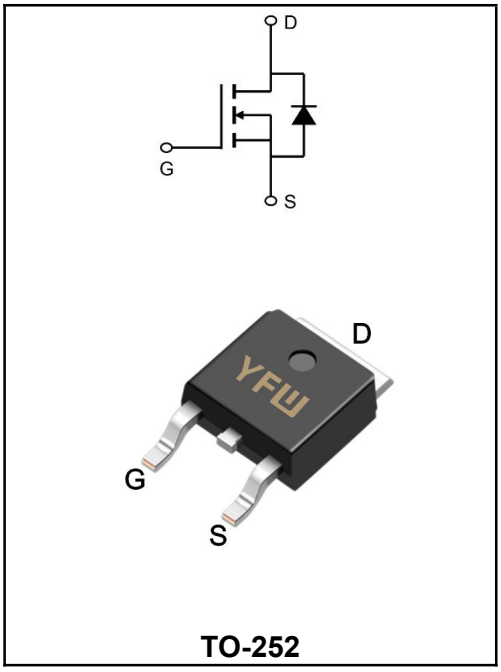
68V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	80A
V_{DSS}	68V
R_{DSON}-typ(@V_{GS}=10V)	< 8.6mΩ(Type:6.5 mΩ)



TO-252

Applications

- Battery protection
- Load switch
- Uninterruptible power supply

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	68	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	52	A
Pulsed Drain Current[2]	I_{DM}	320	A
Single Pulse Avalanche Energy[3]	E_{AS}	121	mJ
Avalanche Current	I_{AS}	22	A
Total Power Dissipation[4] @T_C=25℃	P_D	116	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]	$R_{\theta JA}$	63	°C/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	0.85	°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	BV_{DSS}	68	72	-	V
BVDSS Temperature Coefficient	Reference to 25℃ , I_D=1mA	$\Delta BV_{DSS/\Delta TJ}$	-	0.023	-	V/°C
Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=10A	$R_{DS(ON)}$	-	6.5	8.6	mΩ
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	2.0	3.0	4.0	V
V_{GS}(th) Temperature Coefficient		$\Delta V_{GS(th)}$	-	-4.2	-	mV/°C
Drain -Source Leakage Current	V_{DS}=24V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	1	μA
	V_{DS}=24V , 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=10A	g_{FS}	-	5.5	-	S
Gate Resistance	V_{DS}=0V , V_{GS}=0V , f=1MHz	R_g	-	2.3	-	Ω
Total Gate Charge(4.5V)	V_{DS}=30V V_{GS}=10V I_D=20A	Q_g	-	35		nC
Gate-Source Charge		Q_{gs}	-	11		
Gate-Drain Charge		Q_{gd}	-	9		
Turn-on delay time	V_{DS}=30V I_D=20A R_{GEN}=6Ω V_{GS}=10V	$t_{d(on)}$	-	15		ns
Rise Time		T_r	-	94	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	46	-	
Fall Time		t_f	-	32	-	
Input Capacitance	V_{DS}=15V V_{GS}=0V f=1MHz	C_{iss}	-	4062	-	pF
Output Capacitance		C_{oss}	-	261	-	
Reverse Transfer Capacitance		C_{rss}	-	231	-	
Continuous Source Current[1,5]	V_G=V_D=0V , Force Current	I_S	-	-	80	A
Pulsed Source Current[2,5]		I_{SM}	-	-	320	A
Diode Forward Voltage [2]	V_{GS}=0V , I_S=80A	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_F=20A , dI/dt=100A/μs , T_J=25℃	t_{rr}	-	78	-	ns
Reverse Recovery Charge		Q_{rr}	-	51	-	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 .The EAS data shows Max. rating .
3、The test cond≦ 300us duty cycle ≦ 2%, duty cycle ition is TJ =25℃, VDD =35V, V G =10V, R G =25Ω, L=0.5mH, IAS =22A
4、The power dissipation is limited by 175℃ 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

