

100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	100V
$R_{DS(on)-typ}(@V_{GS}=10V)$	$<18.5m\Omega$ (Type: 15.25mΩ)

FEATURES

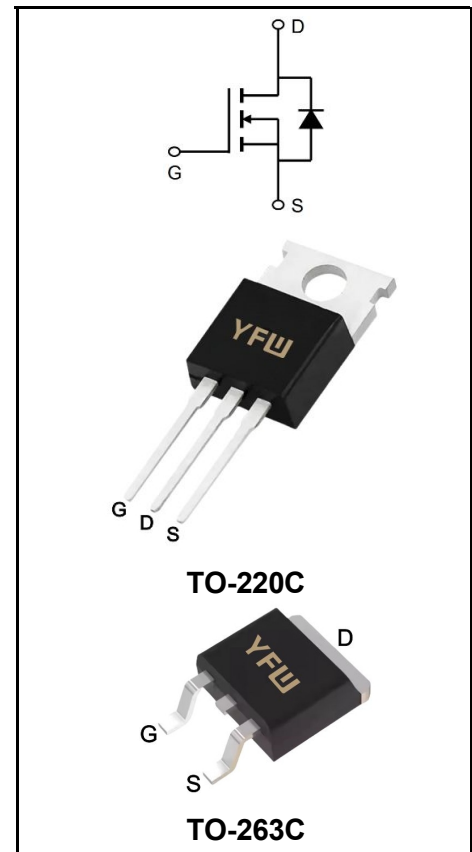
- ♦ Fast Switching
- ♦ Low ON Resistance
- ♦ Low Gate Charge
- ♦ 100% Single Pulse avalanche energy Test

APPLICATIONS

- ♦ Power switch circuit of adaptor and charger.
- ♦ **YFW-SGT technology**

MECHANICAL DATA

- ♦ Case: Molded plastic
- ♦ Mounting Position: Any
- ♦ Molded Plastic: UL Flammability Classification Rating 94V-0
- ♦ Lead free in compliance with EU RoHS 2011/65/EU directive
- ♦ Solder bath temperature 275℃ maximum, 10s per JESD 22-B106



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
Continuous Drain Current	I_D	50	A
Pulsed Drain Current(Note1)	I_{DM}	180	A
Total Power Dissipation	P_D	105	W
Single Pulse Avalanche Energy ³	E_{AS}	183	mJ
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	150	°C
Thermal Resistance, Junction-to-Ambient ¹	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	1.17	°C/W

Electrical Characteristics at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	100	-	-	V
Drain -Source Leakage Current	$V_{DS}=100V, V_{GS}=0V,$	I_{DSS}	-	-	1	μA
	$V_{DS}=100V, T_c=125^\circ C$		-	-	100	
Gate-Source Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	-	2.5	V
Static Drain-Source On-Resistance (Note 3)	$V_{GS}=10V, I_D=20A$	$R_{DS(ON)}$	-	15.25	18.5	m Ω
	$V_{GS}=4.5V, I_D=15A$		-	18.5	24	m Ω
Input Capacitance	$V_{DS}=50V$ $V_{GS}=0V$ $f=100KHz$	C_{iss}	-	1980	-	pF
Output Capacitance		C_{oss}	-	320	-	pF
Reverse Transfer Capacitance		C_{rss}	-	7	-	pF
Turn-on delay time	$V_{DD}=50V$ $V_{GS}=10V$ $R_G=2\Omega$ $I_D=25A$ (Note3,4)	$t_{d(on)}$	-	22	-	ns
Rise Time		T_r	-	5	-	ns
Turn-Off Delay Time		$t_{d(OFF)}$	-	44.5	-	ns
Fall Time		t_f	-	8.6	-	ns
Total Gate Charge	$V_{DS}=50V, I_D=25A,$ $V_{GS}=10V$ (Note3,4)	Q_G	-	28.5	-	nC
Gate to Source Charge		Q_{GS}	-	6	-	nC
Gate to Drain Charge		Q_{GD}	-	7	-	nC
Maximun Body-Diode Continuous Current (Note 2)		I_S	-	-	50-	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	180	A
Reverse Recovery Time	$I_S = I_F, I_{SD}=15A, V_{GS}=0$ $V_{DI} / dt = 100 A/\mu s$ (Note3)	t_{rr}	-	39	-	ns
Reverse Recovery Charge		Q_{rr}	-	30	-	μC

Note:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.

