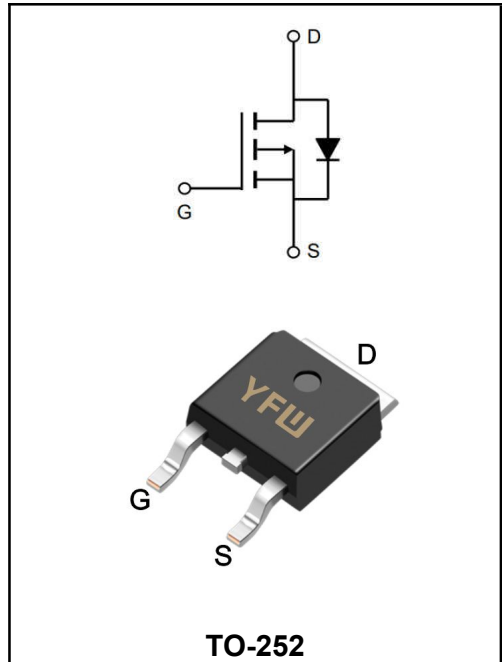


-100V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-20A
V_{DS}	-100V
R_{DS(on)}-typ(@V_{GS}=-10V)	< 110mΩ (Typ:90mΩ)
R_{DS(on)}-typ(@V_{GS}=-4.5V)	< 131mΩ (Typ:105mΩ)



FEATURES

- ◆ High - speed switching
- ◆ Excellent gate charge x R_{ds}(ON) product (FOM)
- ◆ Super high density cell design for extremely low R_{DS}(ON)
- ◆ Exceptional on-resistance and maximum DC current capability
- ◆ RoHS and Halogen - free compliant

ABSOLUTE MAXIMUM RATINGS (T_c=25°C unless otherwise noted)

Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	-100	V
Gate-Source Voltage		V_{GS}	±20	V
Drain Current-Continuous(note2)	T _c =25°C	I_D	-20	A
	T _c =70°C		-12.8	A
Pulsed Drain Current(note1、note2)		I_{DM}	-64	A
Single Pulse Avalanche Energy(note3)		E_{AS}	144	mJ
Maximum Power Dissipation	T _c =25°C	P_D	73.5	W
	T _c =70°C		47	W
Operating Junction and Storage Temperature Range		T_J, T_{STG}	-55 to 150	°C
Thermal Resistance Junction-Ambient		R_{θJA}	62	°C/W
Thermal Resistance Junction-Case		R_{θJC}	1.7	°C/W

Electrical Characteristics (T_c=25 °C, unless otherwise noted)

Parameter	Test Conditions	Symbol	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =-250uA	BV_{DSS}	-100			V
Zero Gate Voltage Drain Current	V _{DS} =-80V, V _{GS} =0V	I_{DSS}			-1.0	uA
Gate-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)}	-1.0	-1.8	-2.5	V
Drain-Source On-State Resistance	V _{GS} =-10V, I _D =-8A	R_{DS(on)}		90	110	mΩ
	V _{GS} =-4.5V, I _D =-6A			105	131	mΩ
Forward Transconductance	V _{DS} =10V, I _D =-4A	g_{FS}		6.6		S
Input Capacitance	V _{DS} =-30V V _{GS} =0V f =1.0MHz	C_{iss}		2362		pF
Output Capacitance		C_{oss}		170		pF
Reverse Transfer Capacitance		C_{rss}		113		pF
Total Gate Charge	V _{DS} =-30V, I _D =-8A, V _{GS} =-10V	Q_g		25.9		nC
Gate-Source Charge	V _{DS} =-30V I _D =-8A V _{GS} =-10V	Q_{gs}		6.6		nC
Gate-Drain Charge		Q_{gd}		7.8		nC
Turn-On Delay Time	V _{DD} =-30V I _D =-8A V _{GS} =-10V R _{GEN} =6Ω	t_{d(on)}		23		ns
Rise Time		T_r		44		ns
Turn-Off Delay Time		t_{d(OFF)}		86		ns
Fall Time		t_f		20		ns
Diode Forward Voltage	V _{GS} =0V, I _S =-2A	V_{SD}		-0.75	-1.3	V

Notes:

- 1、Pulse Test Width ≤300us, Duty Cycle ≤2%
- 2、Drain current limited by maximum junction temperature.
- 3、Starting T_j=25°C, L=0.5mH, V_{DD}=-30V. (See Figure11)
- 4、Guaranteed by design, not subject to production testing.

