

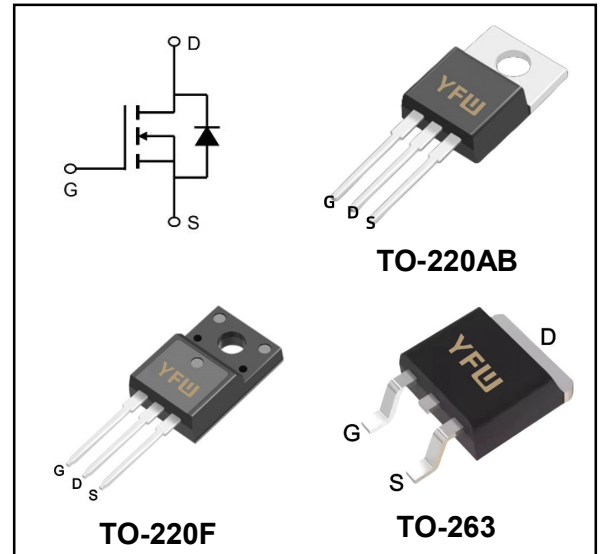
**800V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

$I_D$	7A
$V_{DSS}$	800V
$R_{DS(on)-typ}(@V_{GS}=10V)$	<1.9Ω (Type:1.4 Ω)

**Features**

- ◆Fast Switching
- ◆Low ON Resistance
- ◆Low Gate Charge
- ◆100% Single Pulse avalanche energy Test
- ◆LeadfreeincomplywithEUroHS2011/65/EUdirectives



**Mechanical Data**

- ◆Case: Molded plastic
- ◆Mounting Position: Any
- ◆Molded Plastic: UL Flammability Classification Rating 94V-0
- ◆Solder bath temperature 275°C maximum, 10s per JESD22-106

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Symbols	Value			Units
		220AB	220F	263	
Drain-Source Voltage	$V_{DS}$	800			V
Gate-Source Voltage	$V_{GS}$	±30			V
Continue Drain Current-Continuous (TC = 25°C)	$I_D$	7			A
-Continuous (TC = 100°C)		4			
Pulsed Drain Current (Note1)	$I_{DM}$	28			A
Power Dissipation	$P_D$	140	48	140	W
-Derate above 25°C		1.12	0.38	1.25	
Single Pulse Avalanche Energy (Note2)	$E_{AS}$	590			mJ
Avalanche Current (Note 1)	$I_{AR}$	7			A
Repetitive Avalanche Energy (Note 1)	$E_{AS}$	14			mJ
Operating Temperature Range	$T_J$	150			°C
Storage Temperature Range	$T_{STG}$	-55 to +150			°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.89	2.8	0.89	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62.5	62.5	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	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	<b>BV<sub>DSS</sub></b>	800	-	-	<b>V</b>
Drain-Source Leakage Current	$V_{DS} = 800\text{ V}, V_{GS} = 0\text{ V}$	<b>I<sub>DSS</sub></b>	-	-	1	<b>uA</b>
	$V_{DS} = 640\text{ V}, T_c = 125^\circ\text{C}$		-	-	10	
Gate Leakage Current	$V_{GS} = \pm 30\text{ V}, V_{DS} = 0\text{ V}$	<b>I<sub>GSS</sub></b>	-	-	$\pm 100$	<b>nA</b>
Gate-Source Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\ \mu\text{A}$	<b>V<sub>GS(th)</sub></b>	3	-	5	<b>V</b>
Drain-Source On-State Resistance	$V_{GS} = 10\text{ V}, I_D = 3.5\text{ A}$	<b>R<sub>DS(on)</sub></b>	-	1.4	1.9	<b>Ω</b>
Forward Transconductance(Note3)	$V_{DS} = 40\text{ V}, I_D = 3.5\text{ A}$	<b>g<sub>fs</sub></b>	-	5	-	<b>S</b>
Input Capacitance	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{MHz}$	<b>C<sub>iss</sub></b>	-	1178	-	<b>pF</b>
Output Capacitance		<b>C<sub>oss</sub></b>	-	133	-	
Reverse Transfer Capacitance		<b>C<sub>rss</sub></b>	-	12	-	
Turn-on Delay Time	$I_D = 7\text{ A}, V_{DD} = 400\text{ V}, R_G = 25\Omega(\text{Note3,4})$	<b>td(ON)</b>	-	34	-	<b>nS</b>
Rise Time		<b>tr</b>	-	35	-	
Turn-Off Delay Time		<b>td(OFF)</b>	-	80	-	
Fall Time		<b>tf</b>	-	32	-	
Total Gate Charge	$I_D = 7\text{ A}, V_{DD} = 640\text{ V}, V_{GS} = 10\text{ V}(\text{Note3,4})$	<b>Q<sub>G</sub></b>	-	50	-	<b>nC</b>
Gate to Source Charge		<b>Q<sub>GS</sub></b>	-	6.1	-	
Gate to Drain Charge		<b>Q<sub>GD</sub></b>	-	28	-	