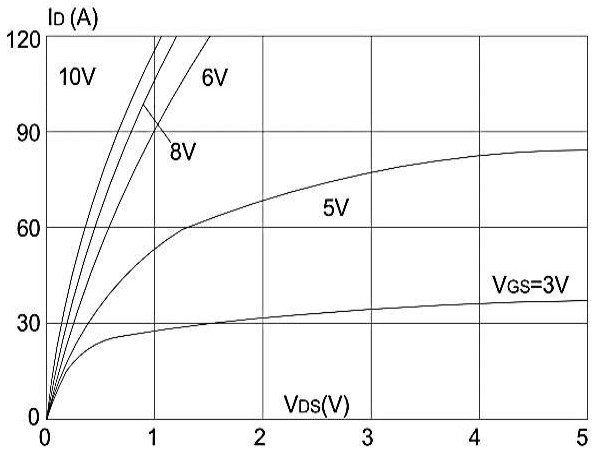


Figure1: Output Characteristics

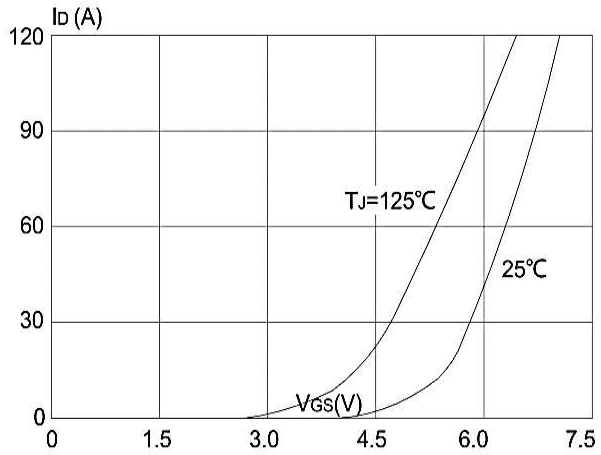


Figure 2: Typical Transfer Characteristics

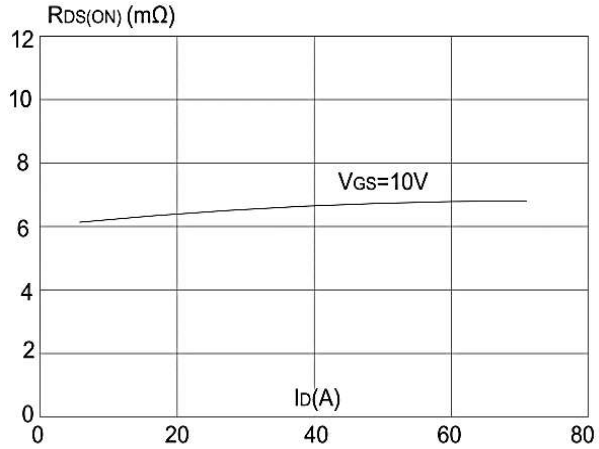


Figure 3:On-resistance vs. Drain Current

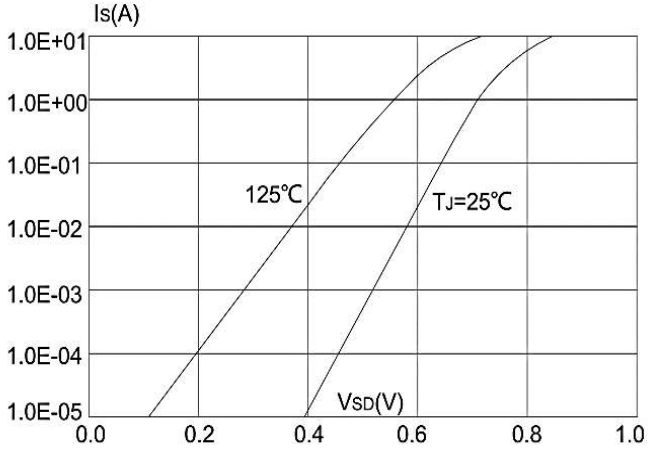


Figure 4: Body Diode Characteristics

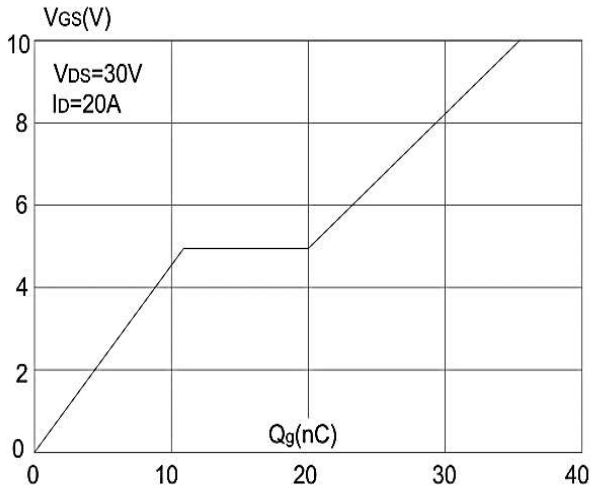


Figure 5: Gate Charge Characteristics

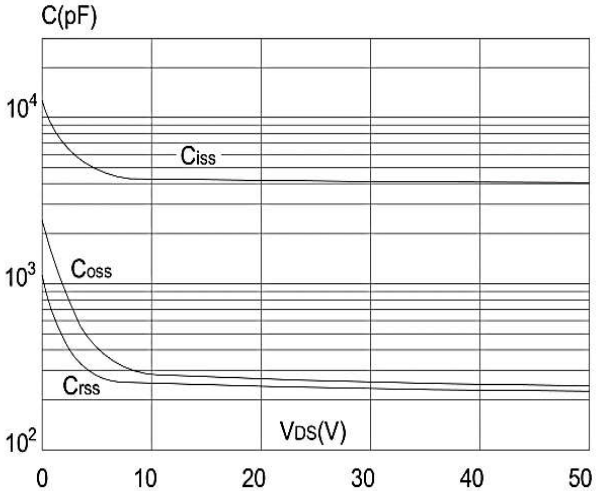


