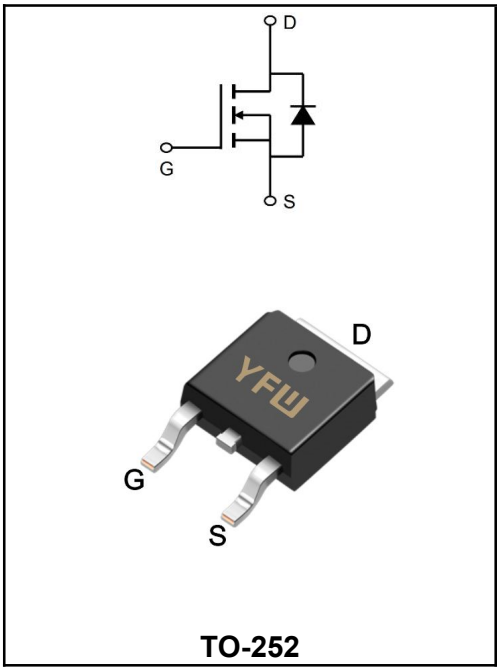
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

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



TO-252

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℃ 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	160	A
Pulsed drain current(Note1)	I_{DM}	240	A
Power dissipation	P_D	210	W
Single pulsed avalanche energy(Note1)	E_{AS}	650	mJ
Operation and storage temperature	T_{STG} ,T_J	-55 to +150	°C
Thermal Resistance Junction-Case	$R_{\theta JC}$	0.59	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	50	°C/W

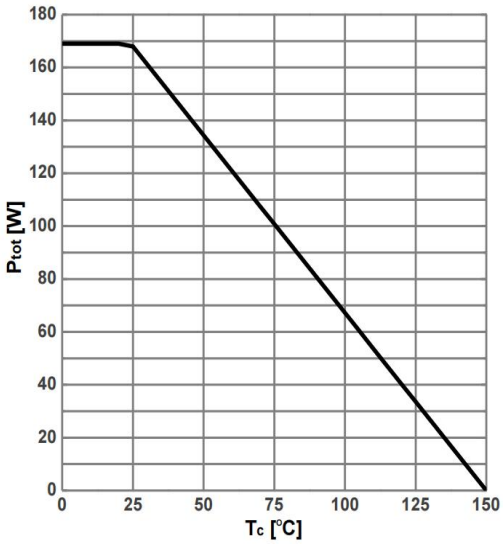
Note1:Pulse test: 300 μs pulse width, 2 % duty cycle

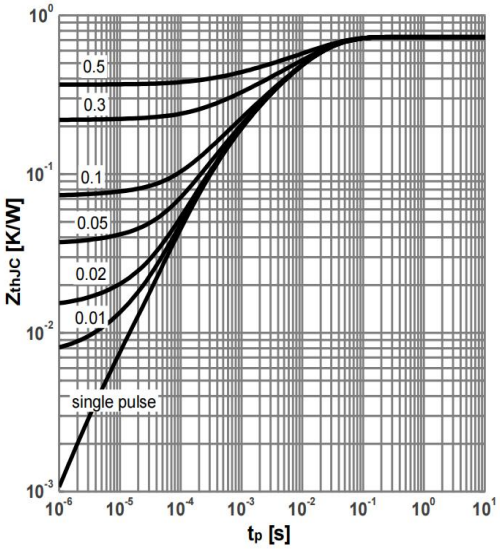
Maximum Ratings at Tc=25°C unless otherwise specified

