

-60V P-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	-50A
V_{DSS}	-60V
$R_{DS(on)-typ}(@V_{GS}=-10V)$	$<30m\Omega$ (Typ:25m Ω)

FEATURES

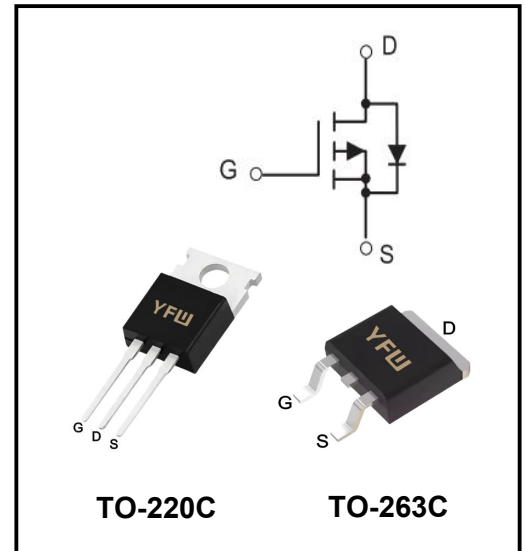
Adopt advanced trench technology to provide excellent RDS(ON), low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

APPLICATIONS

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

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°C maximum, 10s per JESD 22-B106



Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-60	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous drain current	I_D	-50	A
Pulsed Drain Current (Note1)	I_{DM}	-200	A
Single Pulse Avalanche Energy	E_{AS}	195	mJ
Power dissipation	P_D	95	W
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction-case	$R_{\theta JC}$	1.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	100	°C/W

