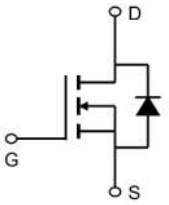
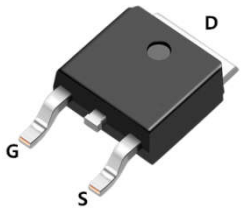
40V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	80A
V_{DSS}	40V
R_{DSON}-typ(@V_{GS}=10V)	< 7.5mΩ(Type:6.0 mΩ)





TO-252

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW80N04AD	TO-252	YFW 80N04AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	40	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=25℃	I_D	80	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=100℃	I_D	45	A
Pulsed Drain Current[2]	I_{DM}	120	A
Single Pulse Avalanche Energy[3]	E_{AS}	76.1	mJ
Avalanche Current	I_{AS}	39	A
Total Power Dissipation[4] @T_C=25℃	P_D	44.6	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-ambient (Steady State)[1]	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	2.8	°C/W

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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	BV_{DSS}	40	47	-	V
BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	$\Delta BV_{DSS/\Delta TJ}$	-	0.034	-	V/°C
Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=12A	$R_{DS(ON)}$	-	6.0	7.5	mΩ
	V_{GS}=4.5V, I_D=10A		-	9.0	12	
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	1.0	1.5	2.5	V
V_{GS}(th) Temperature Coefficient		$\Delta V_{GS(th)}$	-	-4.96	-	mV/°C
Drain -Source Leakage Current	V_{DS}=32V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=32V , V_{GS}=0V , T_J=55℃		-	-	5	
Gate-Source Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Forward Transconductance	V_{DS}=5V, I_D=12A	g_{FS}	-	39	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	1.6	-	Ω
Total Gate Charge(4.5V)	V_{DS}=20V V_{GS}=4.5V I_D=12A	Q_g	-	18.8	-	nC
Gate-Source Charge		Q_{gs}	-	4.7	-	
Gate-Drain Charge		Q_{gd}	-	8.2	-	
Turn-on delay time	V_{DD}=15V V_{GS}=10V R_G=3.3 I_D=1A	$t_{d(on)}$	-	14.3	-	ns
Rise Time		T_r	-	2.6	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	77	-	
Fall Time		t_f	-	4.8	-	
Input Capacitance	V_{DS}=15V V_{GS}=0V f=1.0MHz	C_{iss}	-	2332	-	pF
Output Capacitance		C_{oss}	-	193	-	
Reverse Transfer Capacitance		C_{rss}	-	138	-	
Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	I_S	-	-	60	A
Pulsed Source Current[2,5]		I_{SM}	-	-	120	A
Diode Forward Voltage [2]	V_{GS}=0V , I_S=1A , T_J=25℃	V_{SD}	-	-	1	V

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=39A
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.

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Ratings and Characteristic Curves