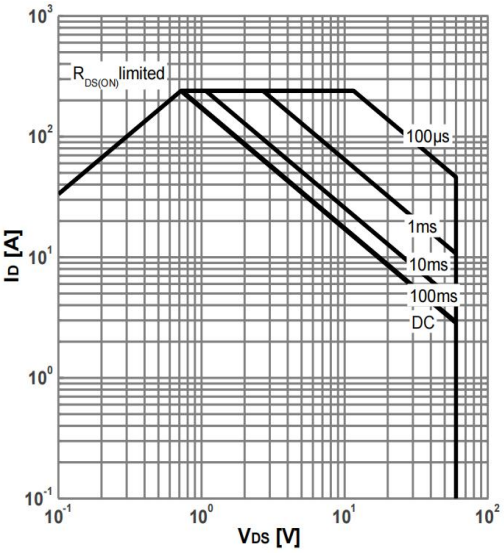
Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	BV_{DSS}	60	-	-	V
Zero Gate Voltage Drain Current	V_{DS}=60V , V_{GS}=0V	I_{DSS}	-	-	1.0	μA
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	2.0	-	4.0	V
Drain-Source On-State Resistance	V_{GS}=10V, 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=1.0MHz	C_{iss}	-	4200	-	pF
Output Capacitance		C_{oss}	-	1080	-	
Reverse Transfer Capacitance		C_{rss}	-	41	-	
Total Gate Charge	V_{DS}=30V I_D=20A V_{GS}=10V	Q_g	-	42	-	nC
Gate-Source Charge		Q_{gs}	-	10	-	
Gate-Drain(“Miller”) Charge		Q_{gd}	-	12	-	
Turn-on delay time	V_{DS}=30V I_D=100A R_G=3Ω V_{GS}=10V	$t_{d(on)}$	-	13.5	-	ns
Turn-on Rise Time		T_r	-	95.5	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	40	-	
Turn-Off Fall Time		t_f	-	110	-	
Maximun Body-Diode Continuous Current		I_S	-	-	160	A
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=30A	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time(Note2)	T_J = 25℃, I_F= 60A di / dt = 100 A/μs	t_{rr}	-	35	-	ns
Body Diode Reverse Recovery Charge(Note2)		Q_{rr}	-	30	-	nC

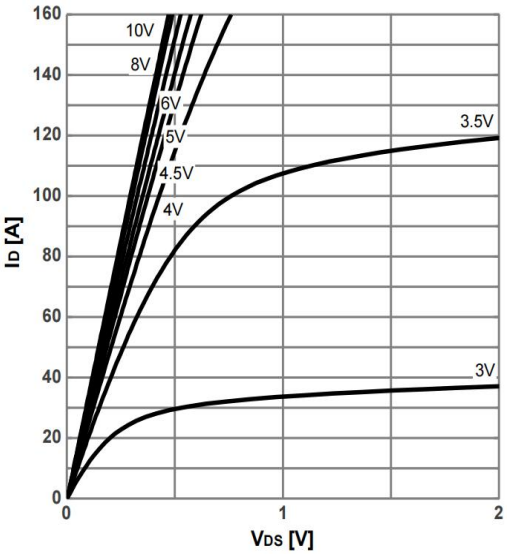
Note2:Pulse test: 300 μs pulse width, 2 % duty cycle

