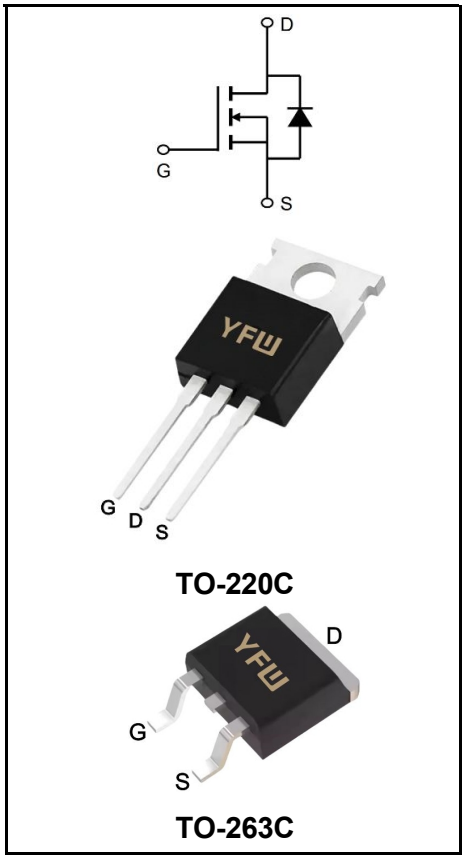
60V N-Channel Enhancement Mode MOSFET

MAIN CHARACTERISTICS

I_D	160A
V_{DS}	60V
R_{DSON}-typ(@V_{GS}=10V)	<3mΩ(Typ:2.8mΩ)



FEATURES

Adopt advanced trench technology to provide excellent Battery protection or in other Switching application.

APPLICATIONS

- Battery protection
- Load switch
- Uninterruptible power supply
- YFW-SGT technology

MECHANICAL DATA

- Case: TO-220C/HAC TO-263C/HASC
- 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	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	160	A
Pulsed Drain Current (Note1)	I_{DM}	240	A
Power Dissipation	P_D	210	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	650	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	0.59	°C/W
Thermal Resistance, Junction toAmbient	$R_{\theta JA}$	50	°C/W

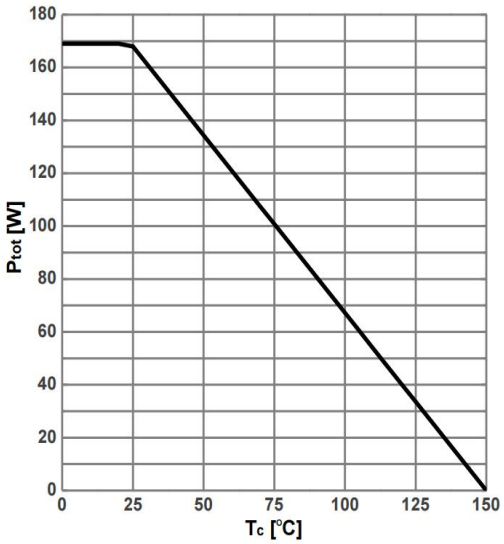
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

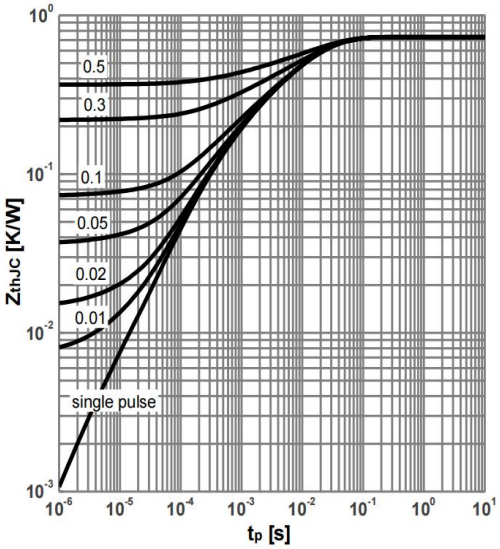
Electrical Characteristics at Tc=25°C unless otherwise specified

