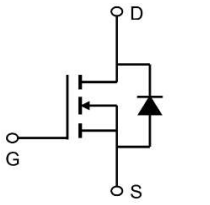
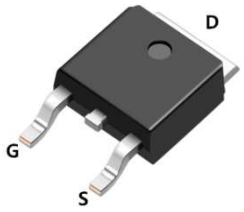
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	14.1A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 105mΩ(Type:88 mΩ)





TO-252

lead-free ROHS

Application

- Load Switch
- PWM Application
- Power management

Product Specification Classification

Part Number	Package	Marking	Pack
YFW15N10AD	TO-252	YFW 15N10AD XXXXX	2500PCS/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	14.1	A
Drain Current, V_{GS} @ 10V @T_C=100℃	I_D	8.1	A
Pulsed Drain Current[1]	I_{DM}	28	A
Total Power Dissipation @T_C=25℃	P_D	20.8	W
Total Power Dissipation[3] @T_A=25℃	P_D	2	W
Single Pulse Avalanche Energy[4]	E_{AS}	8	mJ
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Maximum Thermal Resistance, Junction-case	R_{thj-c}	6	°C/W
Maximum Thermal Resistance, Junction ambient	R_{thj-a}	62.5	°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=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=250μA	**$V_{GS(th)}$**	1.0	1.5	2.5	**V**
Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=10A	**$R_{DS(ON)}$**	-	88	105	**mΩ**
	V_{GS}=4.5V, I_D=8A		-	93	125	
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	610	-	**pF**
Output Capacitance		**C_{oss}**	-	40	-	
Reverse Transfer Capacitance		**C_{rss}**	-	25	-	
Total Gate Charge	V_{DS}=30V V_{GS}=10V I_D=10A	**Q_g**	-	12	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	2.2	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	2.5	-	
Turn-on delay time	V_{DS}=30V I_D=5A R_G=1.8Ω V_{GS}=10V	**$t_{d(on)}$**	-	7	-	**ns**
Turn-on Rise Time		**T_r**	-	5	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	16	-	
Turn-Off Fall Time		**t_f**	-	6	-	
Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	**I_S**	-	-	10	**A**
Pulsed Source Current[2,5]		**I_{SM}**	-	-	40	**A**
Diode Forward Voltage [2]	V_{GS}=0V , I_S=10A	**V_{SD}**	-	-	1.2	**V**
Body Diode Reverse Recovery Time	I_F=10A , dI/dt=100A/μs	**t_{rr}**	-	21	-	**ns**
Body Diode Reverse Recovery Charge		**Q_{rr}**	-	21	-	**nC**

Note :
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 ≦ 300us , duty cycle ≦ 2%
3.The EAS data shows Max. rating . The test condition is VDD=25V,VGS=10V,L=0.1mH,IAS=11A
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.

