

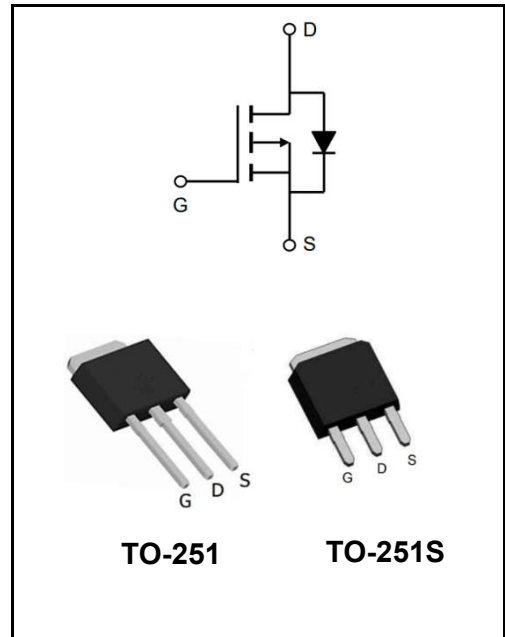
-150V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-7A
V_{DSS}	-150V
R_{DS(on)-typ(@V_{GS}=-10V)}	< 780mΩ(Type:620mΩ)

Application

- ◆ Brushless motor
- ◆ Load switch
- ◆ Uninterruptible power supply



Product Specification Classification

Part Number	Package	Marking	Pack
YFW7P15AMJ	TO-251	YFW 7P15AMJ XXXXX	4000PCS/Tape
YFW7P15AMJ	TO-251S	YFW 7P15AMJ XXXXX	4000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-150	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V _{GS} @ -10V ¹ @T _A =25°C	I_D	-7.0	A
Continuous Drain Current, V _{GS} @ -10V ¹ @T _A =70°C	I_D	-4.8	A
Pulsed Drain Current ²	I_{DM}	-28	A
Single Pulse Avalanche Energy ³	E_{AS}	56.5	mJ
Avalanche Current	I_{AS}	5	A
Total Power Dissipation ⁴ @T _A =25°C	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	R_{θJA}	62	°C/W
Thermal Resistance Junction-Case ¹	R_{θJC}	40	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-150	-168	-	V
Static Drain-Source On-Resistance	$V_{GS}=-10V, I_D=-1A$	$R_{DS(ON)}$	-	620	780	mΩ
	$V_{GS}=-6V, I_D=-0.5A$		-	700	980	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-2.0	-3.0	-4.0	V
Drain -Source Leakage Current	$V_{DS}=-120V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=-120V, V_{GS}=0V, T_J=85^\circ C$		-	-	30	
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g	-	12	-	Ω
Total Gate Charge	$V_{DS}=-75V$ $V_{GS}=-10V$ $I_D=-1A$	Q_g	-	10.8	-	nC
Gate-Source Charge		Q_{gs}	-	3.1	-	
Gate-Drain Charge		Q_{gd}	-	2.2	-	
Turn-on delay time	$V_{DD}=-30V$ $V_{GS}=-10V$ $R_G=6\Omega$ $I_D=-1A$	$t_{d(on)}$	-	21	-	nS
Rise Time		T_r	-	16	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	40	-	
Fall Time		t_f	-	18	-	
Input Capacitance	$V_{DS}=-75V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	706	-	pF
Output Capacitance		C_{oss}	-	23	-	
Reverse Transfer Capacitance		C_{rss}	-	13	-	

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 EAS data shows Max. rating . The test condition is $V_{DD}=-50V, V_{GS}=-10V, L=0.5mH, I_{AS}=-5A$
- 4、 The power dissipation is limited by 150°C junction temperature
- 5、 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