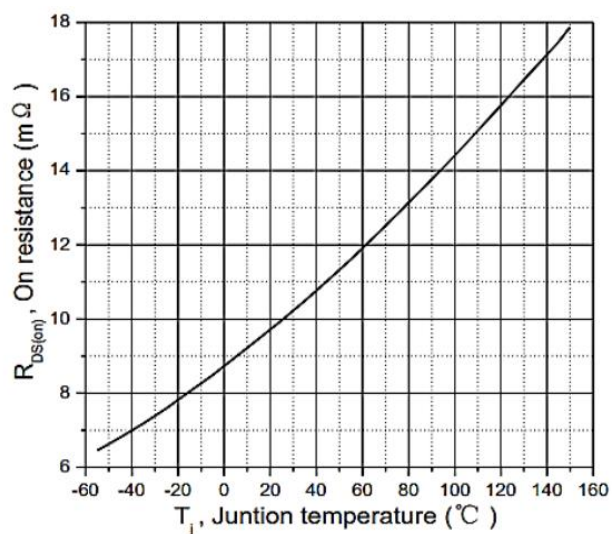
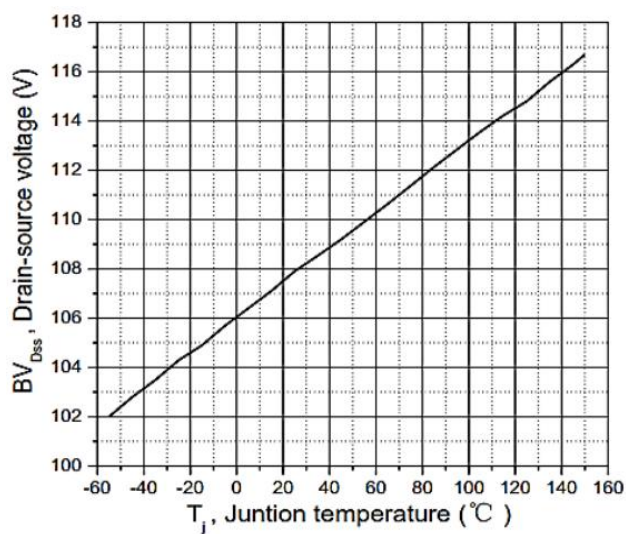
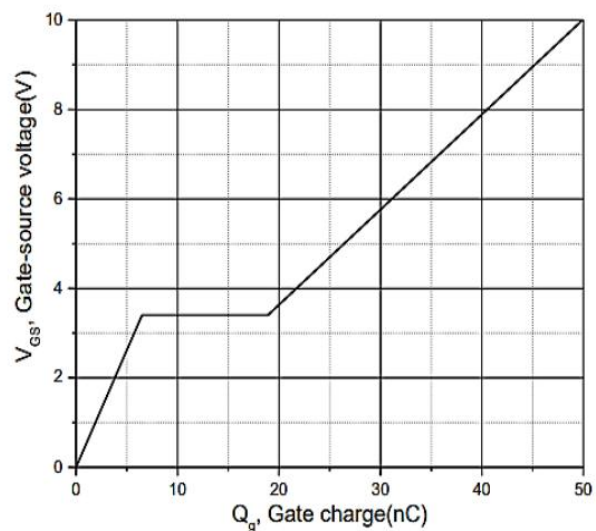
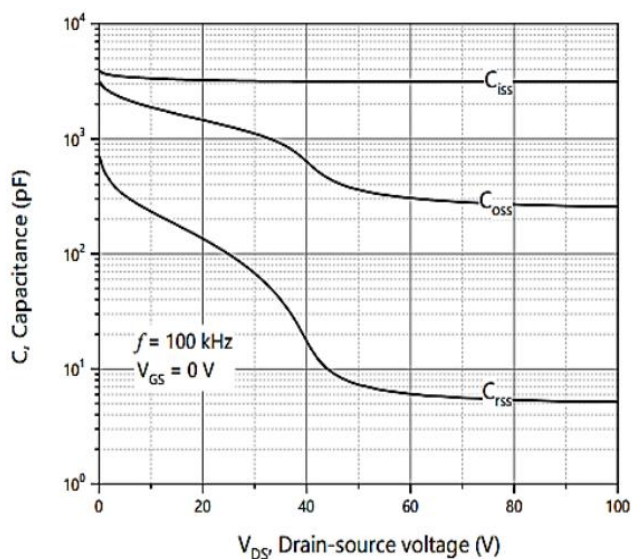
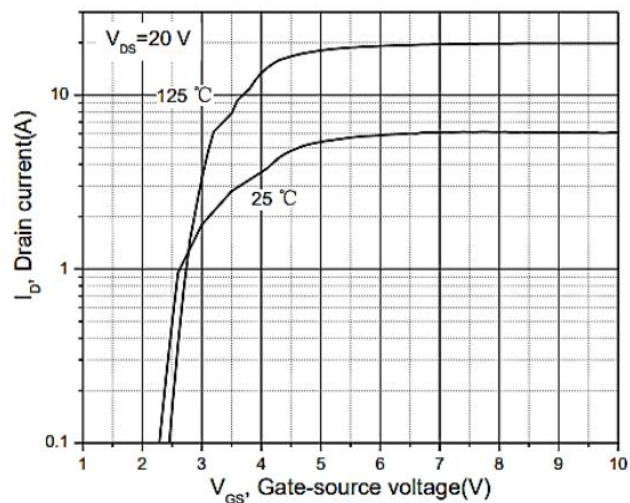
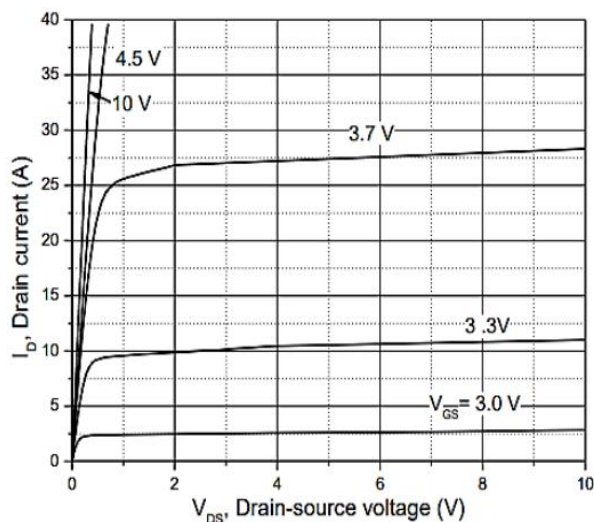
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.