Ratings and Characteristic Curves

Typical Characteristics

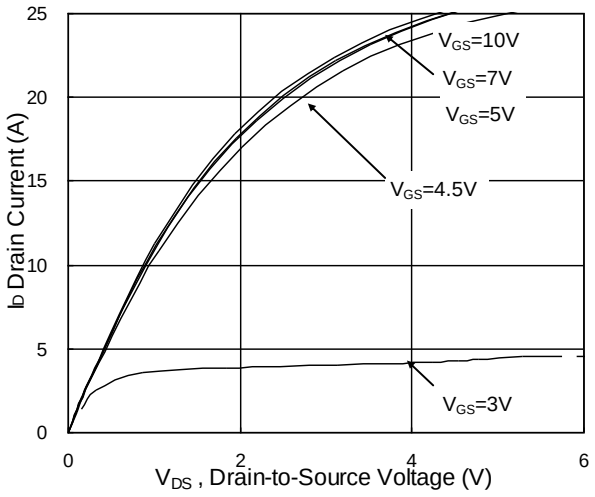


Fig.1 Typical Output Characteristics

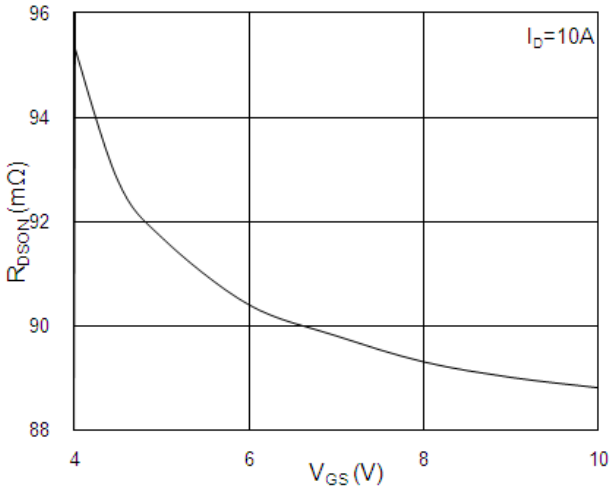


Fig.2 On-Resistance vs. Gate-Source

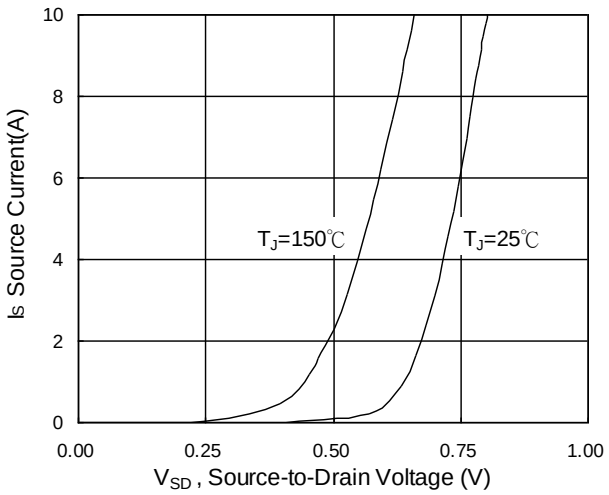


Fig.3 Forward Characteristics Of Reverse

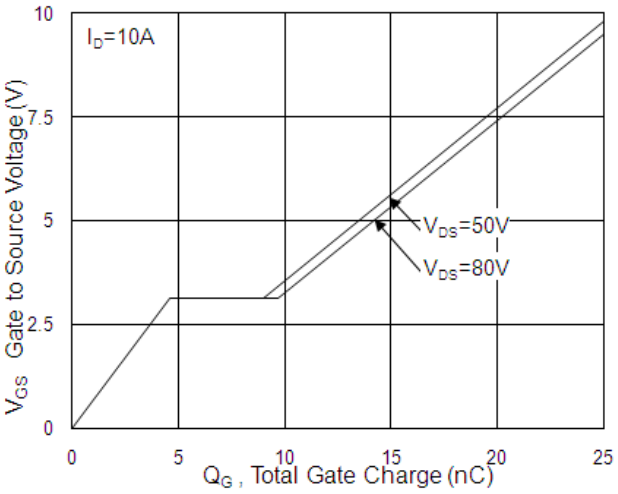


Fig.4 Gate-Charge Characteristics

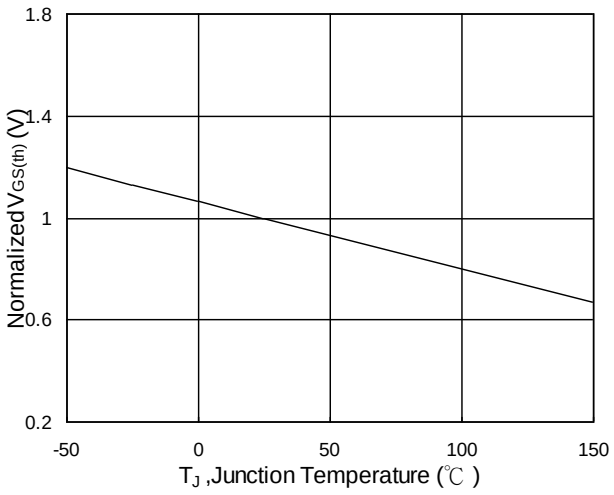


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