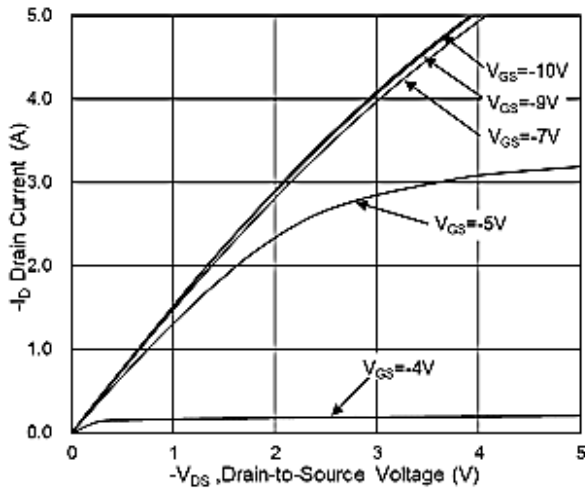


Fig.1 Typical Output Characteristics

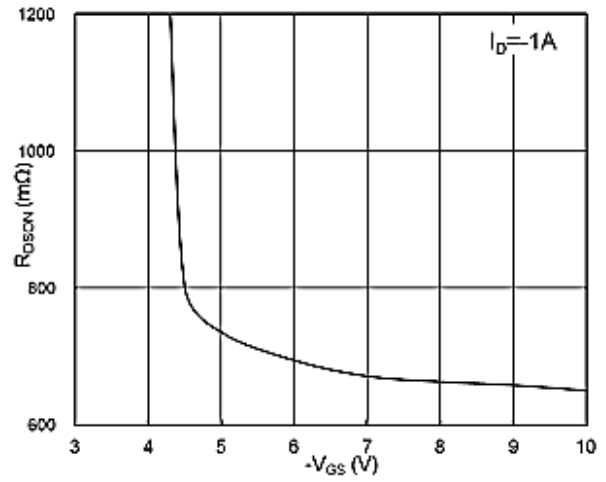


Fig.2 On-Resistance vs G-S Voltage

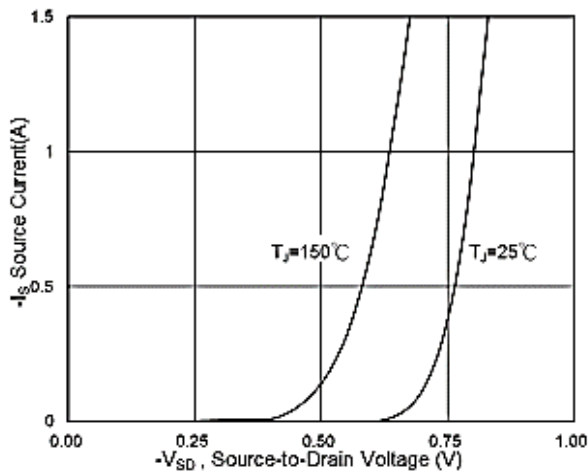


Fig.3 Source Drain Forward Characteristics

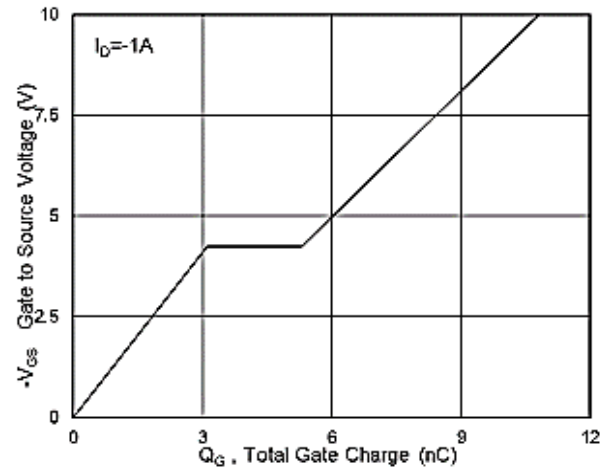


Fig.4 Gate-Charge Characteristics

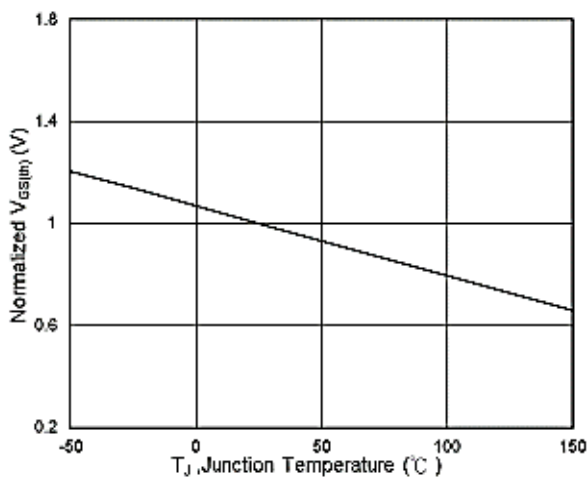


Fig.5 Normalized $V_{GS(th)}$ vs T_J

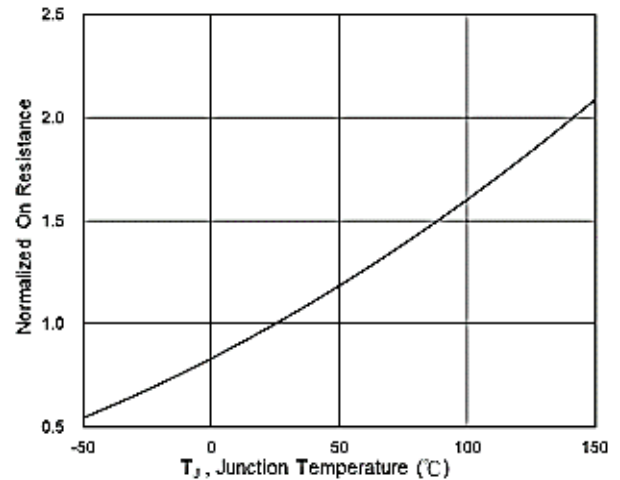


