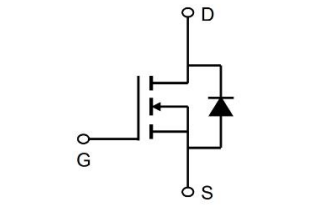
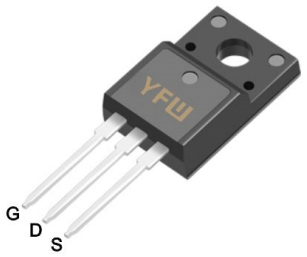
800V N-Plance ENHANCEMENT MODE MOSFET

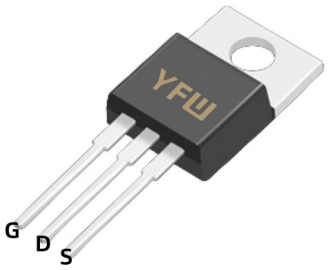
MAIN CHARACTERISTICS

I_D	4A
V_{DSS}	800V
R_{DSON}-typ(@V_{GS}=10V)	< 2.5Ω





TO-220F



TO-220AB

Application

- 100% UIS Test
- Simple Drive Requirement
- Fast Switching Characteristic
- RoHS Compliant & Halogen-Free

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	800	V
Gate - Source Voltage	V_{GS}	±30	V
Drain Current, V_{GS} @ 10V[3] T_C=25℃	I_D	4	A
Pulsed Drain Current[1]	I_{DM}	16	A
Total Power Dissipation T_C=25 ℃	P_D	32.9	W
Total Power Dissipation T_A=25 ℃		1.92	
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	$R_{\theta JC}$	3.8	°C/W
Maximum Thermal Resistance, Junction-ambient	$R_{\theta JA}$	65	°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}	800	-	-	V
Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=2A	$R_{DS(ON)}$	-	-	2.5	Ω
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	$V_{GS(th)}$	2.5	-	4.5	V
Forward Transconductance	V_{DS}=20V, I_D=2A	g_{fs}	-	5.3	-	S
Drain-source leakage current	V_{DS}=640V , V_{GS}=0V	I_{DSS}	-	-	100	μA
Gate Source Leakage	V_{GS}=±30V， V_{DS}=0V	I_{GSS}	-	-	±1	nA
Total Gate Charge	I_D=4A V_{DS}=640V V_{GS}=10V	Q_g	-	27	43.2	nC
Gate-Source Charge		Q_{gs}	-	4	-	
Gate-Drain ("Miller") Charge		Q_{gd}	-	15	-	
Turn-on delay time	V_{DD}=400V I_D=4A R_G=25Ω V_{GS}=10V	$t_{d(on)}$	-	14	-	ns
Rise Time		T_r	-	30	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	69	-	
Fall Time		t_f	-	34	-	
Input Capacitance	V_{DS}=100V V_{GS}=0V f=1MHz	C_{iss}	-	680	1088	pF
Output Capacitance		C_{oss}	-	40	-	
Reverse Transfer Capacitance		C_{rss}	-	10	-	
Gate Resistance	f=1MHz	R_G	-	3.7	7.4	Ω
Forward voltage[2]	V_{GS}=0V , I_S=4A	V_{SD}	-	-	1.5	V
Reverse Recovery Time	I_S=4A, V_{GS}=0V dI_{SD}/dt=100A/μs,	t_{rr}	-	430	-	ns
Reverse Recovery Charge		Q_{rr}	-	1.9	-	nC

Notes:
1.Pulse width limited by max. junction temperature.
2.Pulse test
3.Ensure that the junction temperature does not exceed TJmax..