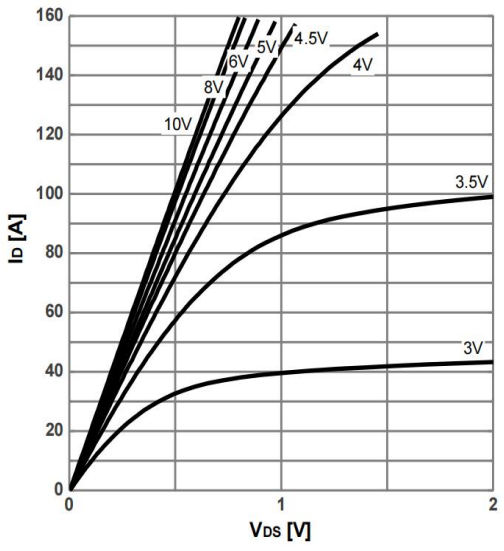
Ratings and Characteristic Curves

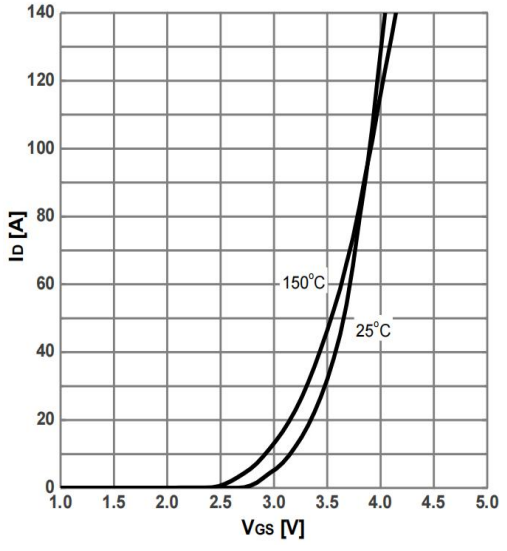




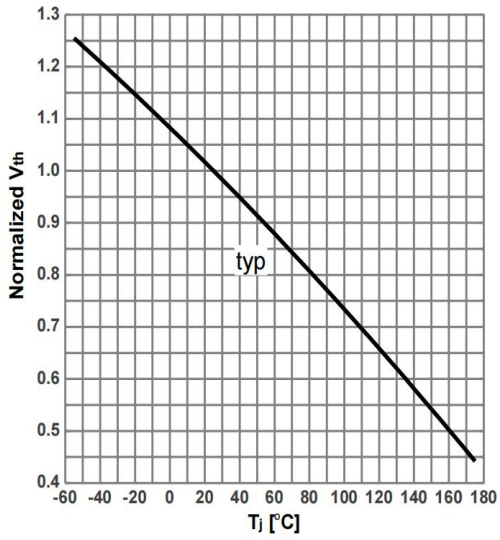


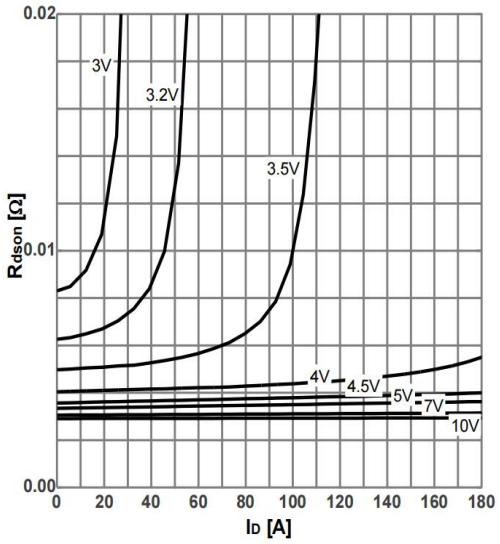


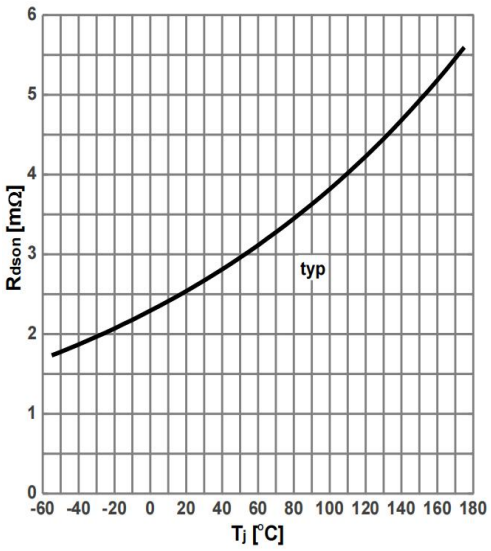


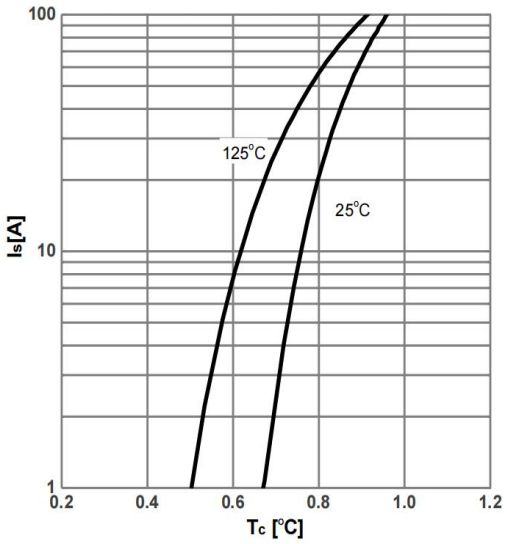


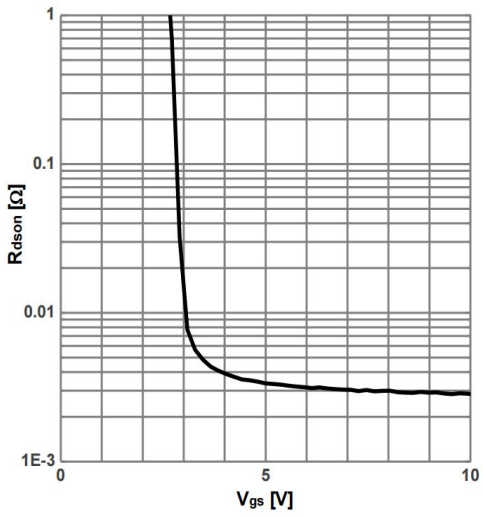
