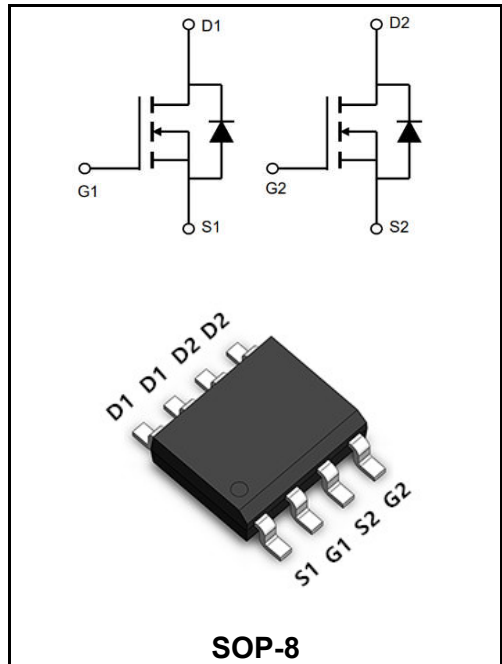


30V N+N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	7.8A
V_{DSS}	30V
R_{DS(on)-typ}(@V_{GS}=10V)	< 22mΩ(Type:15 mΩ)



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 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 @T _c =25°C	I_D	7.8	A
Continuous Drain Current, V _{GS} @ 10V @T _c =100°C	I_D	5	A
Pulsed Drain Current ²	I_{DM}	25	A
Single Pulse Avalanche Energy ³	E_{AS}	8.1	mJ
Avalanche Current	I_{AS}	12.7	A
Total Power Dissipation ⁴ @T _A =25°C	P_D	1.5	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	R_{θJA}	85	°C/W
Thermal Resistance Junction-Case1	R_{θJC}	25	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