Ratings and Characteristic Curves

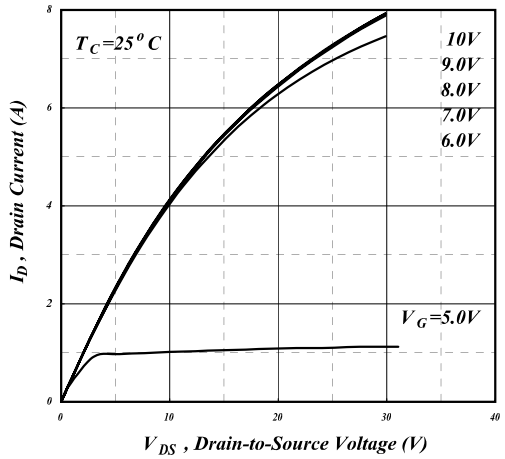


Fig 1. Typical Output Characteristics

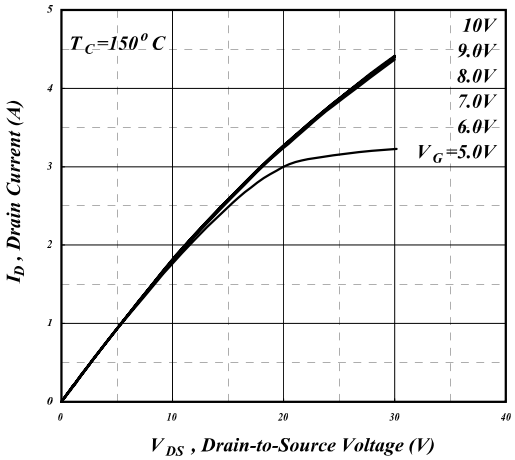


Fig 2. Typical Output Characteristics

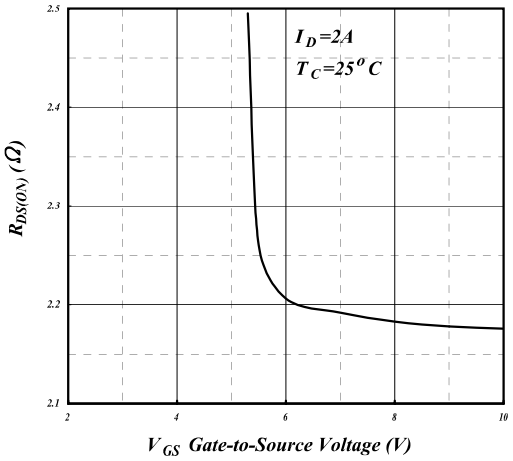


Fig 3. On-Resistance v.s. Gate Voltage

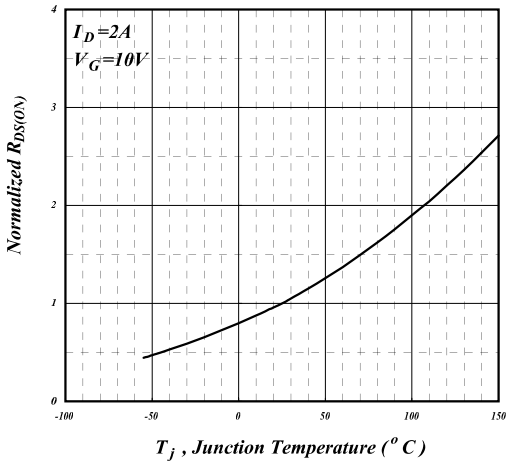


Fig 4. Normalized On-Resistance v.s. Junction Temperature

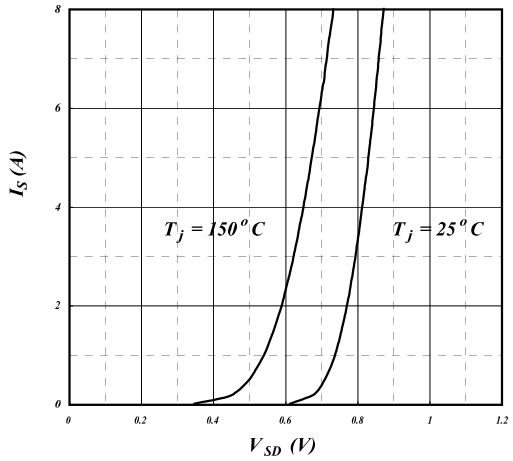