Fig.6 Normalized $R_{DS(on)}$ vs T_J

Ratings and Characteristic Curves

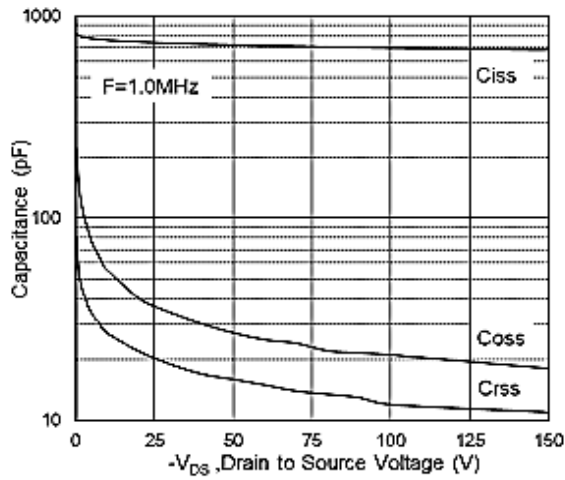


Fig.7 Capacitance

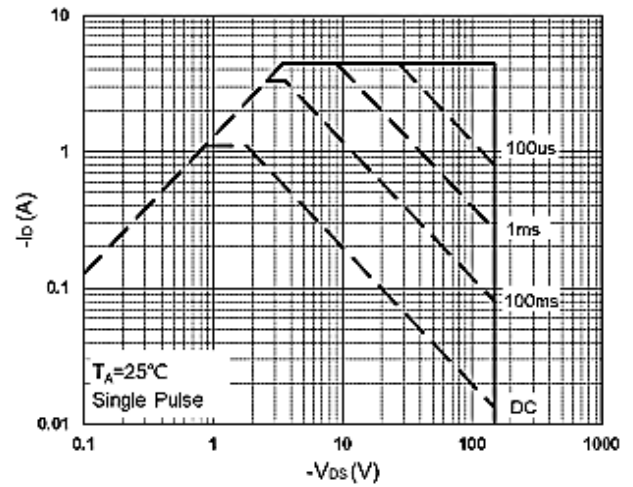


Fig.8 Safe Operating Area

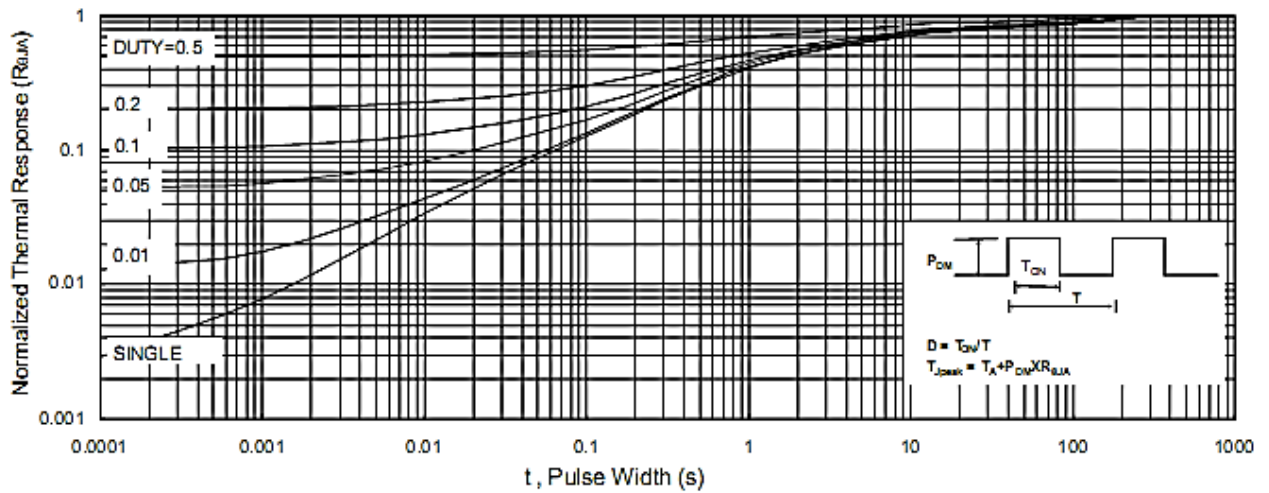


Fig.9 Normalized Maximum Transient Thermal Impedance

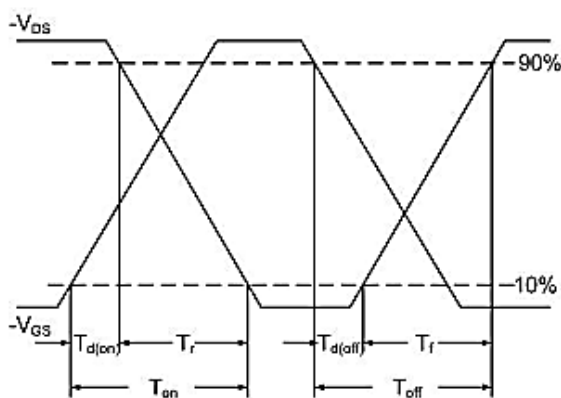


Fig.10 Switching Time Waveform

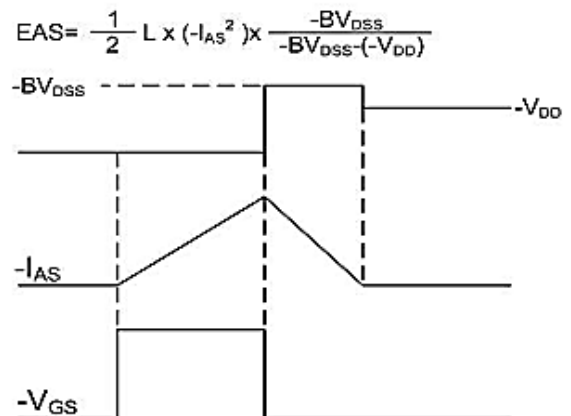