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

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

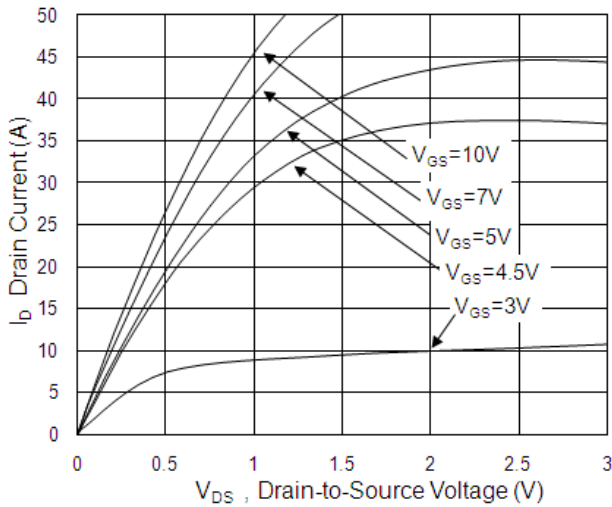


Fig.1 Typical Output Characteristics

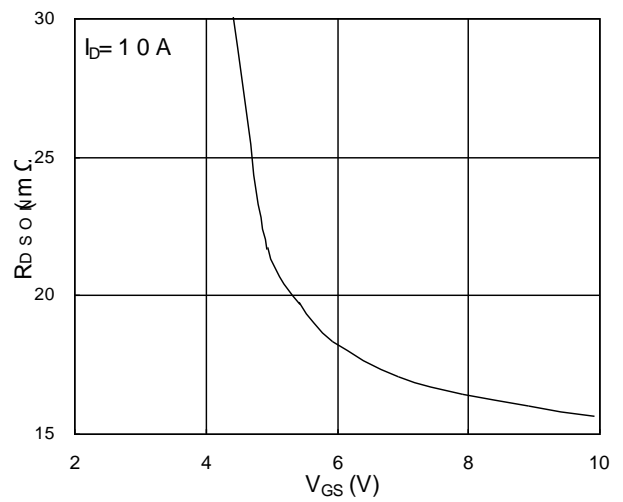


Fig.2 On-Resistance vs. Gate-Source

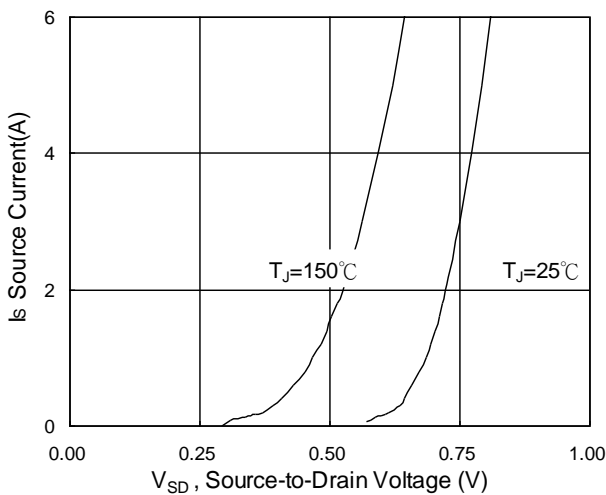


Fig.3 Forward Characteristics Of Reverse

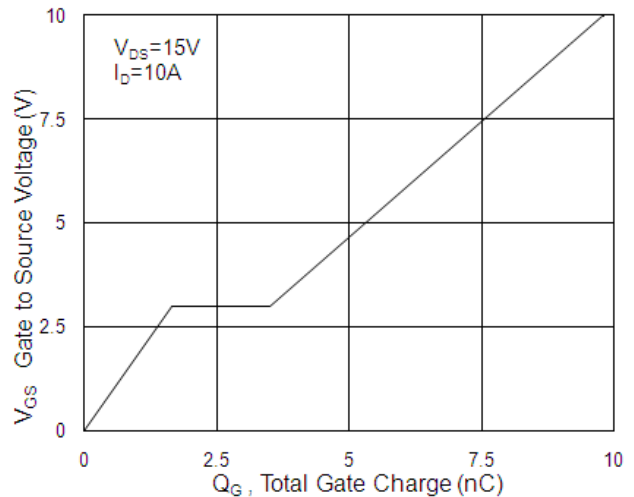