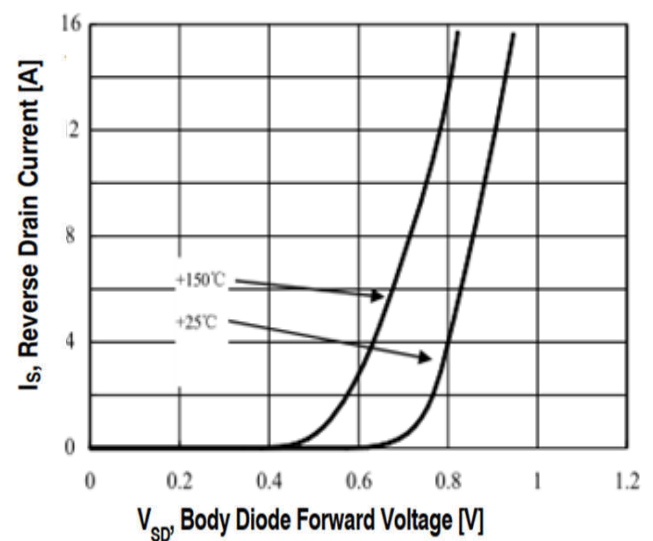
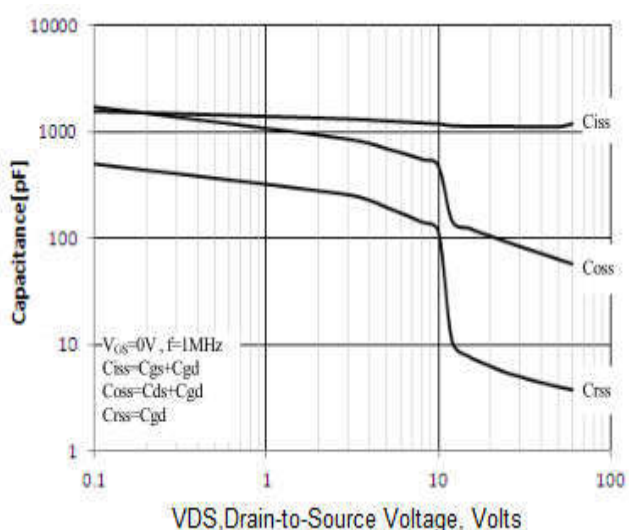
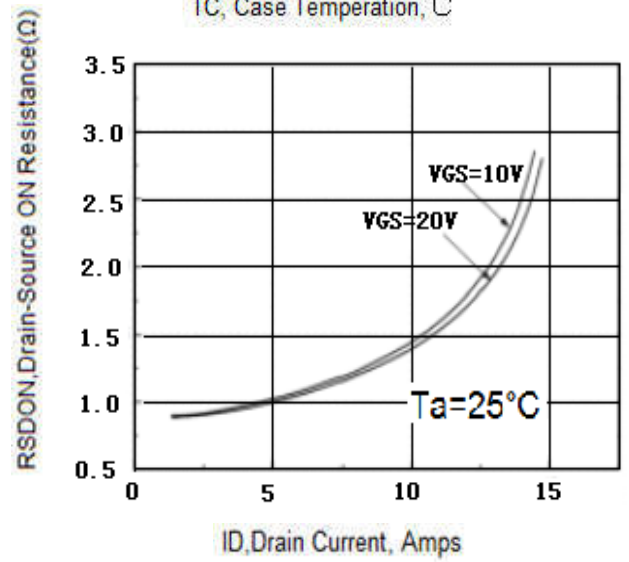
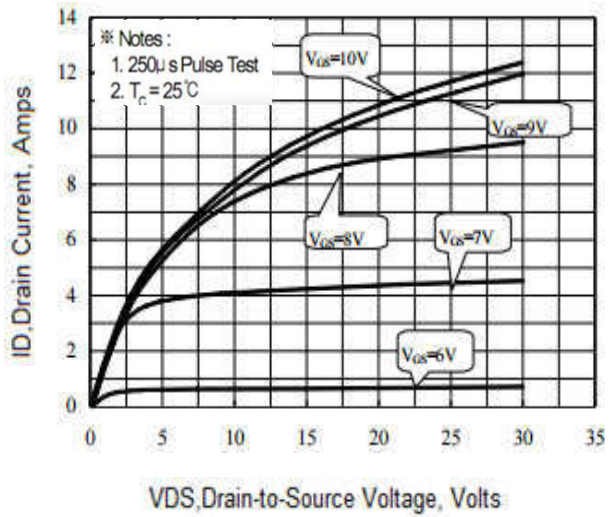
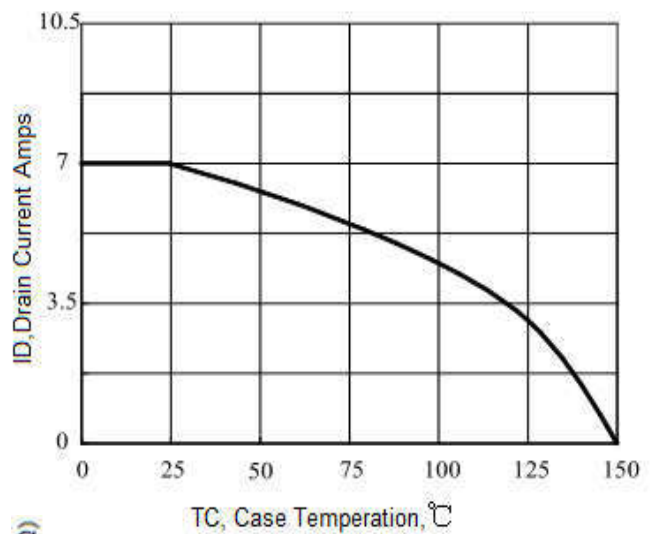
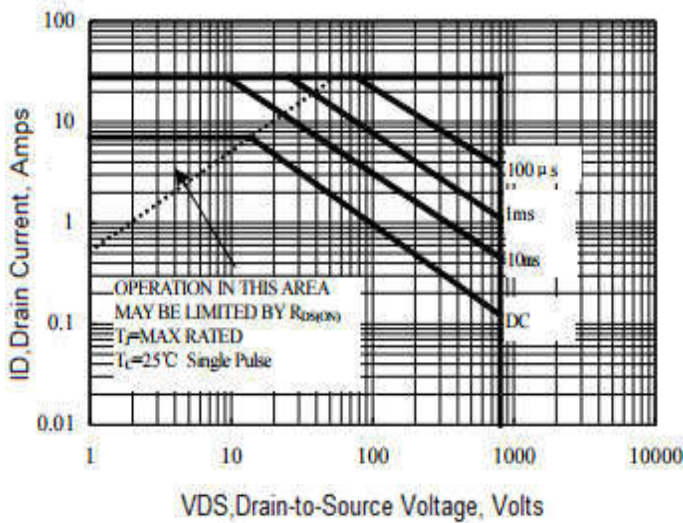
**Source-Drain Diode Characteristics at Ta=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Maximum Continuous Drain-Source Diode Forward Current		<b>I<sub>S</sub></b>	-	-	7	<b>A</b>
Maximum Pulsed Drain-Source Diode Forward Current		<b>I<sub>SM</sub></b>	-	-	28	<b>A</b>
Drain-Source Diode Forward Voltage	$I_{SD} = 7\text{ A}$	<b>V<sub>SD</sub></b>	-	-	1.4	<b>V</b>
Reverse Recovery Time	$I_{SD} = 7\text{ A}, V_{GS} = 0\text{ V}, dI_F / dt = 100\text{ A}/\mu(\text{Note3})$	<b>trr</b>	-	320	-	<b>nS</b>
Reverse Recovery Charge		<b>Q<sub>rr</sub></b>	-	2.4	-	<b>uC</b>