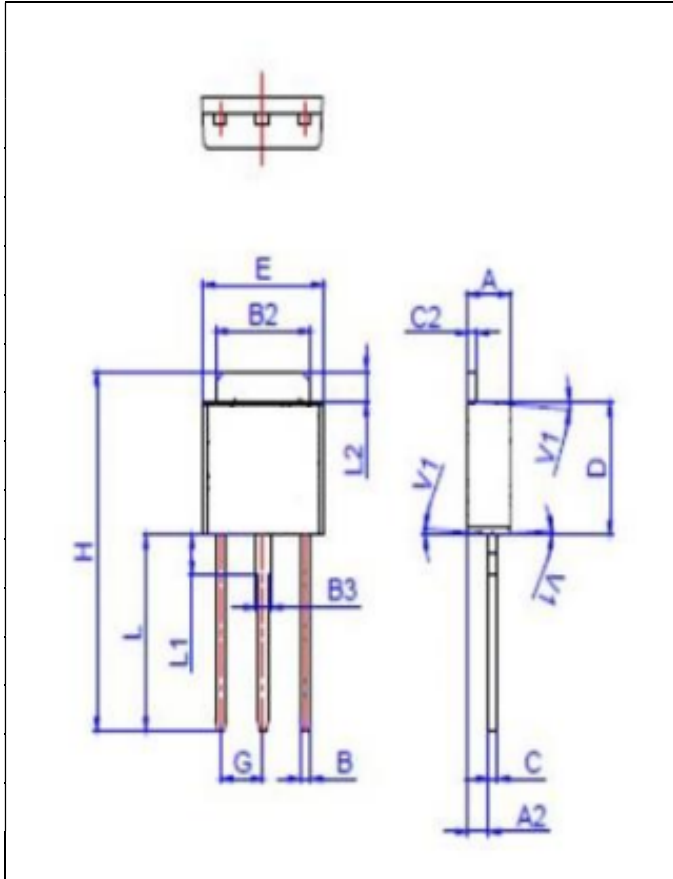


Fig.11 Unclamped Inductive Waveform

Package Outline Dimensions Millimeters

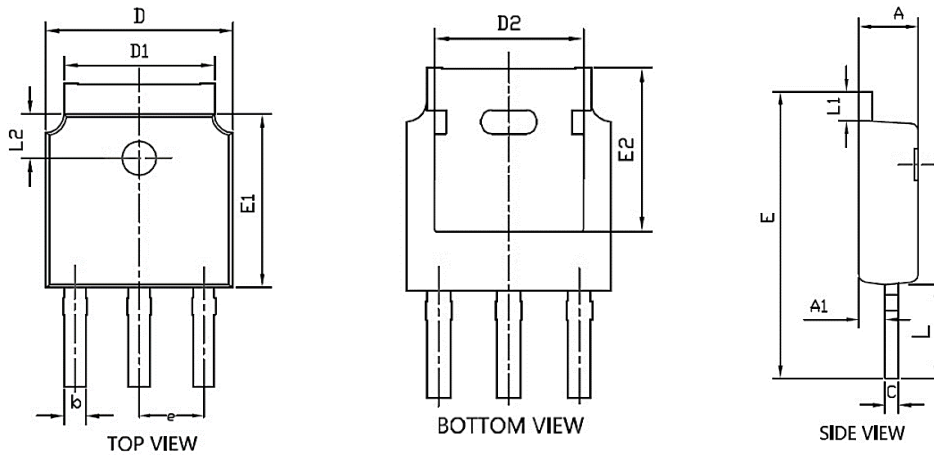
TO-251

Pef.	Dimensions					
	Millometers			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.088		0.095
A2	0.90		1.20	0.035		0.047
B	0.55		0.65	0.022		0.026
B2	5.10		5.40	0.200		0.213
B3	0.76		0.85	0.030		0.033
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G		2.30			0.091	
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		1.90	0.071		0.075
L2	1.37		1.50	0.054		0.059
V1		4°			4°	



Package Outline Dimensions Millimeters

TO-251S



Symbol	Common		
	mm		
	Mim	Nom	Max
A	2.2	2.3	2.4
A1	0.9	1.0	1.1
b	0.66	0.76	0.86
C	0.46	0.52	0.58
D	6.50	6.6	6.7
D1	5.15	5.3	5.45
D2	4.6	4.8	4.95
E	10.4	----	11.5
E1	6.0	6.1	6.2
E2	5.400REF		
e	2.286BSC		
L	3.5	4.0	4.3
L1	0.9	---	1.27
L2	1.4	---	1.9