Fig 5. Forward Characteristic of Reverse Diode

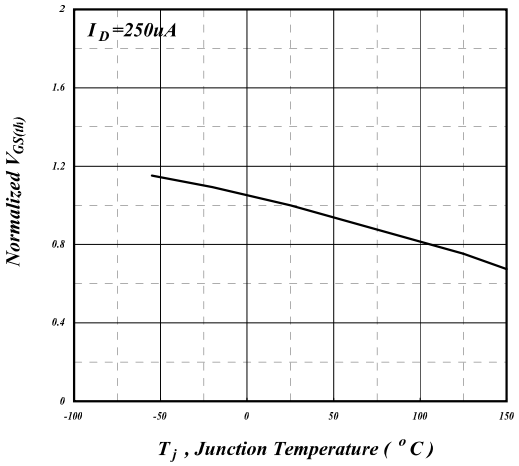


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

Ratings and Characteristic Curves

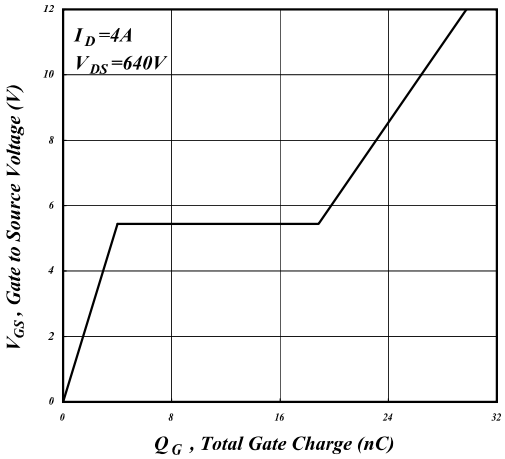


Fig 7. Gate Charge Characteristics

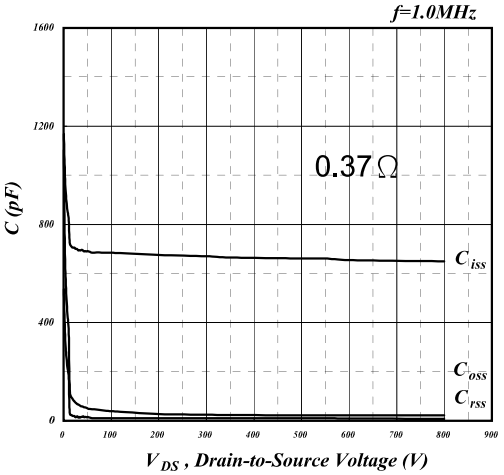


Fig 8. Typical Capacitance Characteristics

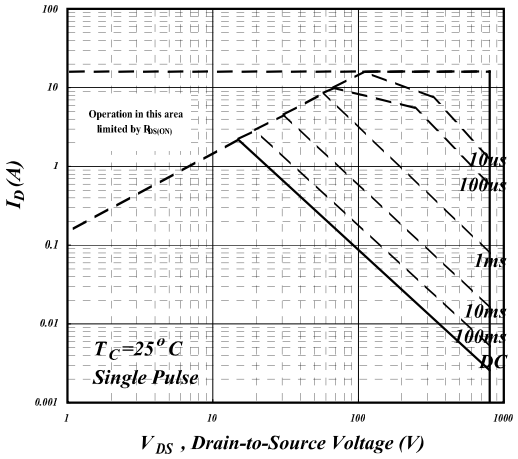


Fig 9. Maximum Safe Operating Area

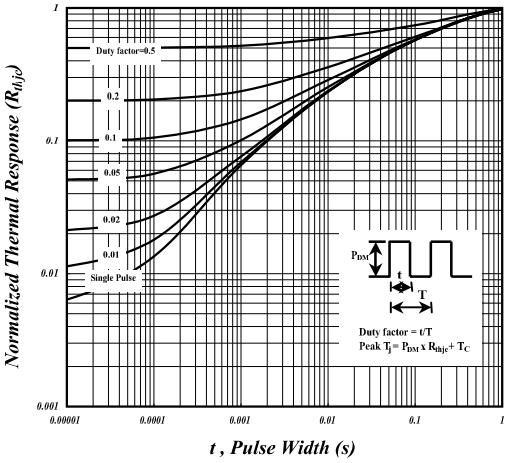