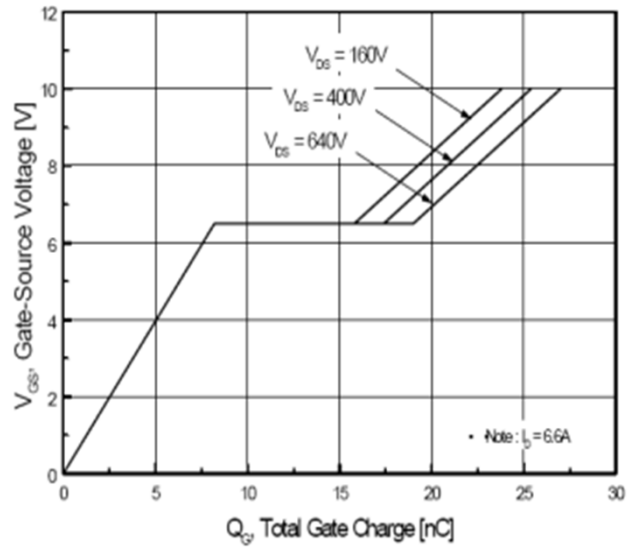
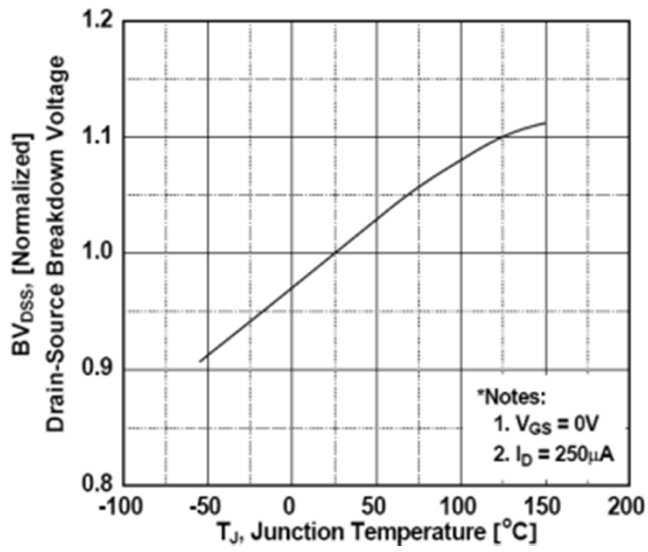
Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. IAS = 7 A, VDD = 50 V, L = 25mH, RG = 25Ω, starting TJ = 25°C.
3. ulse test: Pulse Width  $\leq 300\ \mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
4. Essentially Independent of Operating Temperature.