Typical Characteristics

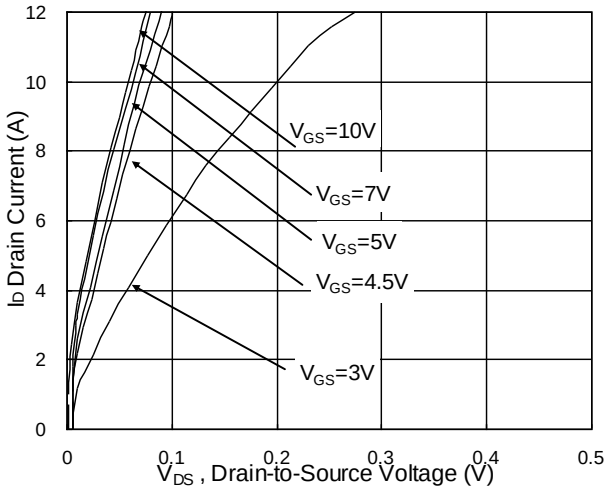


Fig.1 Typical Output Characteristics

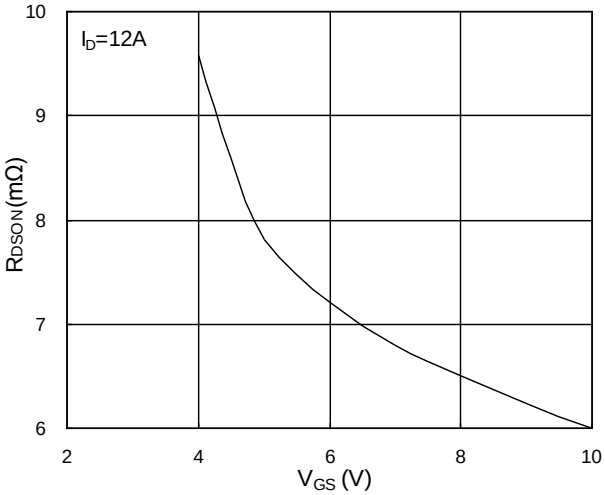


Fig.2 On-Resistance vs. G-S Voltage

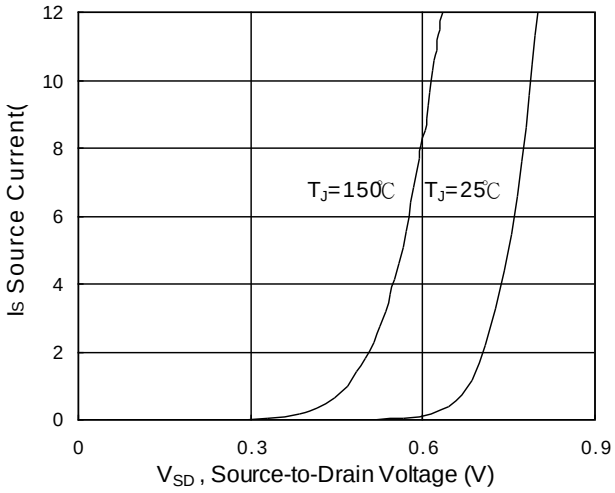


Fig.3 Forward Characteristics of Reverse

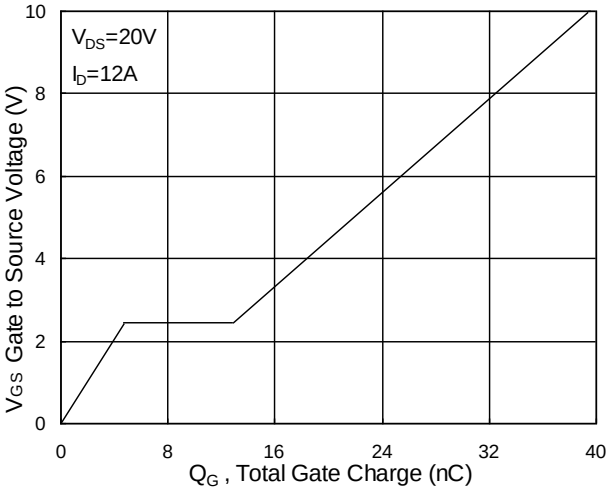


Fig.4 Gate-Charge Characteristics

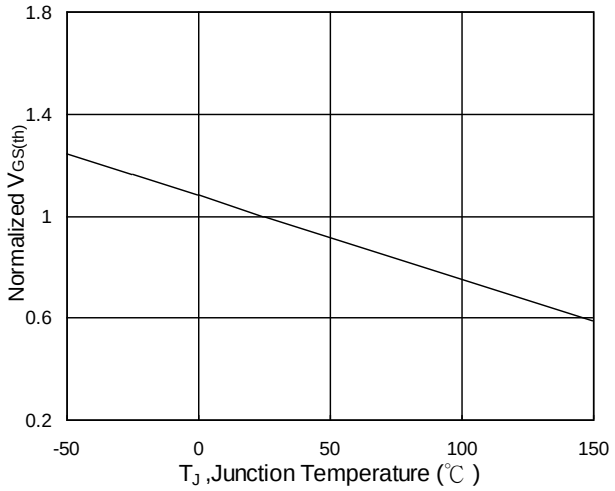


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

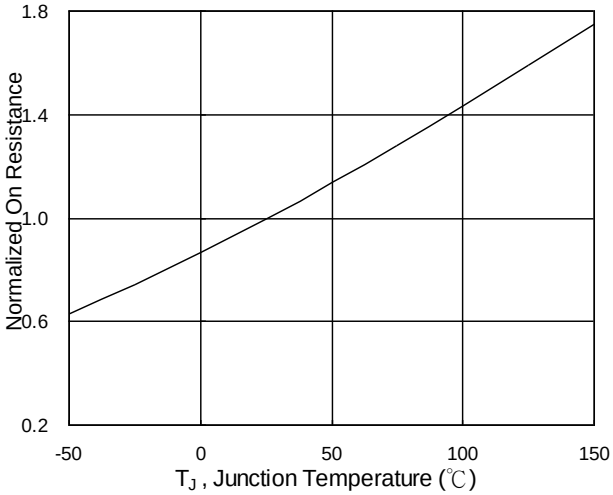


Fig.6 Normalized R_{DSON} vs. T_J

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Ratings and Characteristic Curves