Figure 1. Output Characteristics

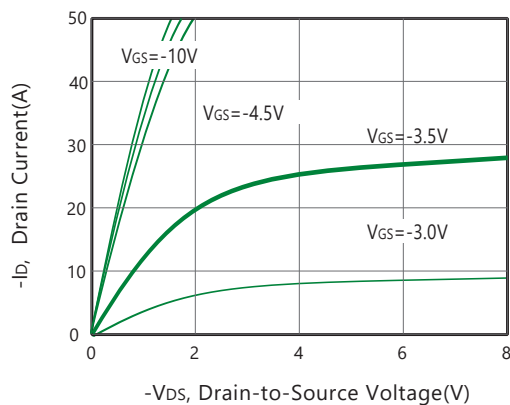


Figure 2. Body Diode Forward Voltage Variation with Source Current

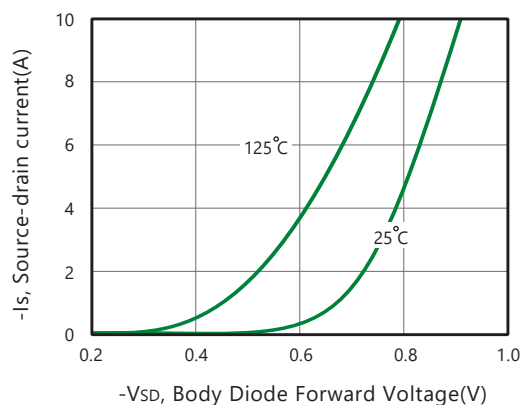


Figure 3. On-Resistance vs. Gate-Source Voltage

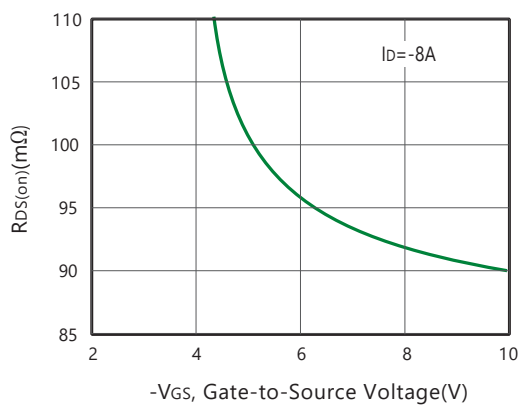


Figure 4. On-Resistance Variation with Drain Current and Temperature

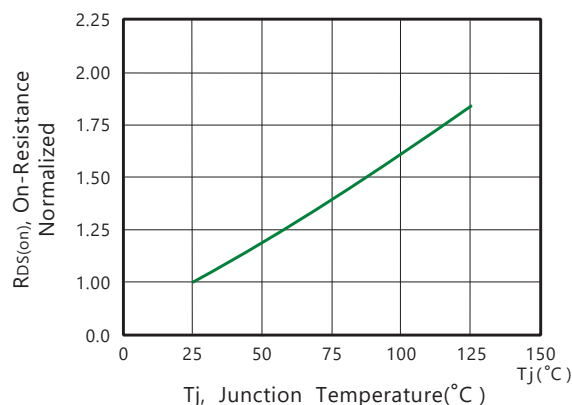