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

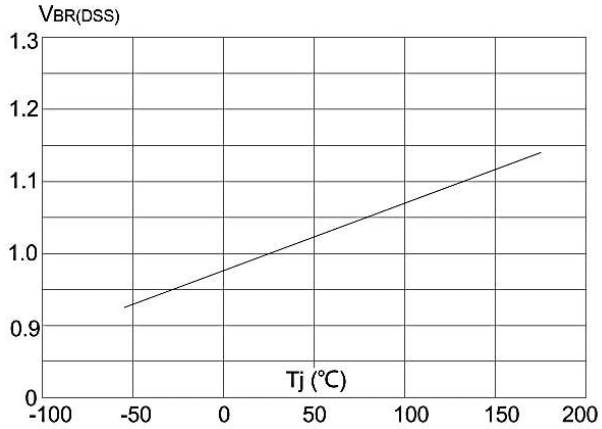


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

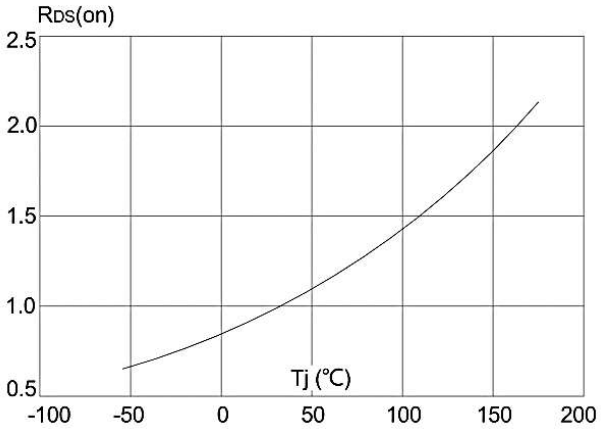


Figure 8: Normalized on Resistance vs. Junction Temperature

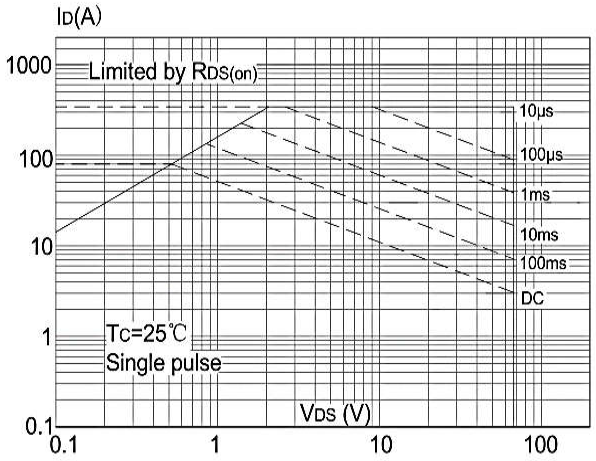


Figure 9: Maximum Safe Operating Area

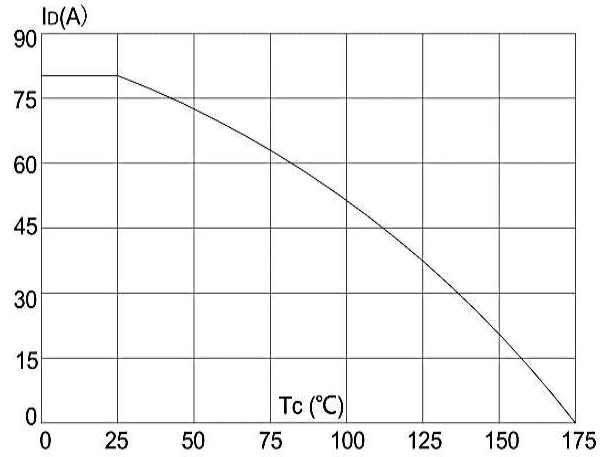


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