Fig10. Effective Transient Thermal Impedance

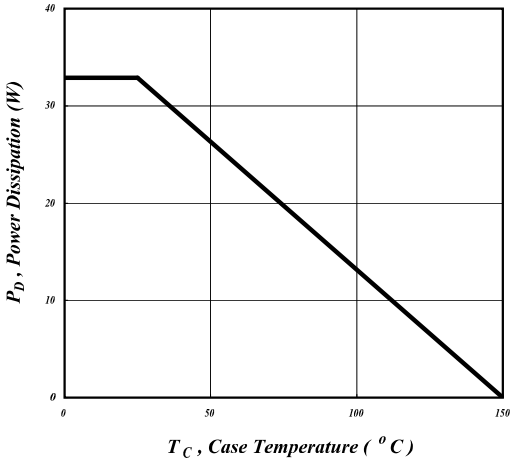


Fig 11. Total Power Dissipation

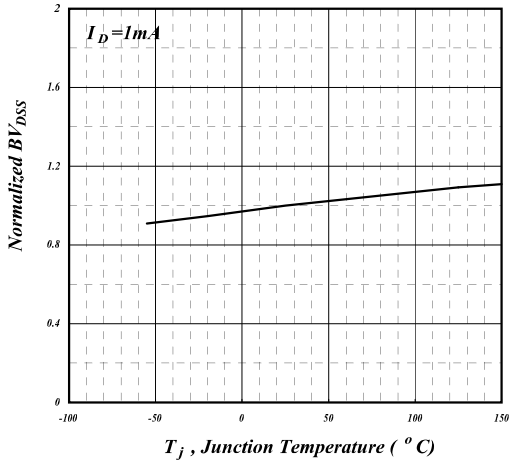
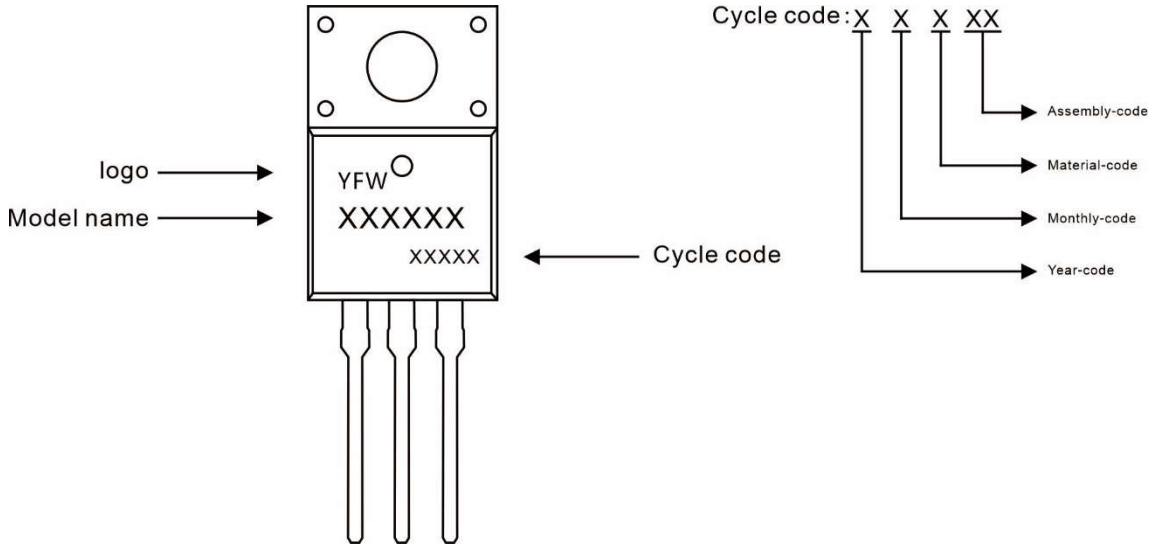


Fig 12. Normalized BV_{DSS} v.s. Junction Temperature

Marking Diagram

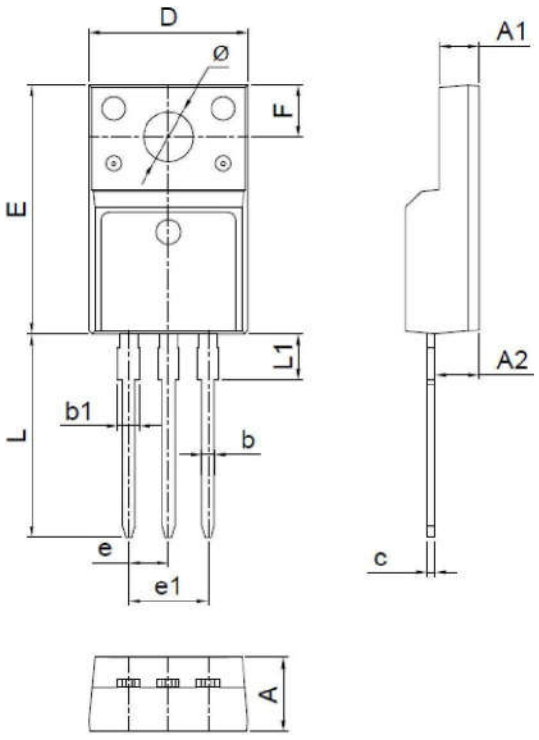


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW4N80AF	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

