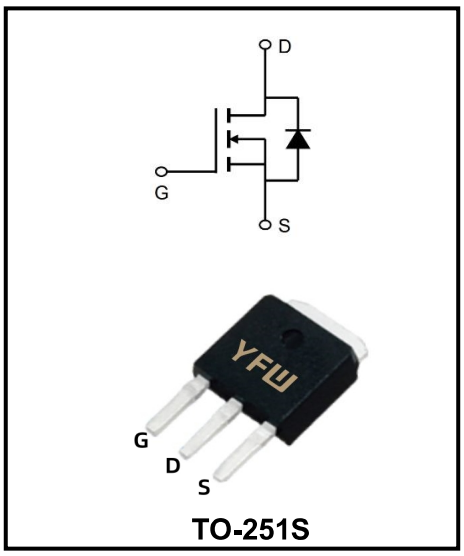
60V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	50A
V_{DSS}	60V
R_{DSON}-typ(@V_{GS}=10V)	＜17mΩ(Typ:12 mΩ)



FEATURES

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

APPLICATIONS

- Load Switch
- PWM Application
- Power management

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
Continue Drain Current	I_D	50	A
Pulsed Drain Current (Note1)	I_{DM}	200	A
Power Dissipation	P_D	75	W
Single Pulse Avalanche Energy	E_{AS}	80	mJ
Operating Junction Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	62	°C/W
Thermal Resistance, Junction to Case(Note 2)	$R_{\theta JC}$	2	°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} = 0 V,I_D = 250 μA	BV_{DSS}	60	-	-	V
Drain-Source Leakage Current	V_{DS} = 60V, 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	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance (Note 3)	V_{GS} = 10 V, I_D = 30A	$R_{DS(ON)}$	-	12	17	mΩ
	V_{GS} = 4.5 V, I_D = 20A		-	16	25	mΩ
Input Capacitance	V_{GS} = 0 V V_{DS} = 25 V, f = 1 MHz	C_{iss}	-	2030		pF
Output Capacitance		C_{oss}	-	130		
Reverse Transfer Capacitance		C_{rss}	-	115		
Turn-on Delay Time	V_{DD}=30V V_{GS}=10V R_G=1.8Ω I_D=30A	$t_{d(on)}$	-	11		ns
Rise Time		T_r	-	79		
Turn-Off Delay Time		$t_{d(OFF)}$	-	33		
Fall Time		t_f	-	105		
Total Gate Charge	V_{DS}=30V V_{GS}=10V I_D=30A	Q_g	-	45	-	nC
Gate to Source Charge		Q_{gs}	-	8	-	
Gate to Drain Charge		Q_{gd}	-	11	-	
Maximun Body-Diode Continuous Current (Note 2)		I_S	-	-	50	A
Maximun Body-Diode Pulsed Current		I_{SM}	-	-	200	A
Drain-Source Diode Forward Voltage (Note 3)	I_{SD} = 30A	V_{SD}	-	-	1.2	V
Reverse Recovery Time	I_S = I_F , ISD=30A,V_{GS} = 0 V, dI / dt = 100 A/μs (Note3)	t_{rr}	-	14	-	ns
Reverse Recovery Charge		Q_{rr}	-	10	-	μC