Figure 5. Gate Threshold Variation with Temperature

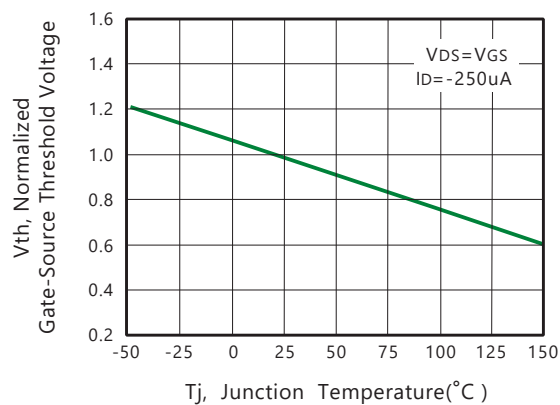


Figure 6. Gate Charge

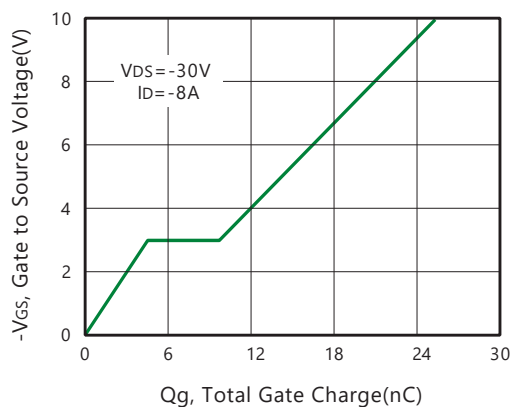


Figure 7. Capacitance

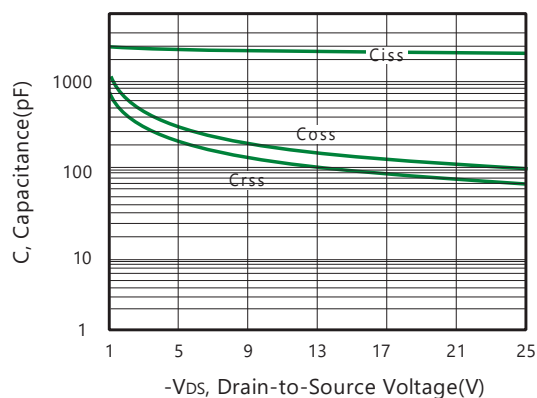


Figure 8. Maximum Safe Operating Area

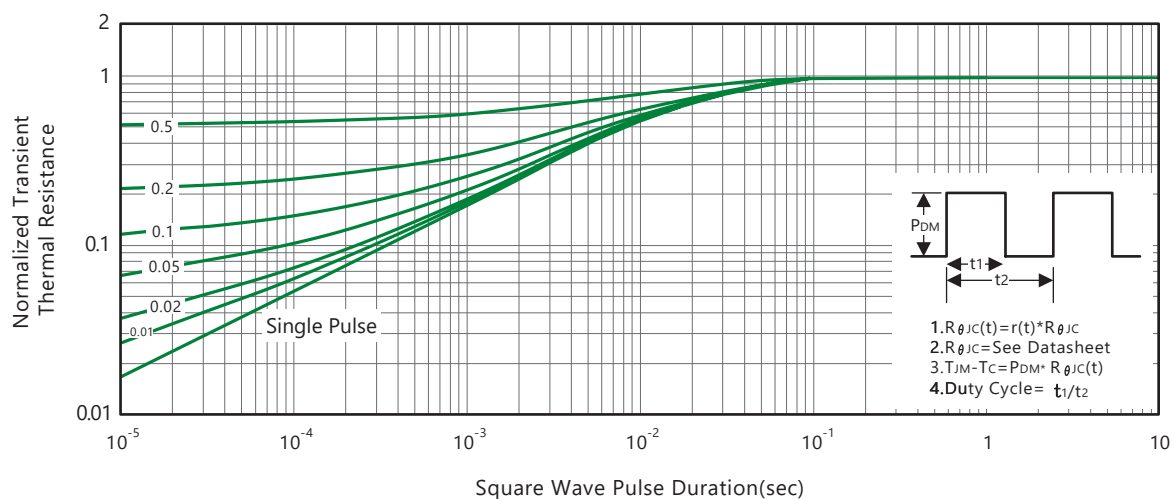
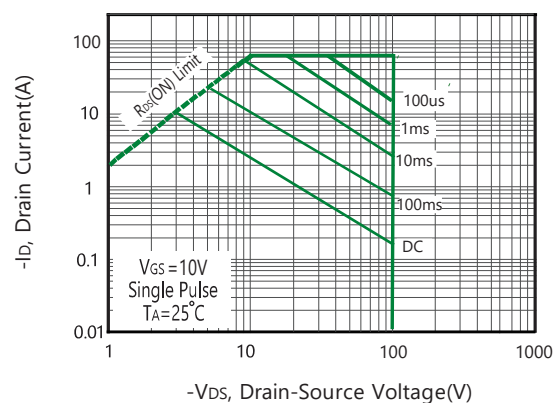


