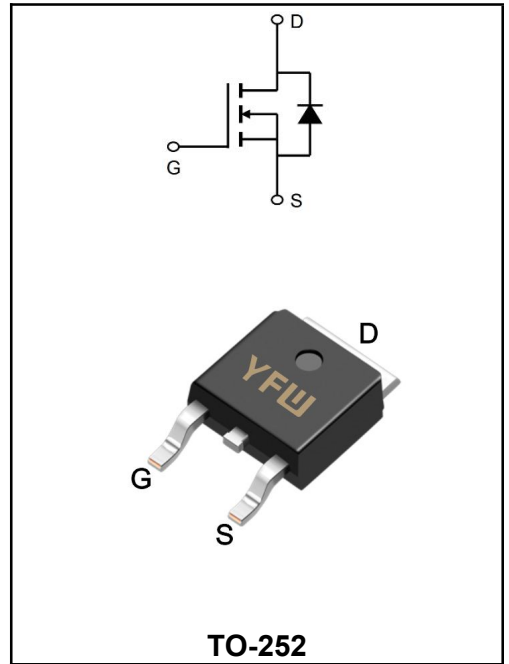


**60V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	160A
<b>V<sub>DSS</sub></b>	60V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	<3mΩ ( <b>Typ:2.8mΩ</b> )



**FEATURES**

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

◆ **YFW-SGT technology**

**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	<b>V<sub>DS</sub></b>	60	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Continuous drain current	<b>I<sub>D</sub></b>	160	<b>A</b>
Pulsed drain current(Note1)	<b>I<sub>DM</sub></b>	240	<b>A</b>
Power dissipation	<b>P<sub>D</sub></b>	210	<b>W</b>
Single pulsed avalanche energy(Note1)	<b>E<sub>AS</sub></b>	650	<b>mJ</b>
Operation and storage temperature	<b>T<sub>STG</sub> ,T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Thermal Resistance Junction-Case	<b>R<sub>θJC</sub></b>	0.59	<b>°C/W</b>
Thermal Resistance, Junction-to-Ambient	<b>R<sub>θJA</sub></b>	50	<b>°C/W</b>