3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.

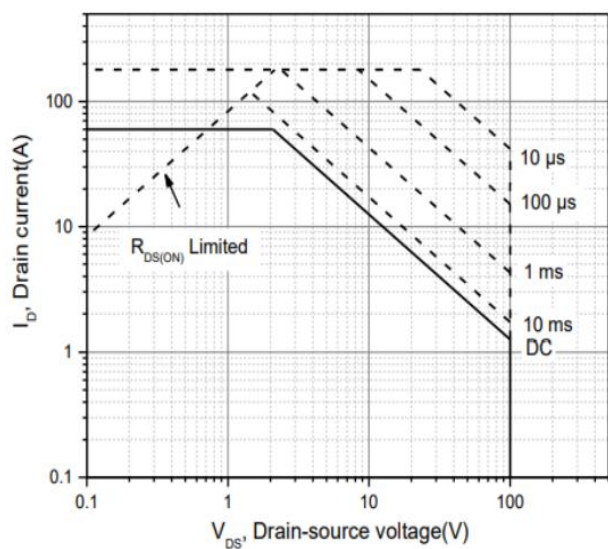
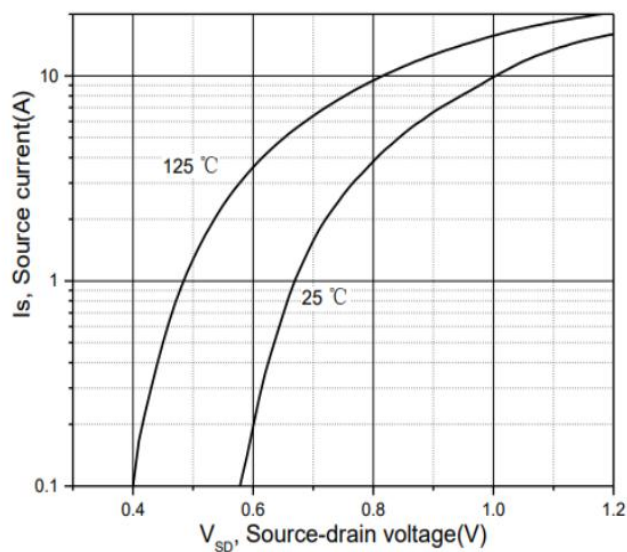
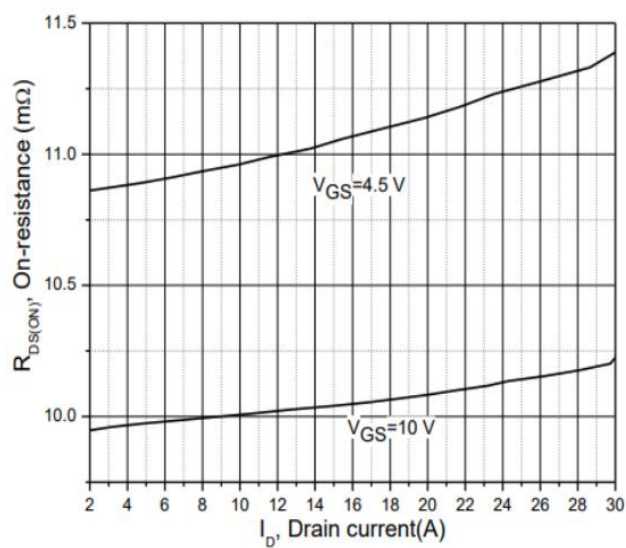
4. Guaranteed by design, not subject to production