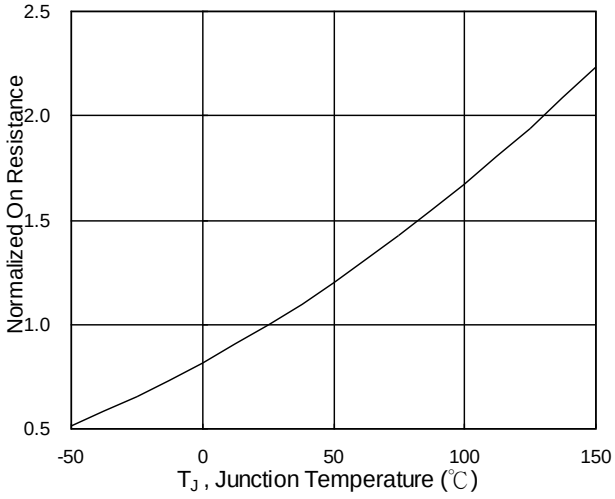


Fig.6 Normalized R_{DSON} vs. T_J

Ratings and Characteristic Curves

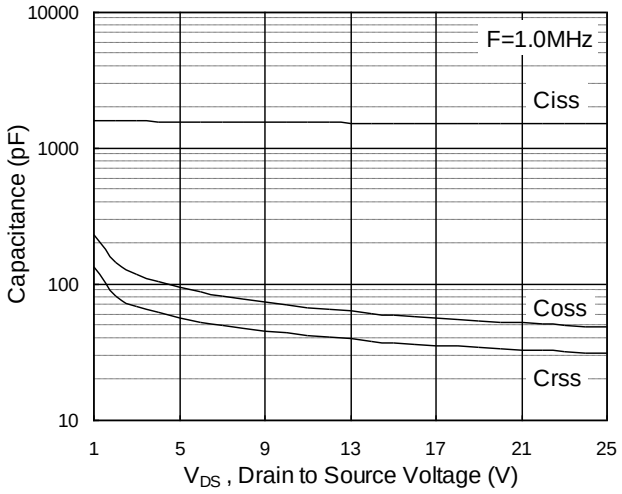


Fig.7 Capacitance

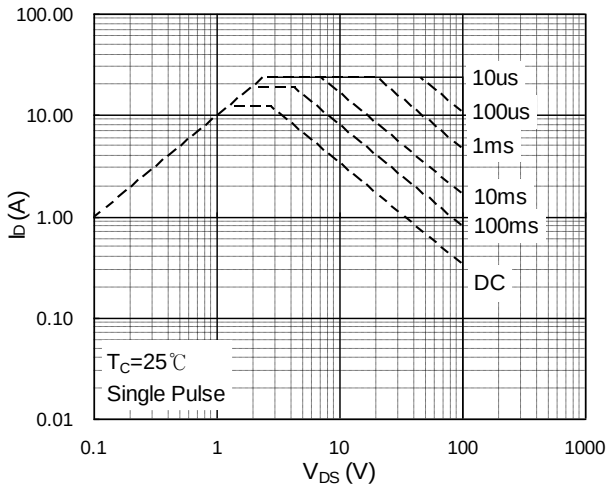


Fig.8 Safe Operating Area

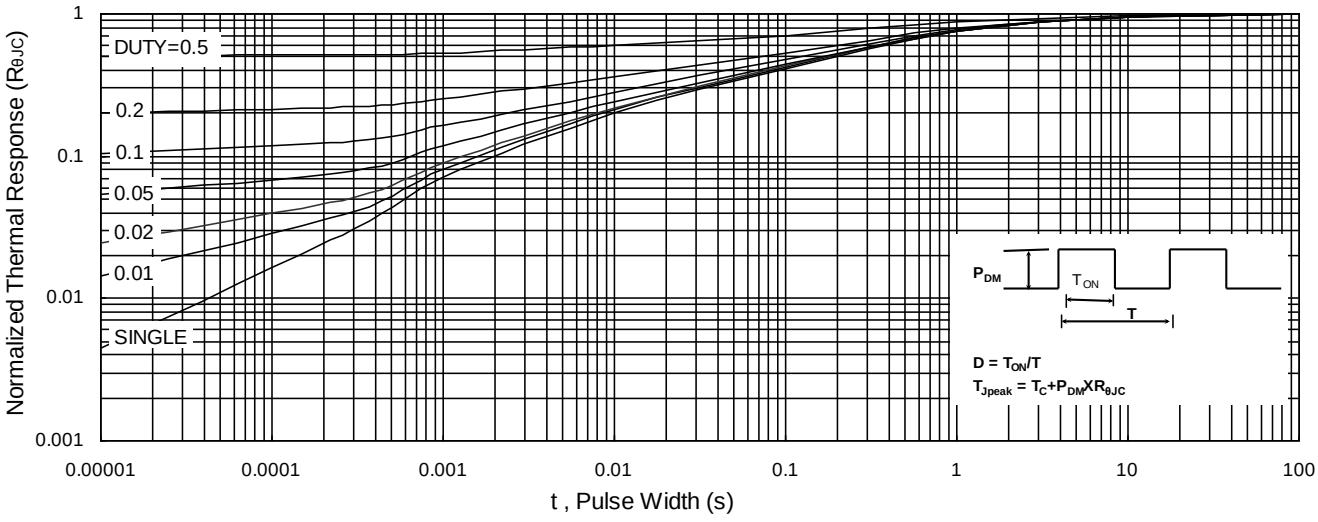


Fig.9 Normalized Maximum Transient Thermal Impedance

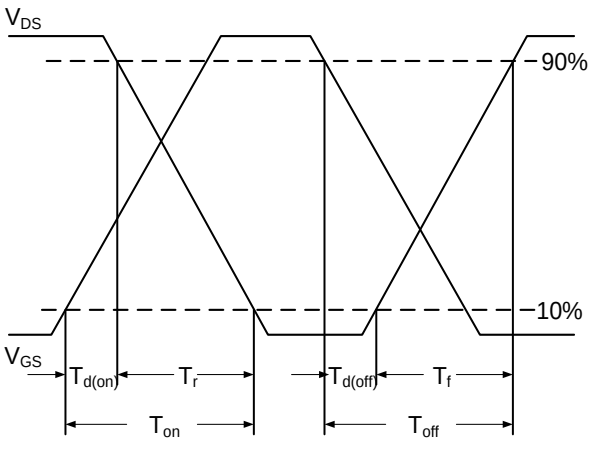


Fig.10 Switching Time Waveform

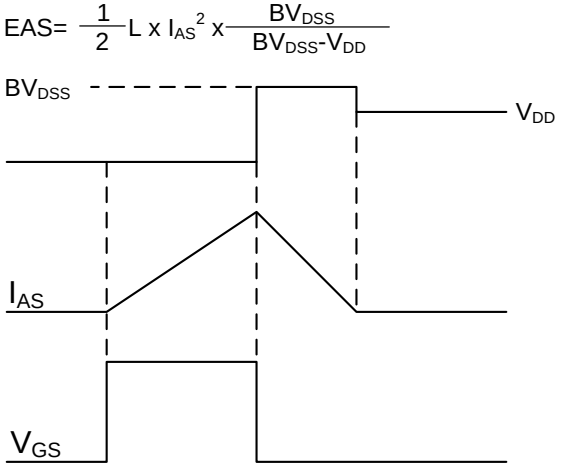