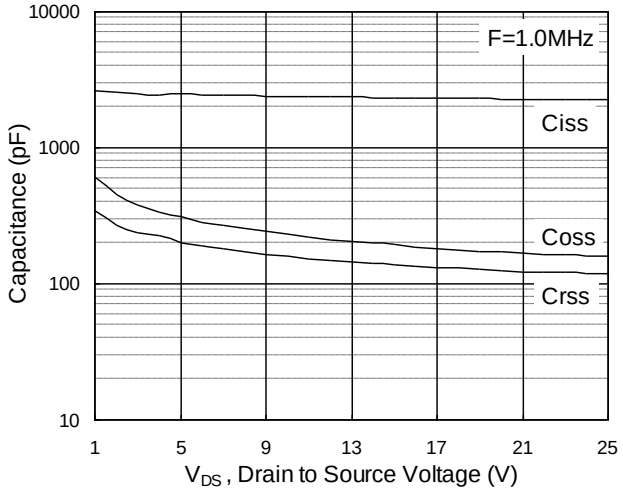


Fig.7 Capacitance

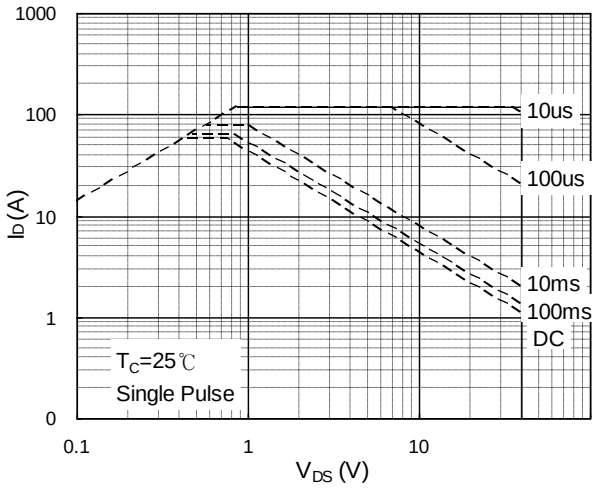


Fig.8 Safe Operating Area

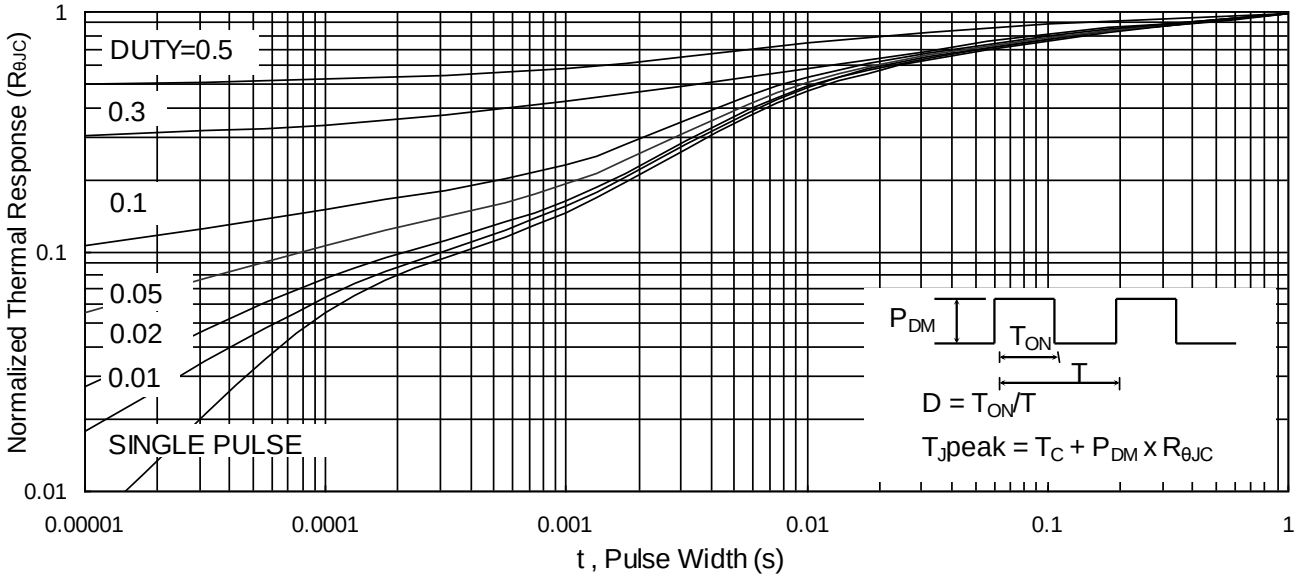


Fig.9 Normalized Maximum Transient Thermal Impedance

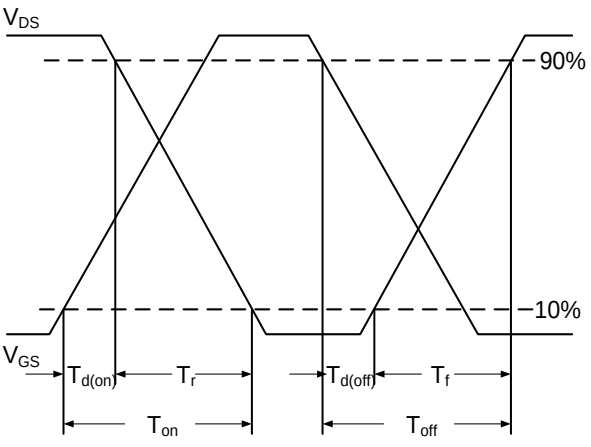


Fig.10 Switching Time Waveform