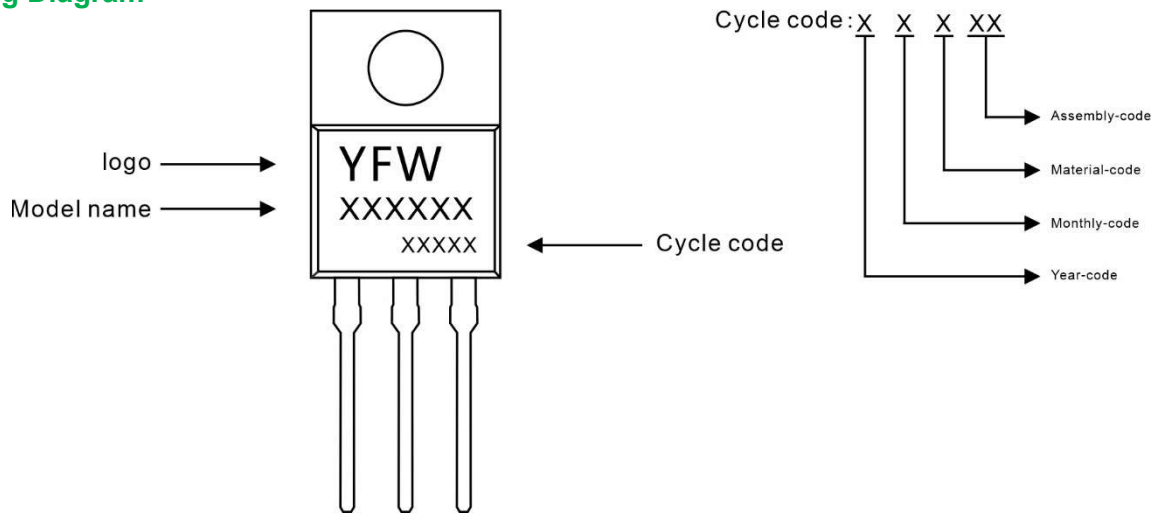
Package Dimensions

TO-220F



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.50	4.90	0.177	0.193
A1	2.34	2.74	0.092	0.108
A2	2.66	2.86	0.105	0.113
b	0.75	0.85	0.030	0.033
b1	1.24	1.44	0.049	0.057
c	0.40	0.60	0.016	0.024
D	10.00	10.32	0.394	0.406
E	15.75	16.05	0.620	0.632
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	3.10	3.5	0.122	0.138
L	13.50	13.90	0.531	0.547
L1	2.90	3.30	0.114	0.130
Φ	3.10	3.30	0.122	0.130

Marking Diagram

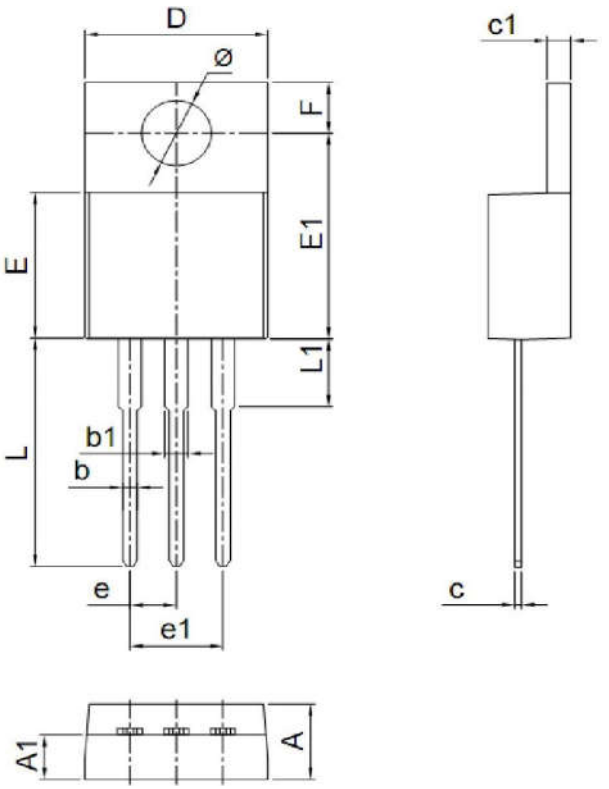


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW4N80AT	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220AB



Symbol	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	2.52	2.82	0.099	0.111
b	0.71	0.91	0.028	0.036
b1	1.17	1.37	0.046	0.054
c	0.30	0.50	0.012	0.020
c1	1.17	1.37	0.046	0.054
D	9.90	10.20	0.390	0.402
E	8.50	8.90	0.335	0.350
E1	12.00	12.50	0.472	0.492
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
F	2.60	2.80	0.102	0.110
L	13.20	13.80	0.520	0.543
L1	3.80	4.20	0.150	0.165
Φ	3.60	3.96	0.142	0.156

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