Figure 9. Normalized Thermal Transient Impedance Curve

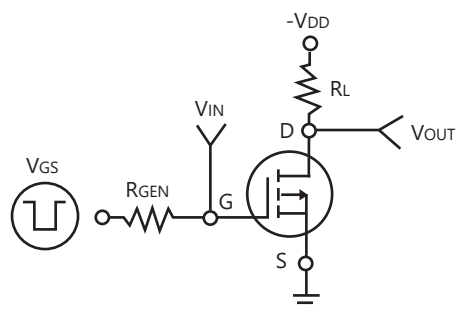


Figure 10a. Switching Test Circuit

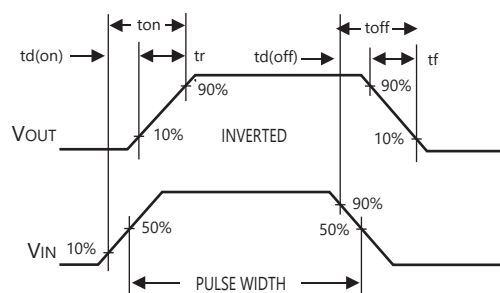
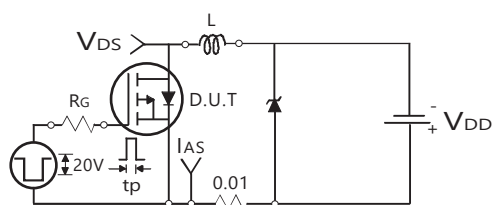
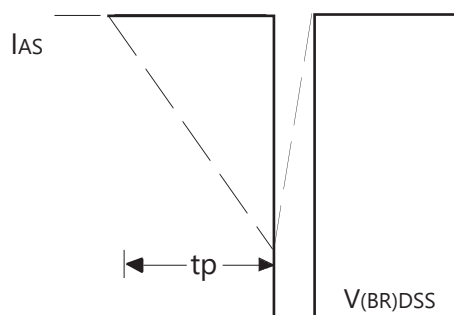


Figure 10b. Switching Waveforms



Unclamped Inductive Test Circuit

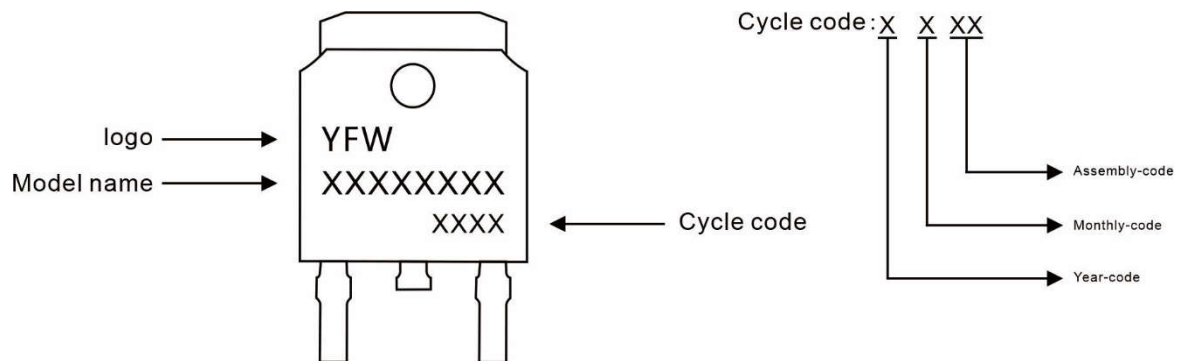
Figure 11a.



Unclamped Inductive Waveforms

Figure 11b.

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW20P10AD	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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