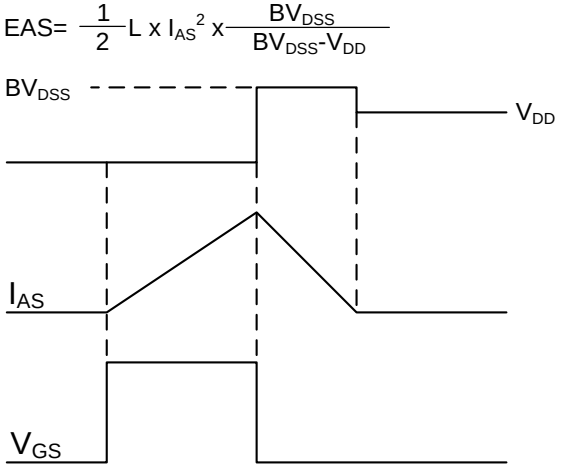
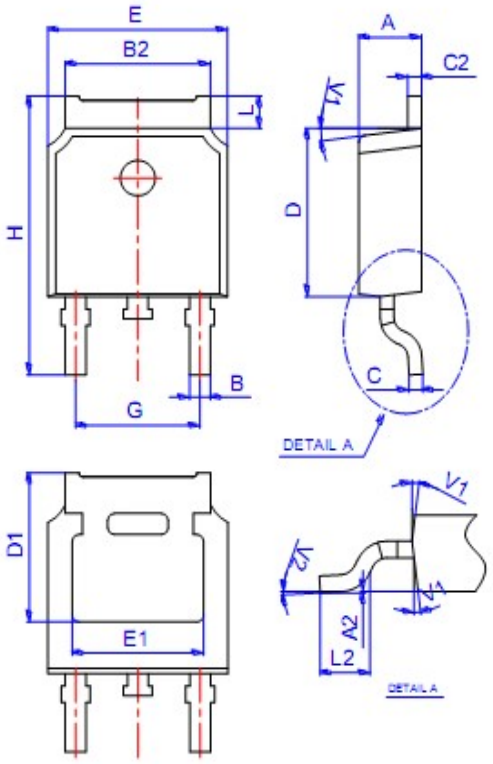


Fig.11 Unclamped Inductive Waveform

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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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