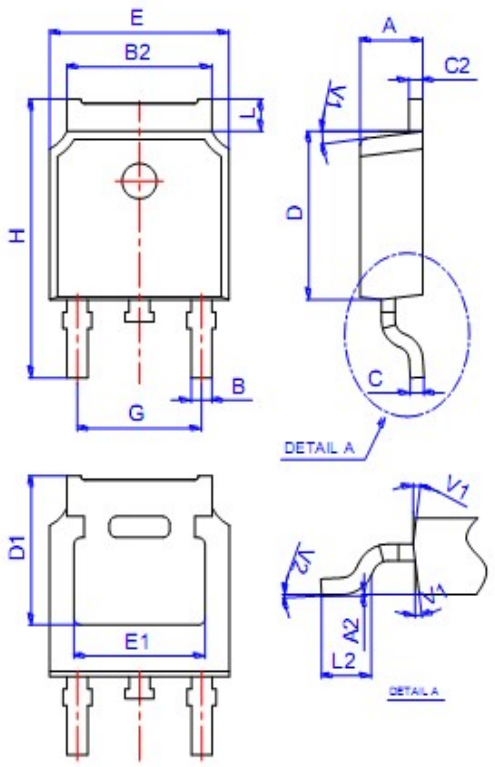


Fig.11 Unclamped Inductive Switching Waveform

Package Outline Dimensions Millimeters

TO-252



Dim.	Min.	Typ.	Max.
A	2.10	-	2.50
A2	0	-	0.10
B	0.66	-	0.86
B2	5.18	-	5.48
C	0.40	-	0.60
C2	0.44	-	0.58
D	5.90	-	6.30
D1	5.30REF		
E	6.40	-	6.80
E1	4.63	-	-
G	4.47	-	4.67
H	9.50	-	10.70
L	1.09	-	1.21
L2	1.35	-	1.65
V1	-	7°	-
V2	0°	-	6°

All Dimensions in millimeter

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