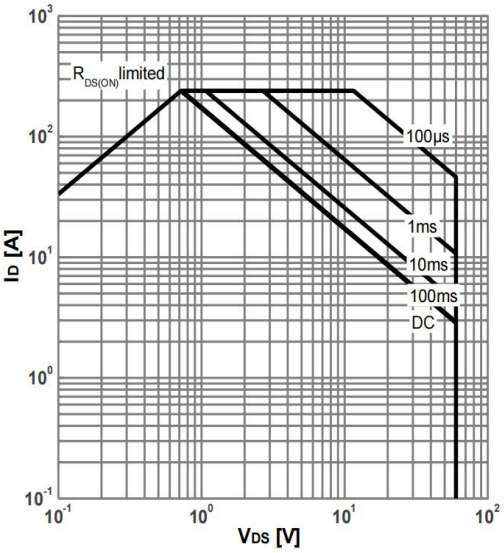
Characteristics	Test Condition	Symbol	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{GS} = 0 V,I_D = 250 μA	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	V_{DS} = 60 V, V_{GS} = 0 V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS} = ± 20 V, V_{DS} = 0 V	I_{GSS}	-	-	±100	nA
Gate-Source Threshold Voltage	V_{DS} = V_{GS} , I_D = 250 μA	$V_{GS(th)}$	2	-	4	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 20A	$R_{DS(on)}$	-	2.8	3	mΩ
Transconductance	V_{DS}=5V, I_D=20A	gfs		130		S
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1MHz	C_{iss}	-	4200	-	pF
Output Capacitance		C_{oss}	-	1080	-	pF
Reverse Transfer Capacitance		C_{rss}	-	41	-	pF
Turn-on Delay Time(Note2)	V_{DD}=30V V_{GS}=10V RG=3Ω I_D=100 A	$t_{d(ON)}$	-	13.5	-	ns
Rise Time(Note2)		t_r	-	95.5	-	ns
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	40	-	ns
Fall Time(Note2)		t_f	-	110	-	ns
Total Gate Charge(Note2)	V_{DS}=30V V_{GS}=10V I_D=20A	Q_G	-	42	-	nC
Gate to Source Charge(Note2)		Q_{GS}	-	10	-	nC
Gate to Drain Charge(Note2)		Q_{GD}	-	12	-	nC
Maximun Body-Diode Continuous Current		I_S	-	-	160	A
Drain-Source Diode Forward Voltage	V_{GS}=0V , I_S=20A , T_J=25℃	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	T_J = 25℃,I_F=60A di / dt = 100 A/μs	trr	-	35	-	ns
Reverse Recovery Charge(Note2)		Qrr	-	30	-	nC

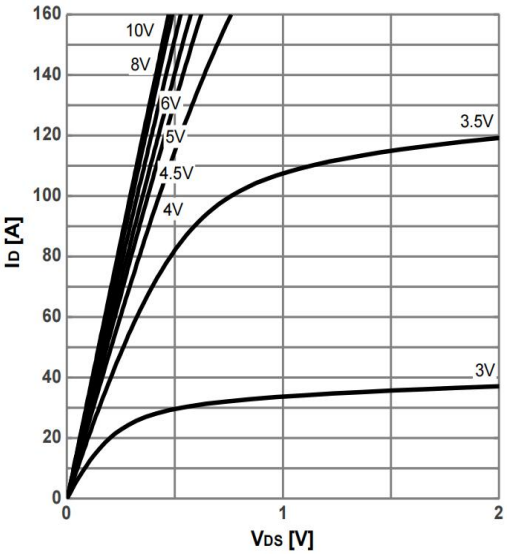
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