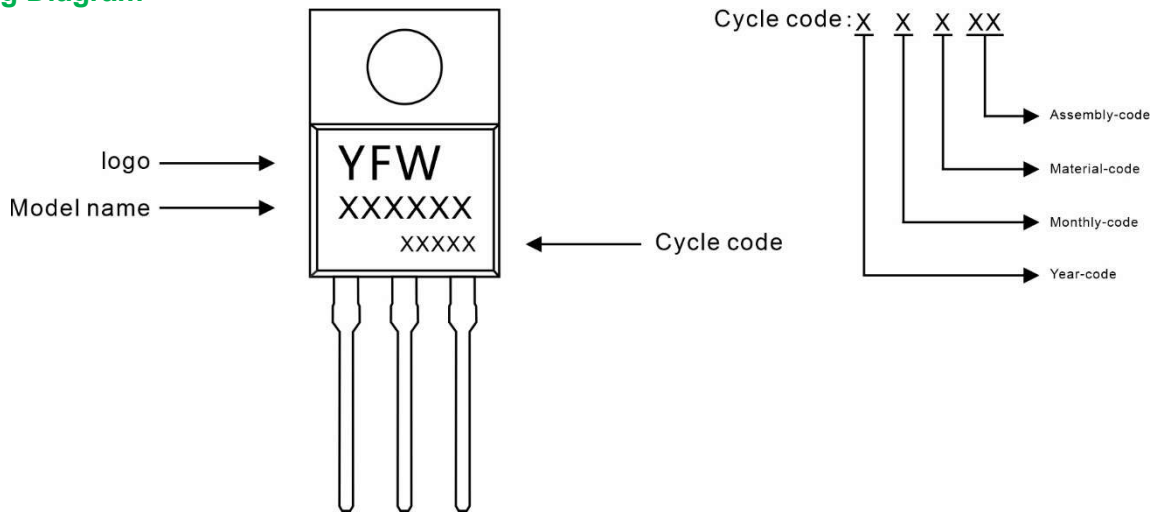
Ratings and Characteristic Curves



Ratings and Characteristic Curves



**Marking Diagram**



**Ordering information**

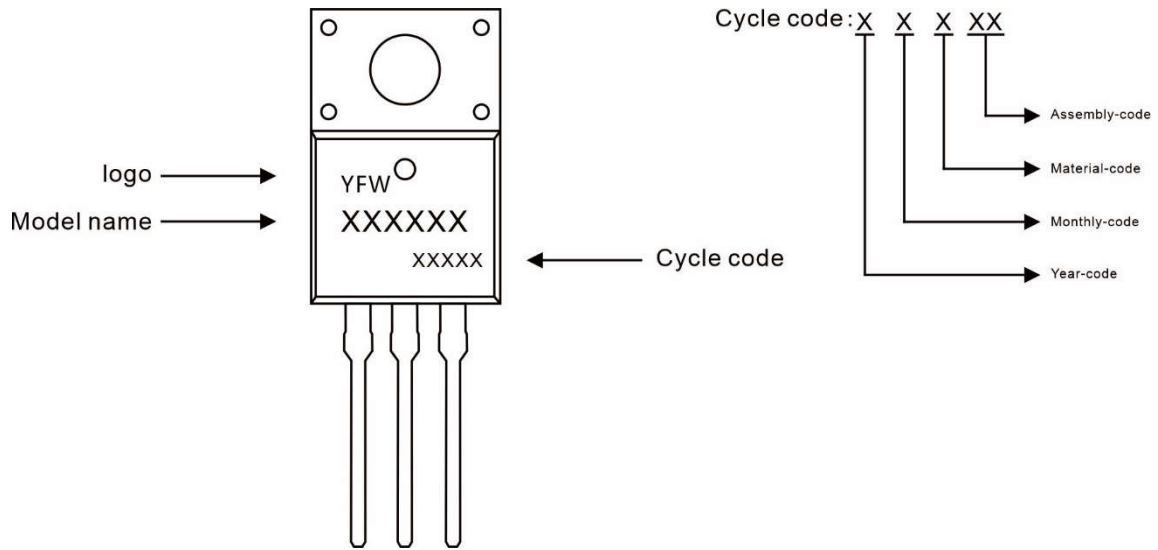
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW7N80AT	TO-220AB	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**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

**Marking Diagram**



**Ordering information**

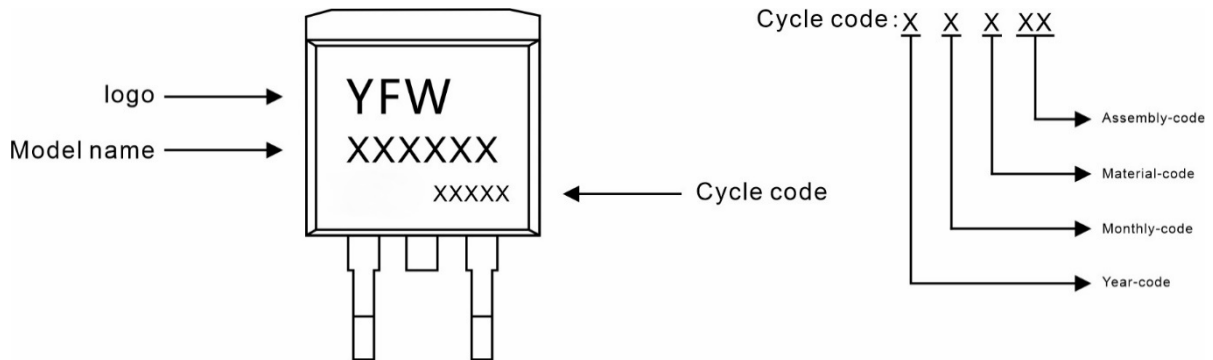
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW7N80AF	TO-220F	0.06oz(1.74g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

**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
YFW7N80AS	TO-263	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

**Package Dimensions**

**TO-263**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.30	4.70	0.169	0.185
A1	0.00	0.15	0.000	0.006
A2	4.30	4.55	0.169	0.179
B	1.10	1.50	0.043	0.059
b	0.70	0.90	0.028	0.035
b1	1.20	1.50	0.047	0.059
c	0.30	0.60	0.012	0.024
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
e	2.44	2.64	0.096	0.104
e1	4.88	5.28	0.192	0.208
L	15.00	15.30	0.591	0.602
L1	5.20	5.40	0.205	0.213
L2	2.40	2.60	0.094	0.102
L3	1.60	1.80	0.063	0.071

## Disclaimer

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