Fig.4 Gate-Charge Characteristics

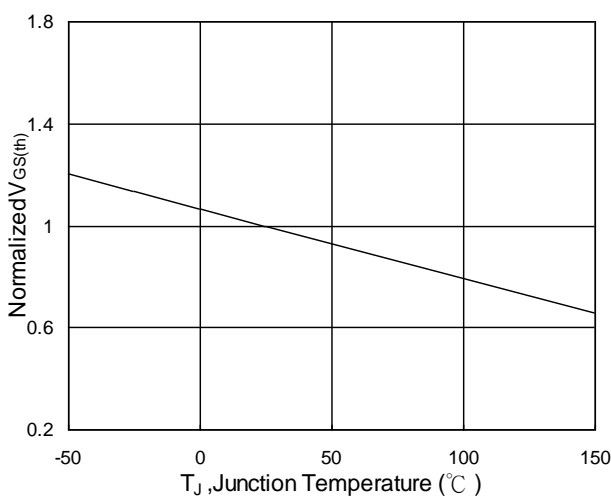


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

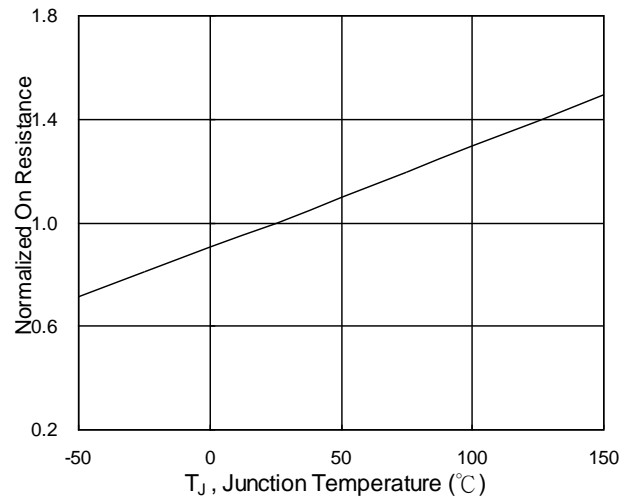


Fig.6 Normalized $R_{DS(on)}$ vs. T_J

Ratings and Characteristic Curves

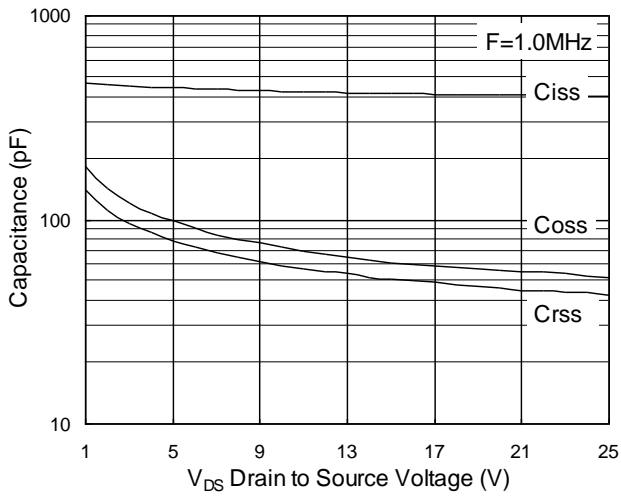


Fig.7 Capacitance

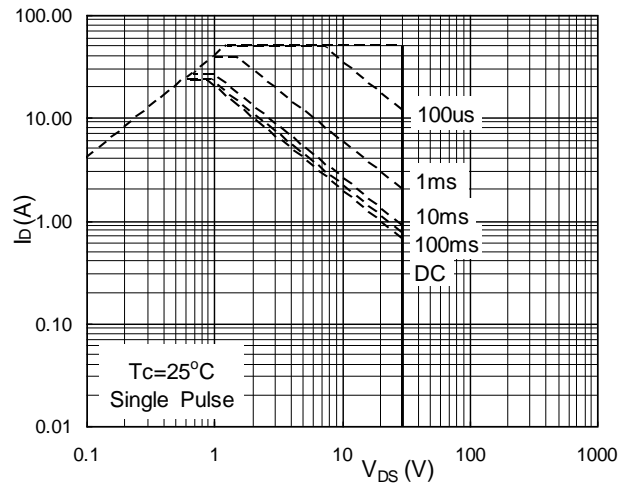


Fig.8 Safe Operating Area

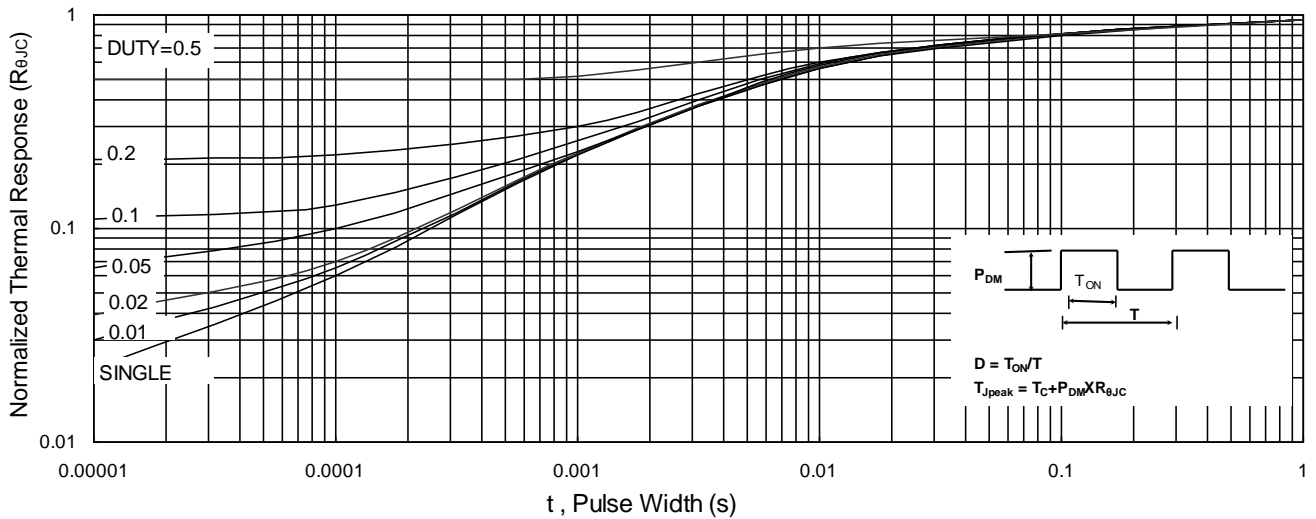