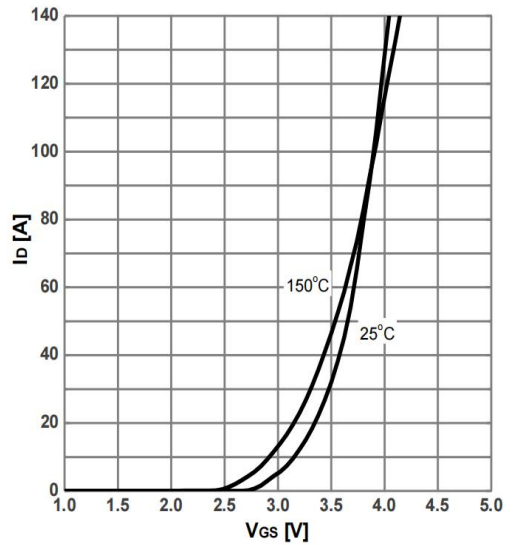
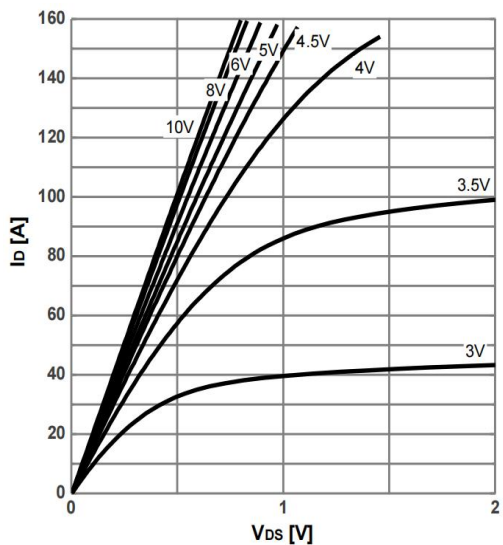
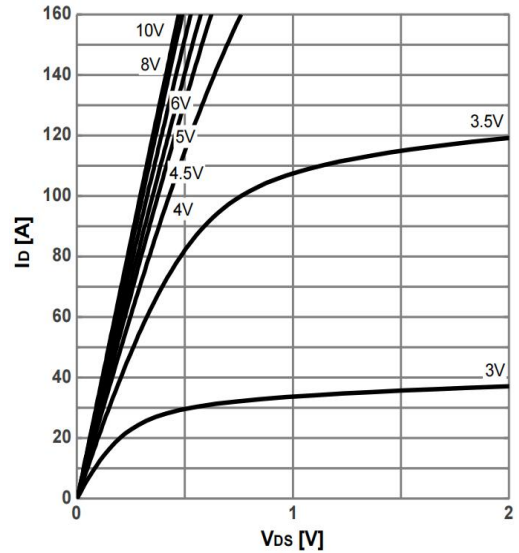
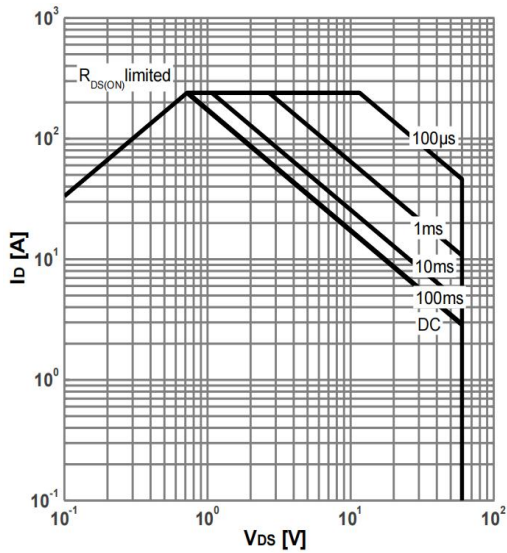
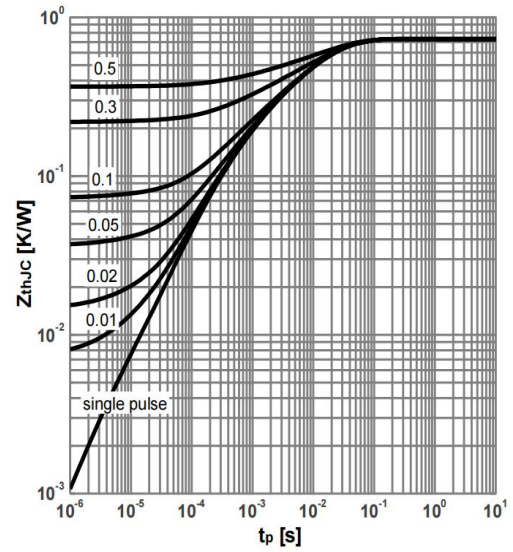
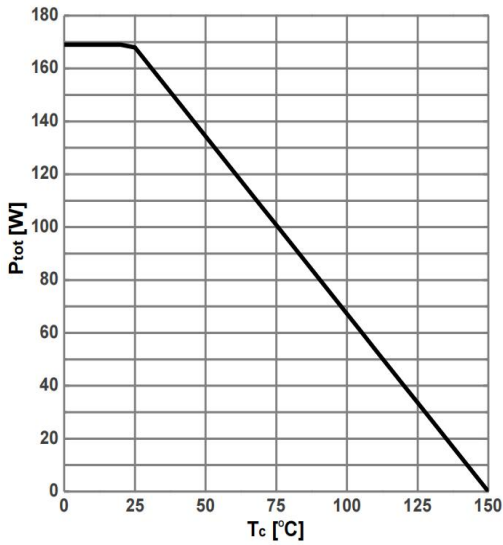
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