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

Ratings and Characteristic Curves

Figure1: Output Characteristics

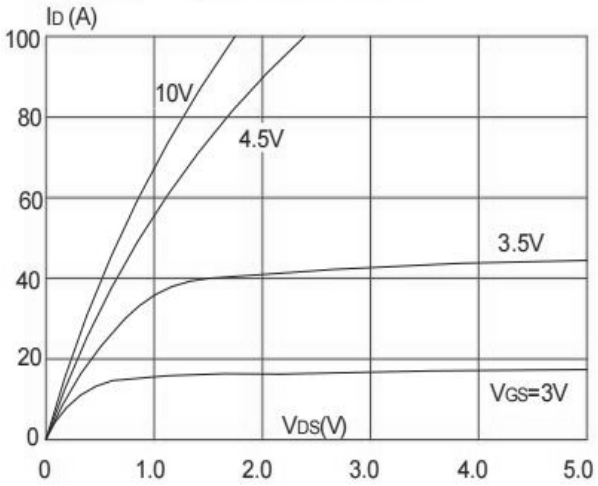


Figure 2: Typical Transfer Characteristics

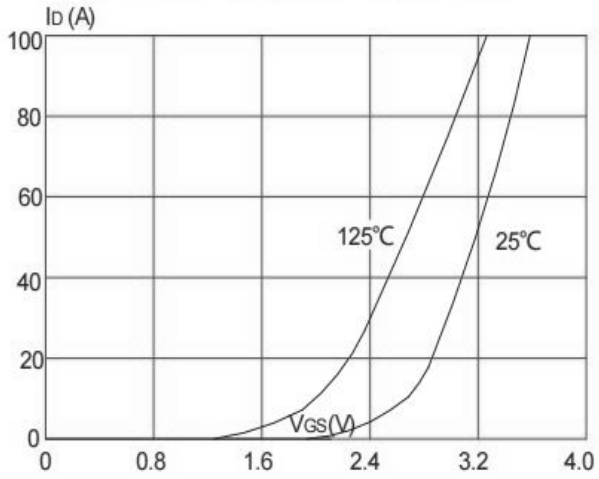


Figure 3: On-resistance vs. Drain Current

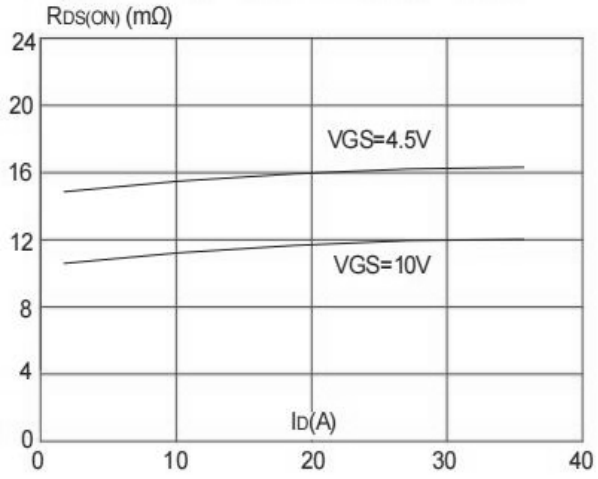


Figure 4: Body Diode Characteristics

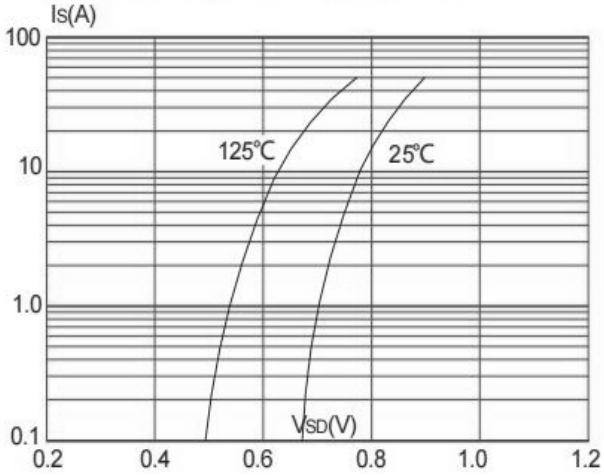


Figure 5: Gate Charge Characteristics

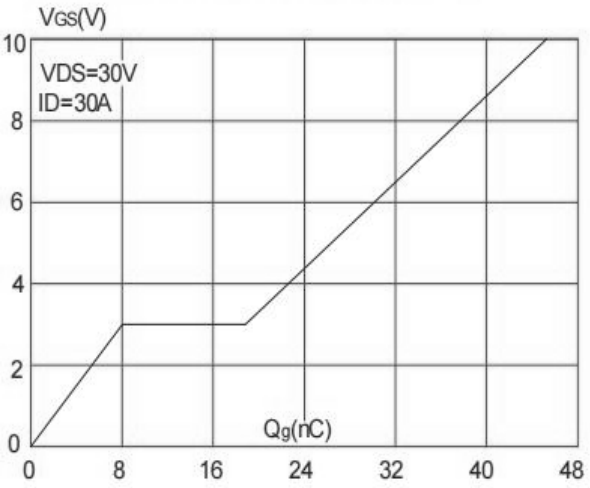
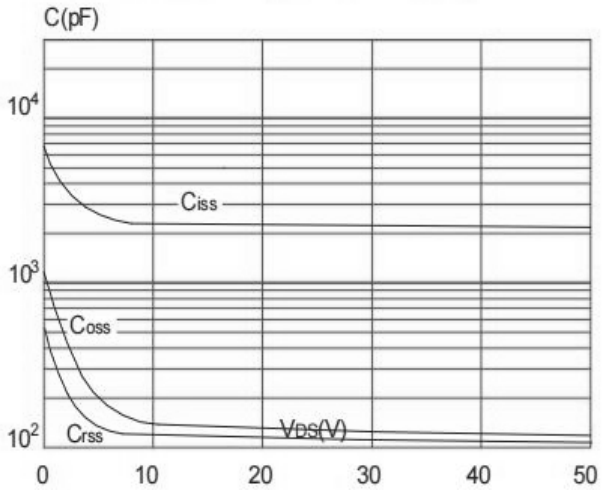


