50
e	0.65BSC		
L	0.45	0.60	0.75
Φ	0°	0.48	8°