5. EAS condition: $T_J=25^\circ C, V_{DD}=30V, V_G=10V, L=0.1mH, R_G=25\Omega$

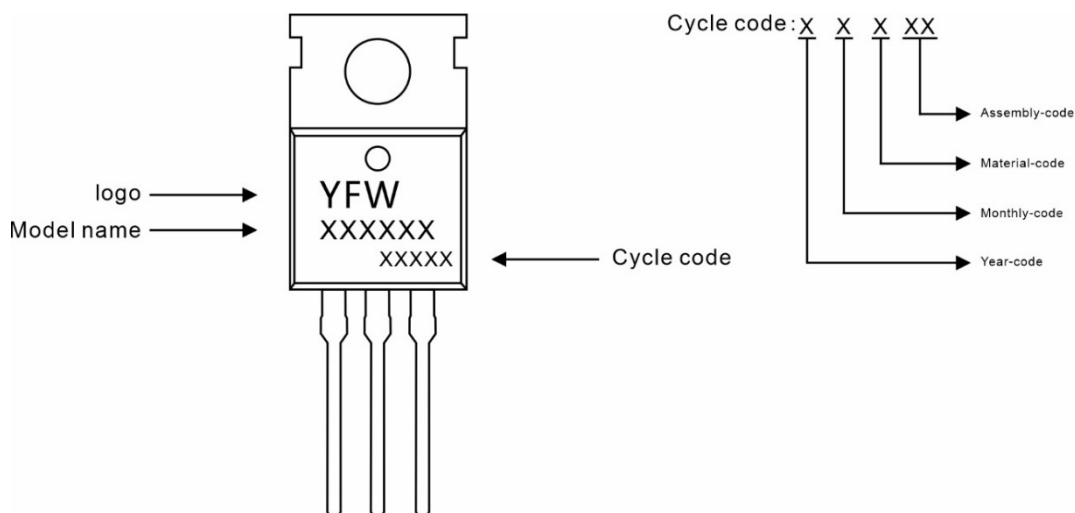
Ratings and Characteristic Curves



Ratings and Characteristic Curves



Marking Diagram



Ordering information

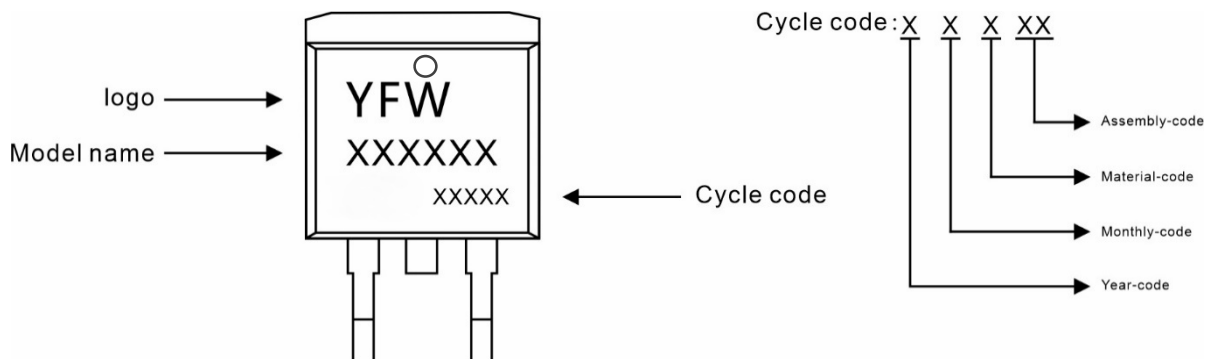
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG50N10AC	TO-220C	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

Package Dimensions

TO-220C

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.34	4.67	0.171	0.184
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
YFWG50N10ASC	TO-263C	0.04oz(1.16g)	800pcs/reel	1600pcs/box 8000pcs/Carton

Package Dimensions

TO-263C

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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