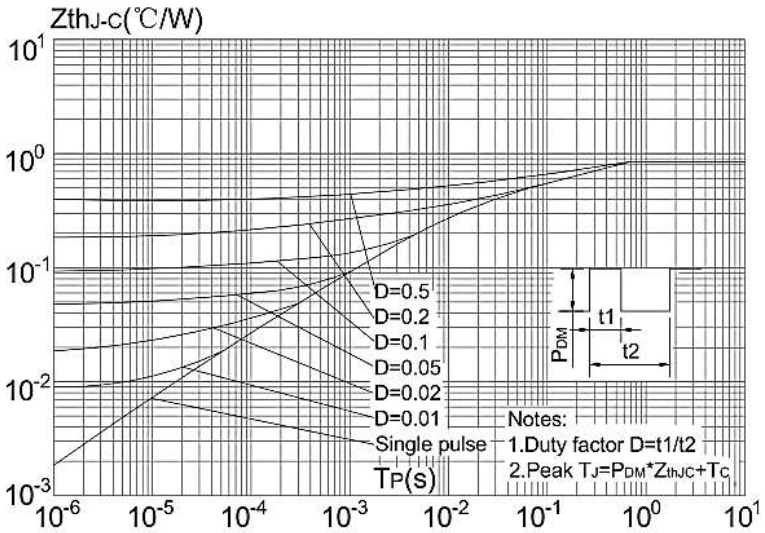
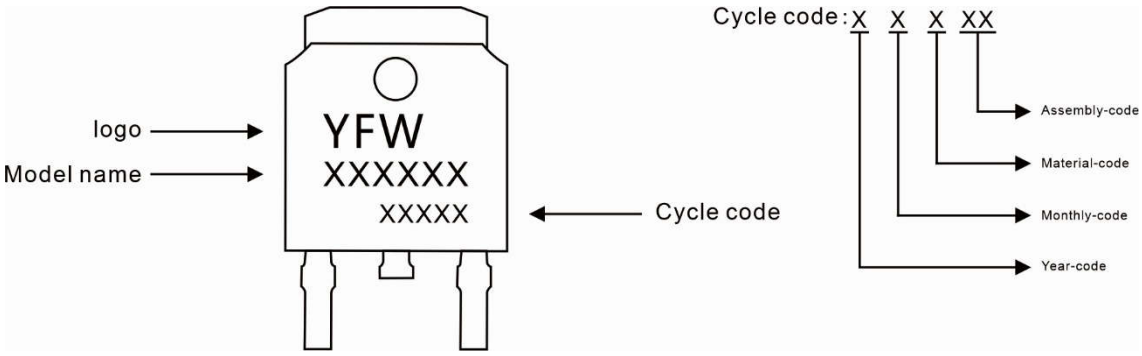


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

Marking Diagram

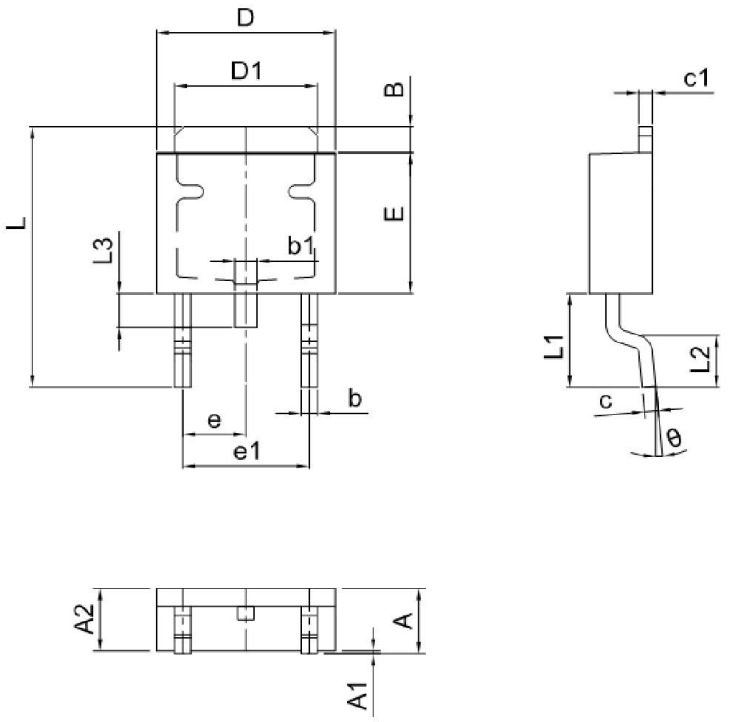


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW80N07AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

Package Dimensions

TO-252



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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