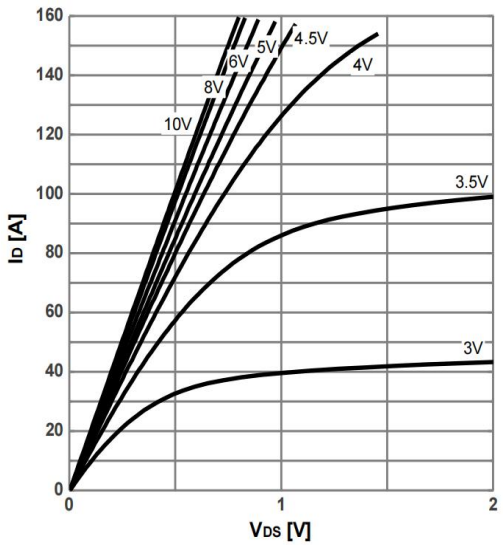
RATINGS AND CHARACTERISTIC CURVES

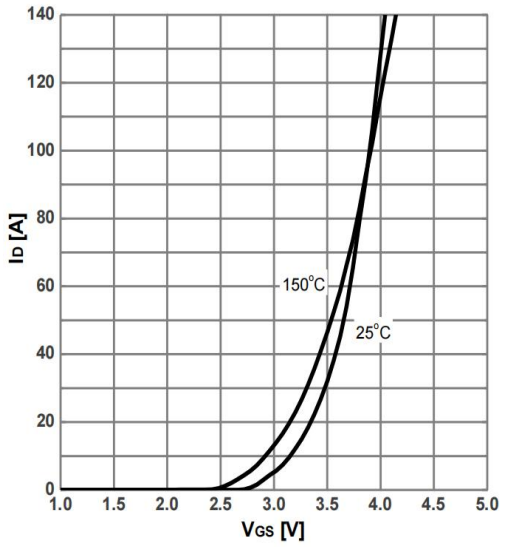












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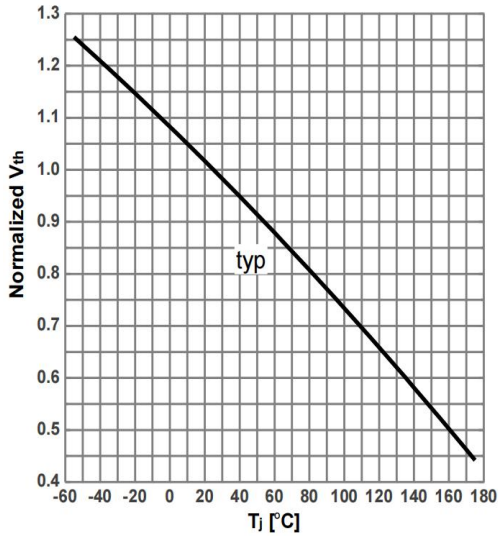