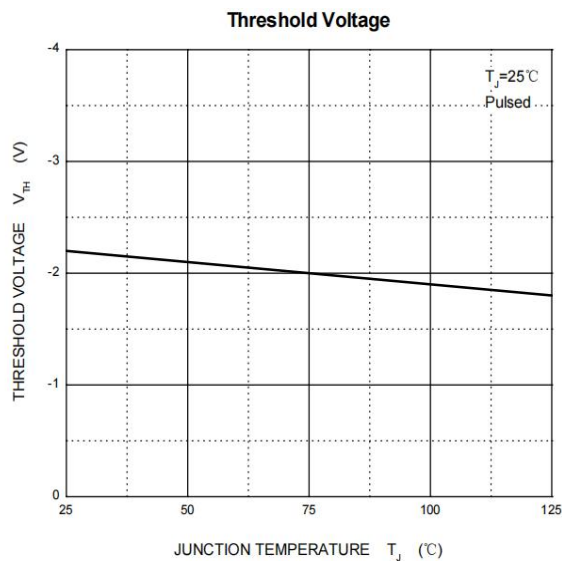
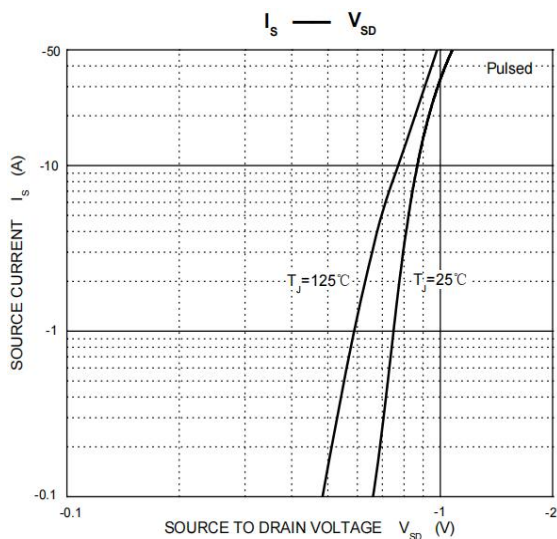
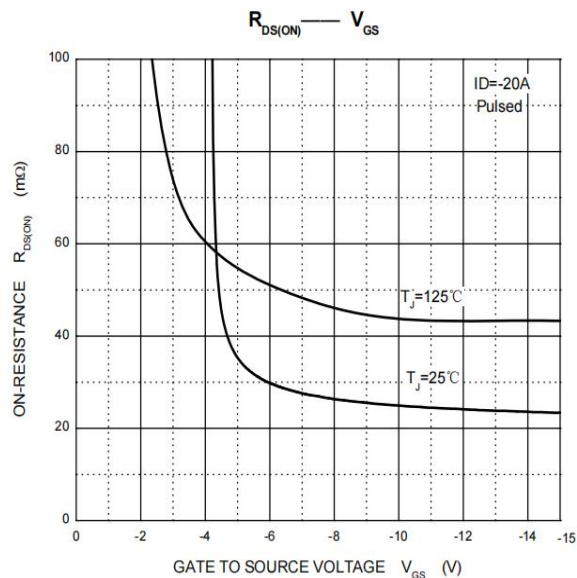
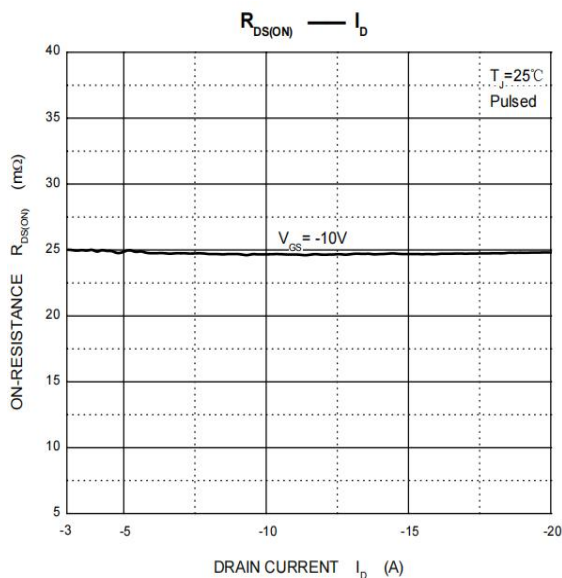
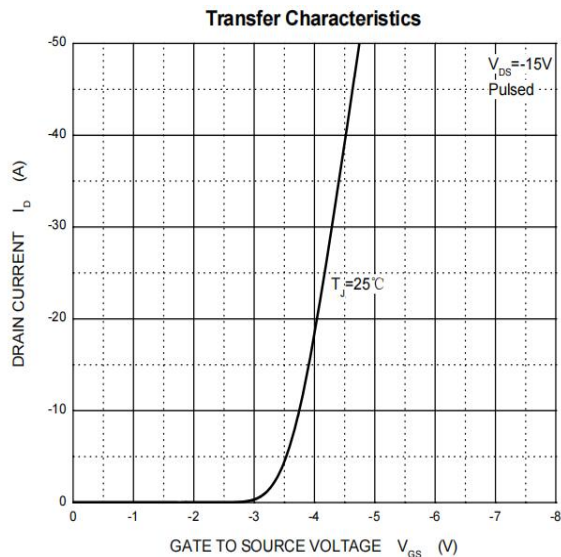
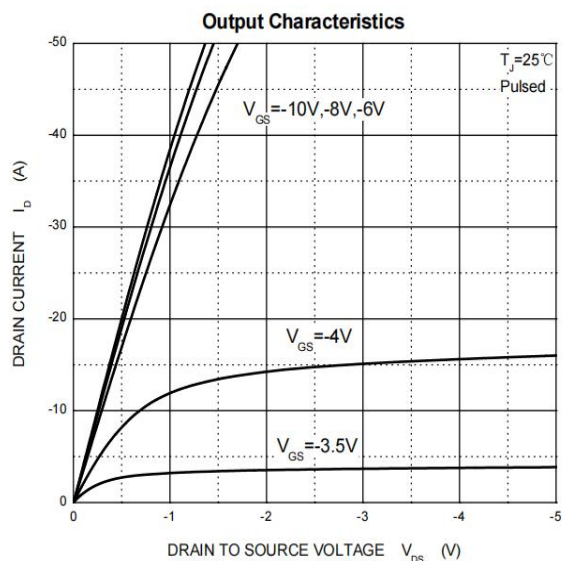
Note1: Pulse test: 300 μ s pulse width, 2 % duty cycle