Fig.9 Normalized Maximum Transient Thermal Impedance

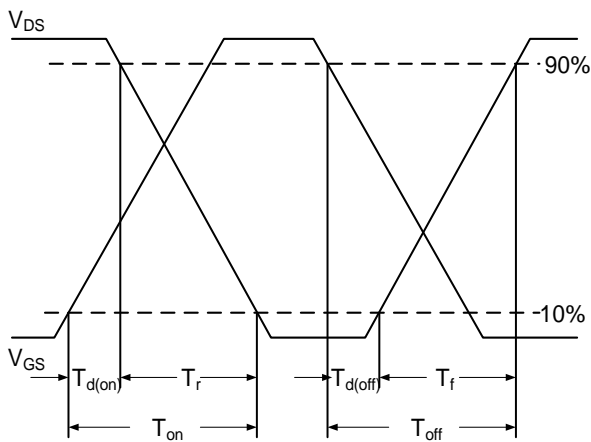


Fig.10 Switching Time Waveform

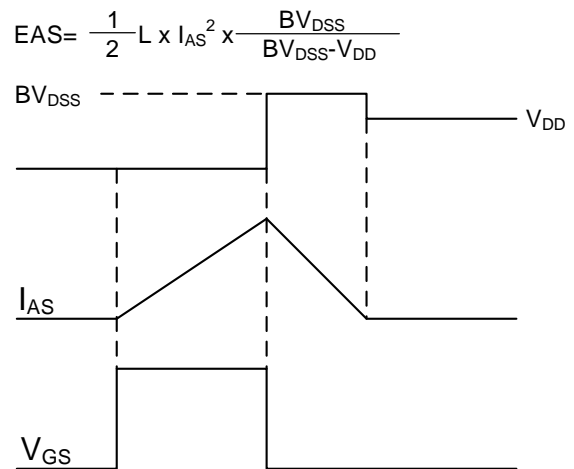
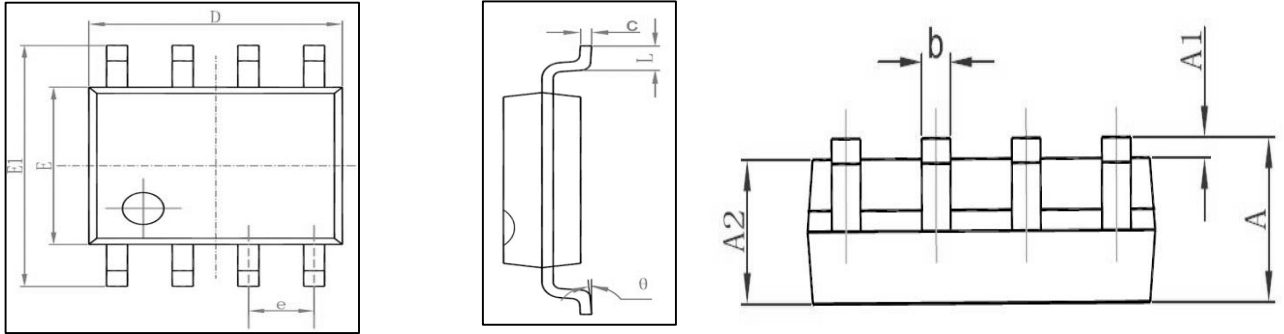
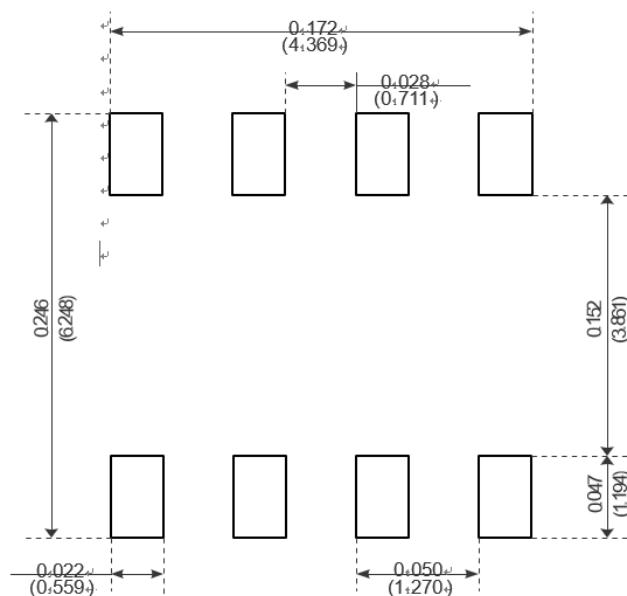


Fig.11 Unclamped Inductive Switching Waveform

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°



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