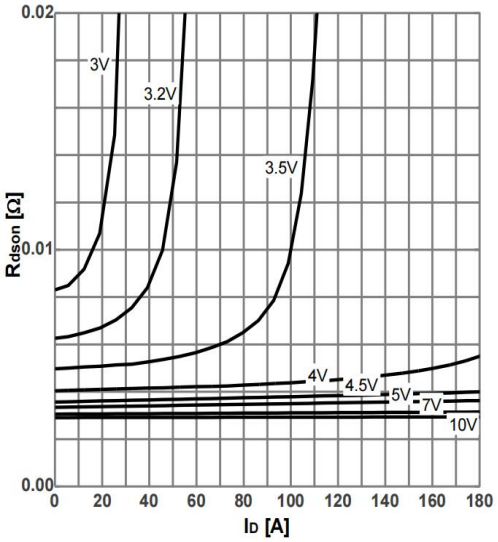
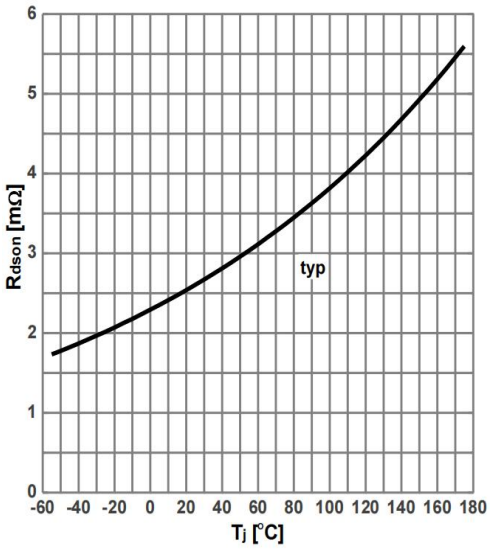
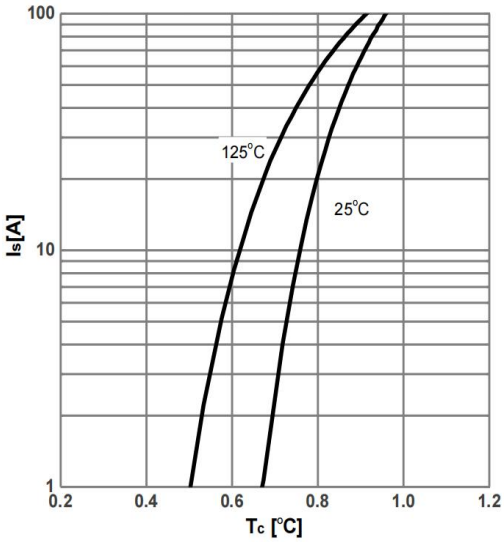
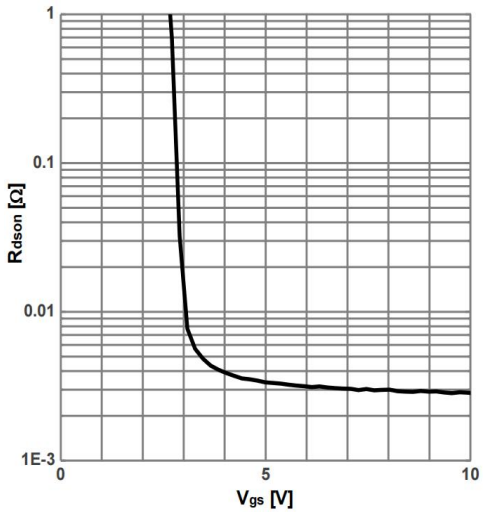
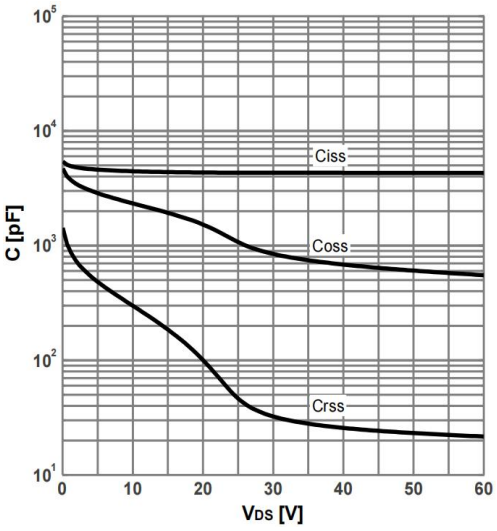