Maximum Ratings at Tc=25°C unless otherwise specified

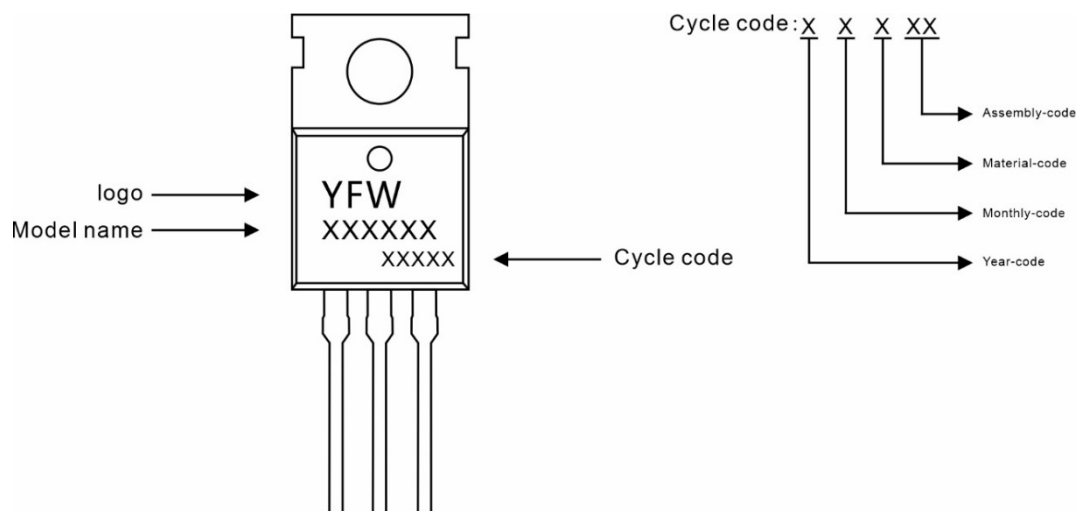
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=-250\mu A$	BV_{DSS}	-60	-	-	V
Drain-Source Leakage Current	$V_{DS}=-60V, V_{GS}=0V$	I_{DSS}	-	-	-1	μA
Gate-Source Leakage Current	$V_{DS} = \pm 20V, V_{GS} = 0V$	I_{GSS}	-	-	± 100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-1	-	-2.5	V
Drain-Source On-State Resistance	$V_{GS} = -10V, I_D = -20A$	$R_{DS(ON)}$	-	25	30	m Ω
Input Capacitance	$V_{DS}=-25V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	4500	-	pF
Output Capacitance		C_{oss}	-	700	-	
Reverse Transfer Capacitance		C_{rss}	-	513	-	
Turn-on delay time	$V_{DS}=-30V$ $V_{GS}=-10V$ $R_G=3\Omega$ $RL=1.5\Omega$	$t_{d(on)}$	-	15	-	ns
Rise Time		T_r	-	17	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	40	-	
Fall Time		t_f	-	42	-	
Total Gate Charge	$V_{DS}=-30V$ $V_{GS}=-10V$ $I_D=-20A$	Q_g	-	73	-	nC
Gate-Source Charge		Q_{gs}	-	15	-	
Gate-Drain Charge		Q_{gd}	-	18	-	
Maximun Body-Diode Continuous Current		I_S	-	-	-50	A
Maximun Body-Diode Pulsed Current(Note 2)		I_{SM}	-	-	-200	A
Drain-Source Diode Forward Voltage	$V_{GS}=0V, I_S=-20A, T_J=25$	V_{SD}	-	-	-1.2	V

Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

Ratings and Characteristic Curves



Marking Diagram



Ordering information

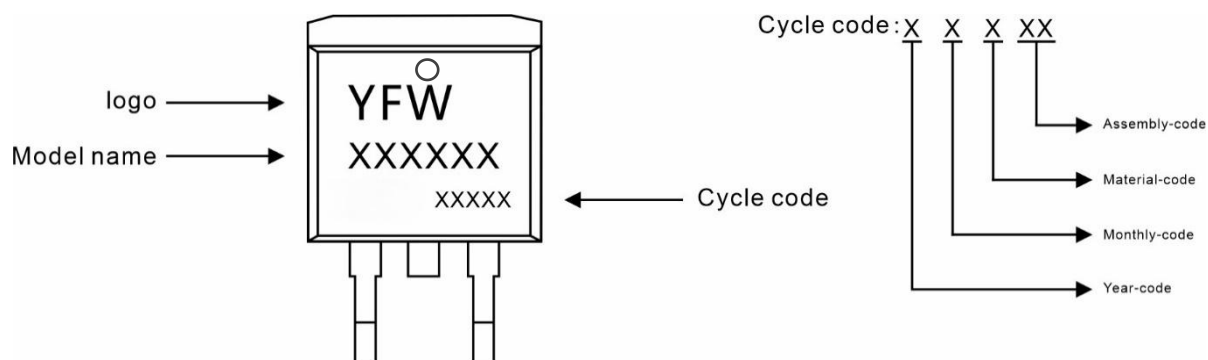
Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50P06AC	TO-220C	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

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
YFW50P06ASC	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

The information presented in this document is for reference only. Guangdong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of which would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices), YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website <https://www.yfwdiode.com>, or consult YFW sales office for further assistance.