Figure 6: Capacitance Characteristics



Ratings and Characteristic Curves

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

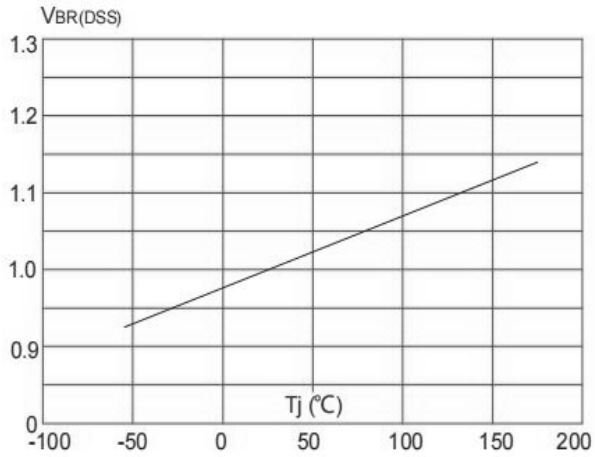


Figure 8: Normalized on Resistance vs. Junction Temperature

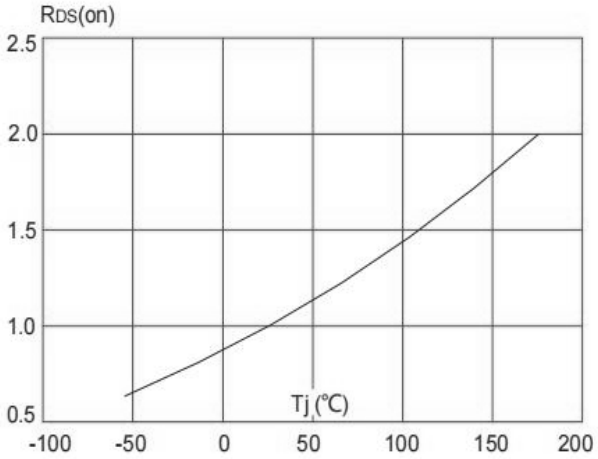


Figure 9: Maximum Safe Operating Area

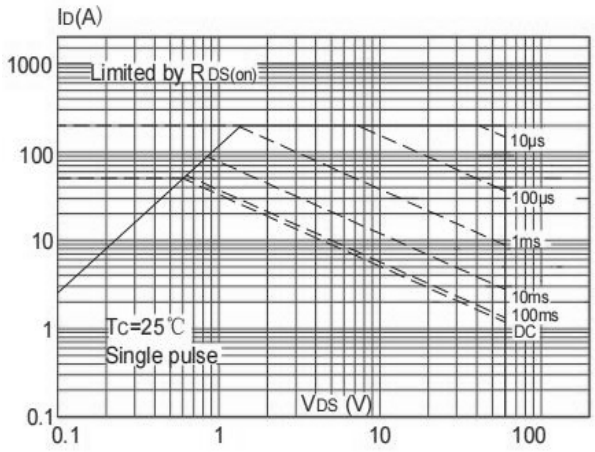


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

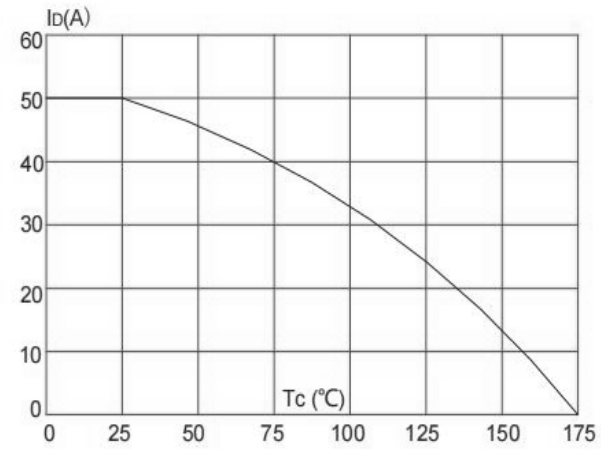
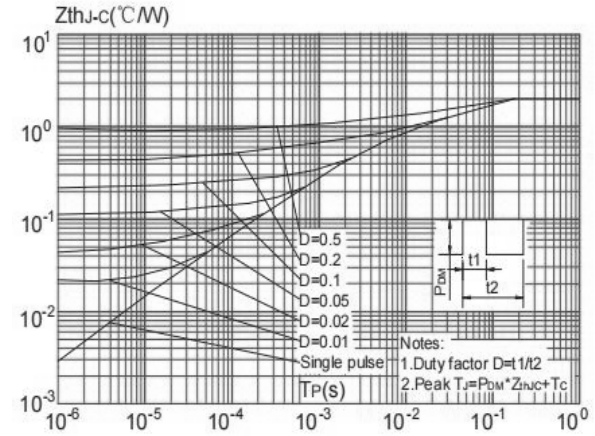
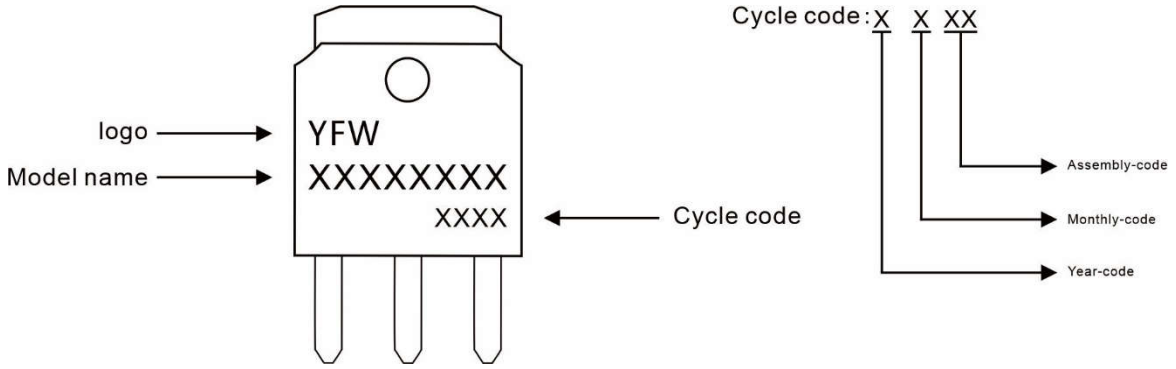


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Marking Diagram