Ratings and Characteristic Curves

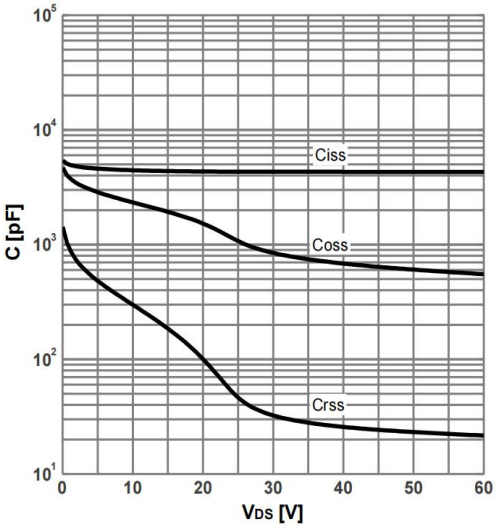




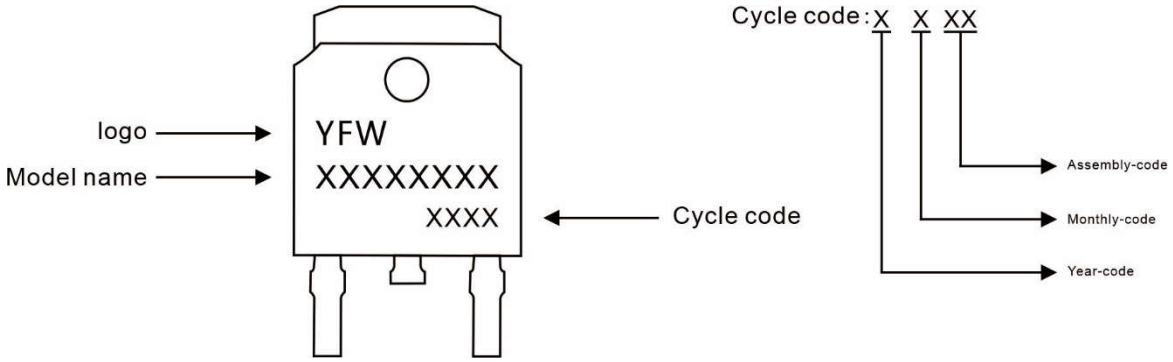








Marking Diagram

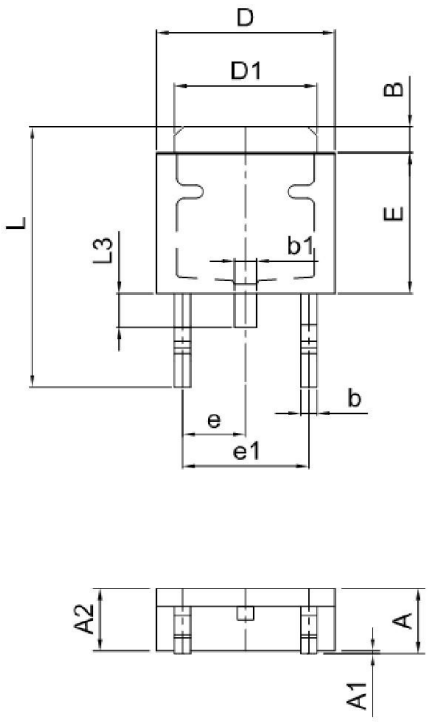


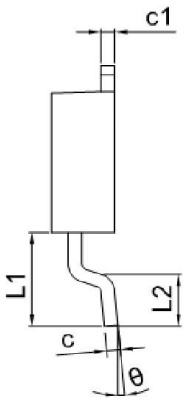
Ordering information

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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