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

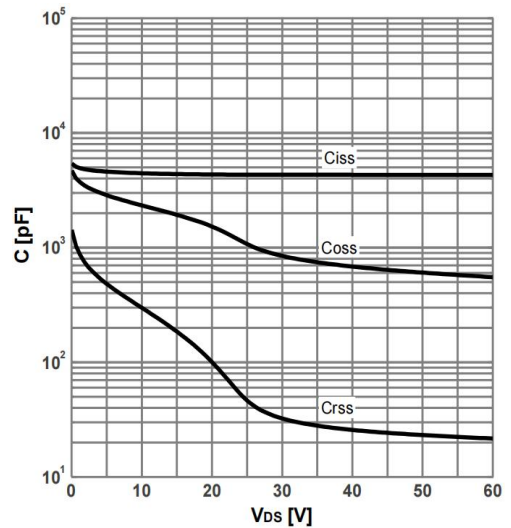
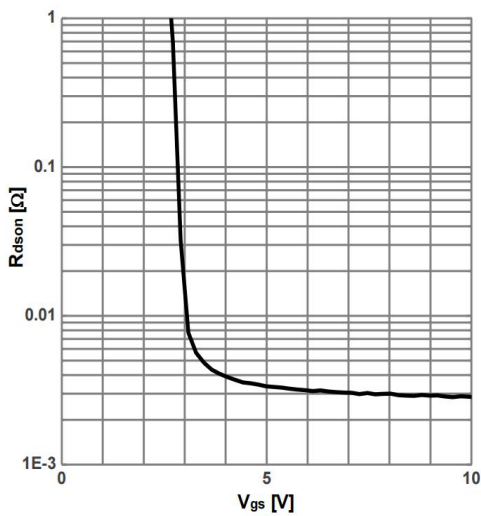
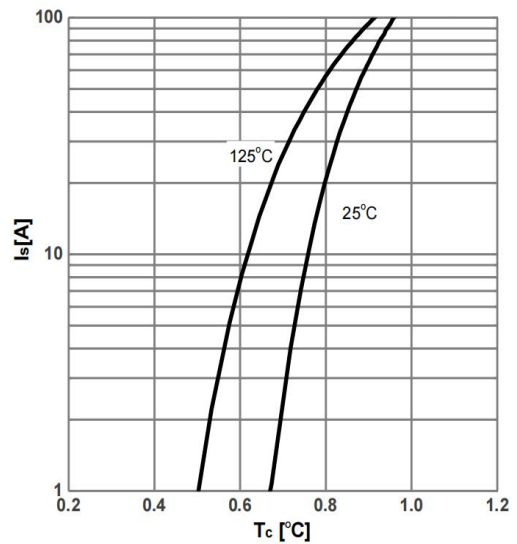
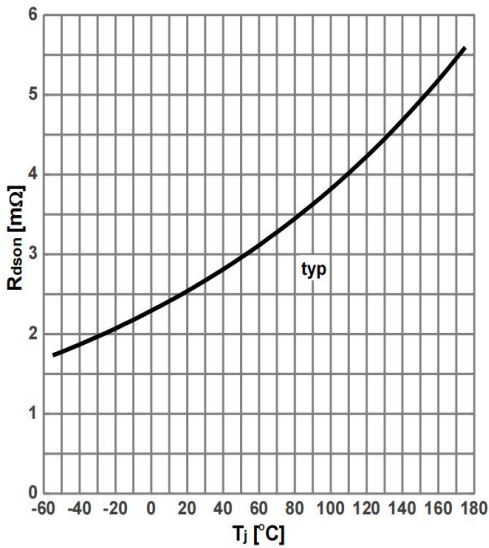
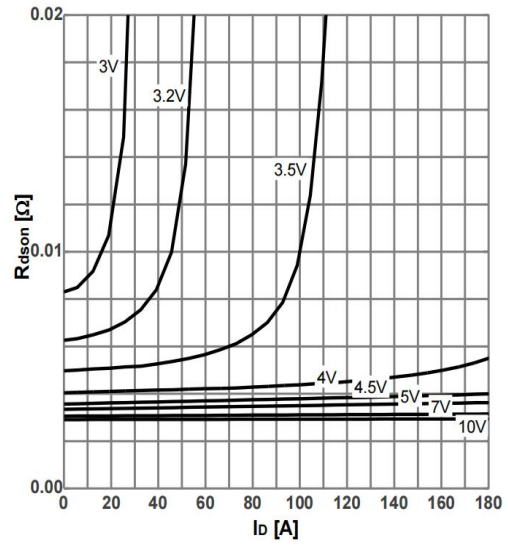
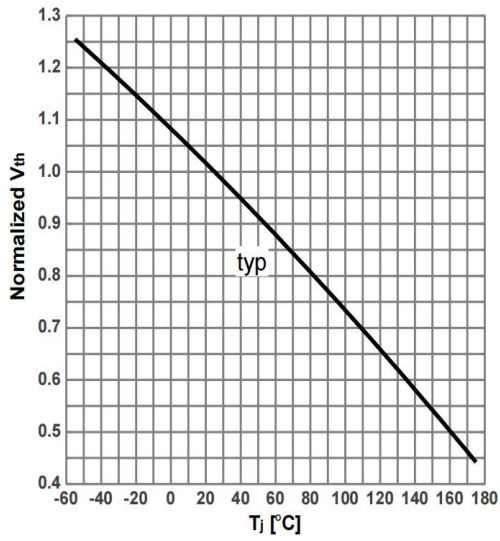
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	<b><math>BV_{DSS}</math></b>	60	-	-	<b>V</b>
Zero Gate Voltage Drain Current	$V_{DS}=60V, V_{GS}=0V$	<b><math>I_{DSS}</math></b>	-	-	1.0	<b><math>\mu A</math></b>
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	<b><math>I_{GSS}</math></b>	-	-	$\pm 100$	<b>nA</b>
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	<b><math>V_{GS(th)}</math></b>	2.0	-	4.0	<b>V</b>
Drain-Source On-State Resistance	$V_{GS}=10V, I_D=20A$	<b><math>R_{DS(ON)}</math></b>	-	2.8	3	<b>m<math>\Omega</math></b>
Transconductance	$V_{DS}=5V, I_D=20A$	<b><math>g_{fs}</math></b>	-	130	-	<b>S</b>
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$	<b><math>C_{iss}</math></b>	-	4200	-	<b><math>\mu F</math></b>
Output Capacitance		<b><math>C_{oss}</math></b>	-	1080	-	
Reverse Transfer Capacitance		<b><math>C_{rss}</math></b>	-	41	-	
Total Gate Charge	$V_{DS}=30V$ $I_D=20A$ $V_{GS}=10V$	<b><math>Q_g</math></b>	-	42	-	<b>nC</b>
Gate-Source Charge		<b><math>Q_{gs}</math></b>	-	10	-	
Gate-Drain("Miller") Charge		<b><math>Q_{gd}</math></b>	-	12	-	
Turn-on delay time	$V_{DS}=30V$ $I_D=100A$ $R_G=3\Omega$ $V_{GS}=10V$	<b><math>t_{d(on)}</math></b>	-	13.5	-	<b>ns</b>
Turn-on Rise Time		<b><math>T_r</math></b>	-	95.5	-	
Turn-Off Delay Time		<b><math>t_{d(OFF)}</math></b>	-	40	-	
Turn-Off Fall Time		<b><math>t_f</math></b>	-	110	-	
Maximun Body-Diode Continuous Current		<b><math>I_S</math></b>	-	-	160	<b>A</b>
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	<b><math>V_{SD}</math></b>	-	-	1.2	<b>V</b>
Body Diode Reverse Recovery Time(Note2)	$T_J=25^\circ C, I_F=60A$ $di/dt=100A/\mu s$	<b><math>t_{rr}</math></b>	-	35	-	<b>ns</b>
Body Diode Reverse Recovery Charge(Note2)		<b><math>Q_{rr}</math></b>	-	30	-	<b>nC</b>