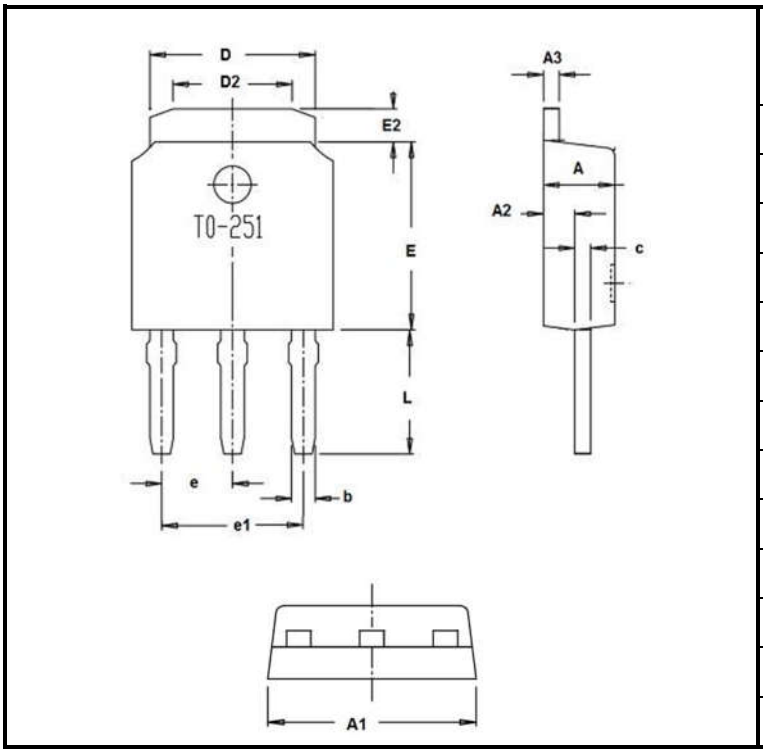


Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50N06AMJ	TO-251S	0.011oz(0.32g)	80pcs/tube	4000pcs/box 24000pcs/Carton

Package Dimensions

TO-251S



Dim	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	2.1	2.5	0.083	0.098
A1	6.3	6.9	0.248	0.271
A2	0.9	1.1	0.035	0.043
A3	TYP0.5		TYP0.019	
b	0.6	0.8	0.024	0.031
c	0.4	0.5	0.015	0.020
D	5.3	5.5	0.209	0.217
D2	3.65	4.05	0.144	0.159
E	5.8	6.4	0.228	0.252
E2	0.9	1.4	0.035	0.055
e	TYP2.29		TYP0.090	
e1	TYP4.58		TYP0.180	
L	3.7	4.3	0.146	0.169

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