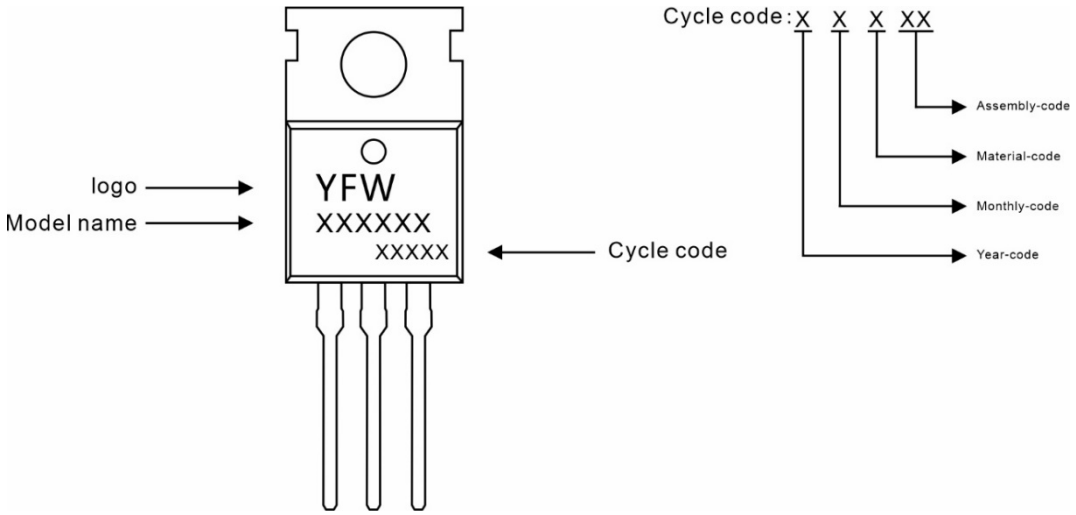








Marking Diagram

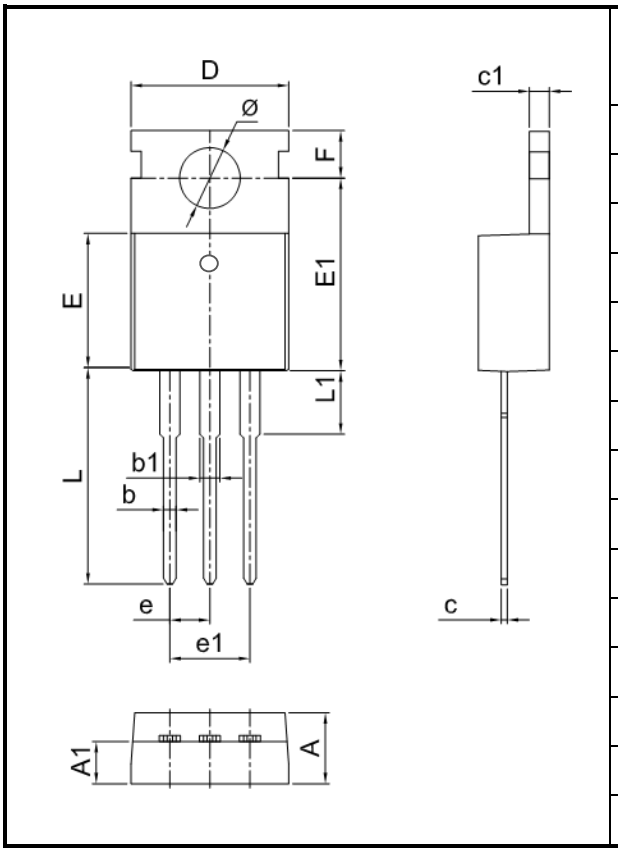


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG160N06AC	TO-220C	0.07oz(1.96g)	50pcs/tube	1000PCS/Box 5000PCS/Carton

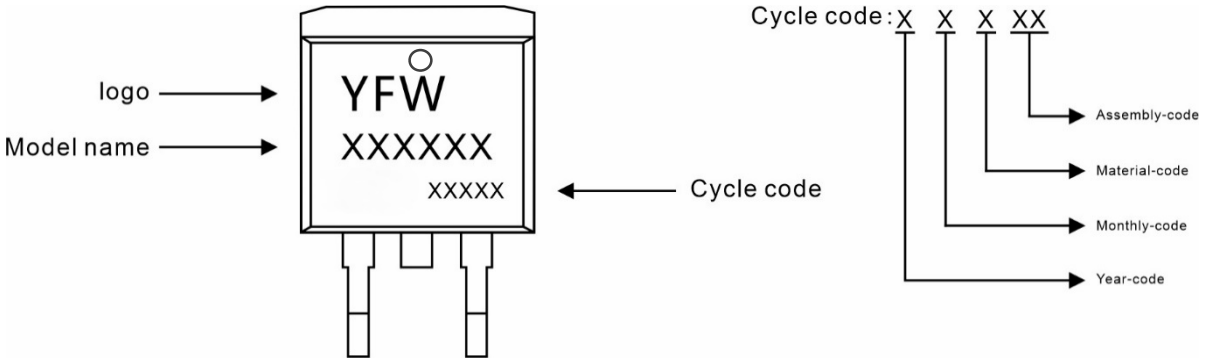
Package Dimensions

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

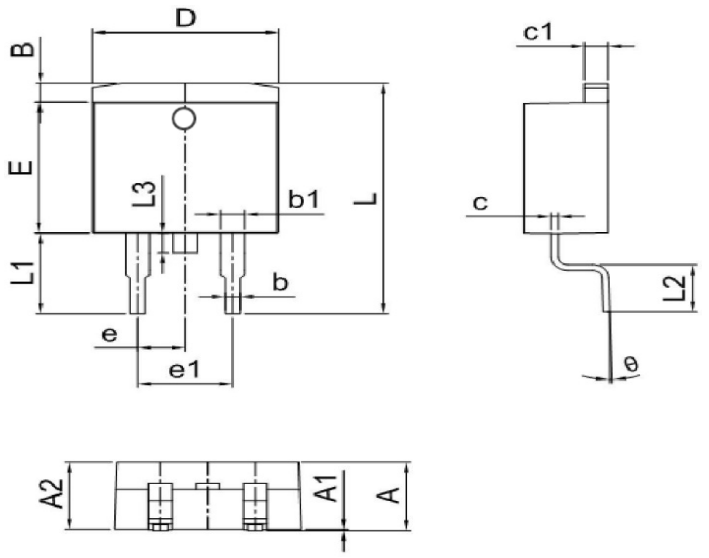


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG160N06ASC	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

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