**Note2:Pulse test: 300  $\mu s$  pulse width, 2 % duty cycle**

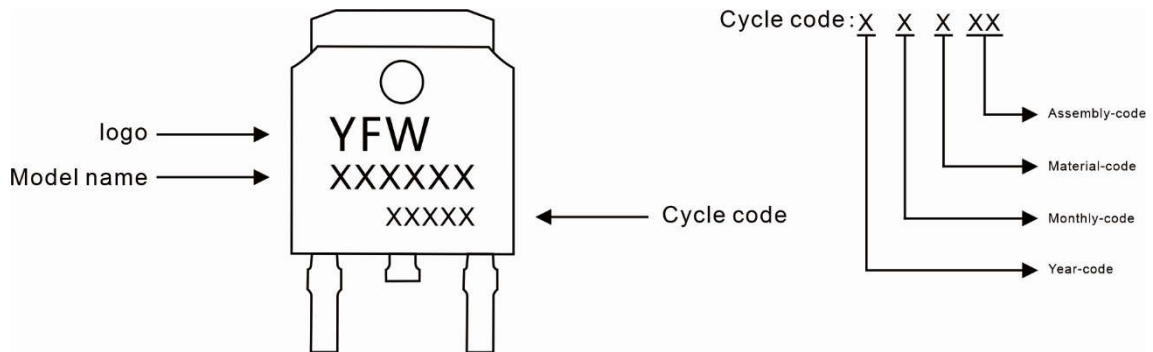
Ratings and Characteristic Curves



Ratings and Characteristic Curves



**Marking Diagram**



**Ordering information**

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFWG160N06AD	TO-252	0.011oz(0.32g)	2500pcs/reel	5000pcs/box 25000pcs/Carton

**Package Dimensions**

**TO-252**

Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.20	2.50	0.087	0.098
A1	0.00	0.12	0.000	0.005
A2	2.20	2.40	0.087	0.094
B	1.20	1.60	0.047	0.063
b	0.50	0.70	0.020	0.028
b1	0.70	0.90	0.028	0.035
c	0.40	0.60	0.016	0.024
c1	0.40	0.60	0.016	0.024
D	6.35	6.65	0.250	0.262
D1	5.20	5.40	0.205	0.213
E	5.40	5.70	0.213	0.224
e	2.20	2.40	0.087	0.094
e1	4.40	4.80	0.173	0.189
L	10.00	11.00	0.393	0.433
L1	2.70	3.10	0.106	0.122
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

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