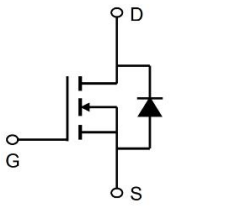
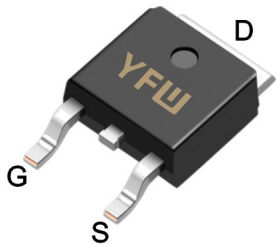
100V N-Channel Trench Power MOSFET

MAIN CHARACTERISTICS

I_D	15A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	＜108mΩ(Typ:86mΩ)





TO-252

FEATURES

- Advanced Trench Technology
- Excellent RDS(ON) and Low Gate Charge

APPLICATIONS

- Load Switch
- PWM Application
- Power Management

MECHANICAL DATA

- Case: Molded plastic
- Mounting Position: Any

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continue Drain Current	I_D	15	A
Pulsed Drain Current (Note1)	I_{DM}	60	A
Power Dissipation	P_D	44	W
Single Pulse Avalanche Energy (Note1)	E_{AS}	6	mJ
Operating Temperature Range	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\theta JC}$	3.4	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	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	B_{VDSS}	100	-	-	V
Drain-Source Leakage Current	V_{DS} = 100 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	$V_{GS(th)}$	1	-	2.5	V
Drain-Source On-State Resistance	V_{GS} = 10 V, I_D = 5 A	$R_{DS(ON)}$	-	86	108	mΩ
	V_{GS} = 4.5 V, I_D = 3 A		-	96	125	
Input Capacitance	V_{GS} = 0 V V_{DS} = 25 V f = 1 MHz	C_{iss}	-	847	-	pF
Output Capacitance		C_{oss}	-	40	-	
Reverse Transfer Capacitance		C_{rss}	-	12	-	
Turn-on Delay Time(Note2)	V_{GS}=10V V_{DD} =50 V R_G= 1.8 Ω I_D = 3 A	$t_{d(on)}$	-	6	-	ns
Rise Time(Note2)		T_r	-	7	-	
Turn-Off Delay Time(Note2)		$t_{d(OFF)}$	-	21	-	
Fall Time(Note2)		t_f	-	3	-	
Total Gate Charge(Note2)	I_D = 2 A V_{DD} = 50 V V_{GS} = 10 V	Q_g	-	20	-	nC
Gate to Source Charge(Note2)		Q_{gs}	-	2.8	-	
Gate to Drain Charge(Note2)		Q_{gd}	-	4	-	
Maximun Body-Diode Continuous Current		I_S	-	-	15	A
Maximun Body-Diode Pulsed Current(Note2)		I_{SM}	-	-	60	A
Drain-Source Diode Forward Voltage	I_{SD} = 10 A	V_{SD}	-	-	1.2	V
Reverse Recovery Time(Note2)	I_{SD} = 10 A, V_{GS} = 0 V, dIF / dt = 100 A/μs	t_{rr}	-	22	-	ns
Reverse Recovery Charge(Note2)		Q_{rr}	-	29	-	nC

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

Ratings And Characteristic Curves

Figure1: Output Characteristics

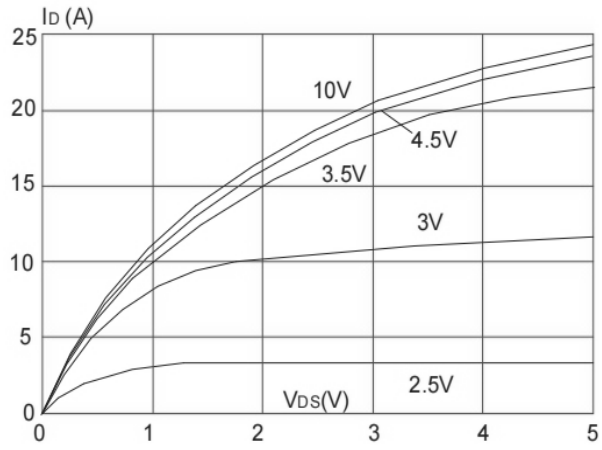


Figure 2: Typical Transfer Characteristics

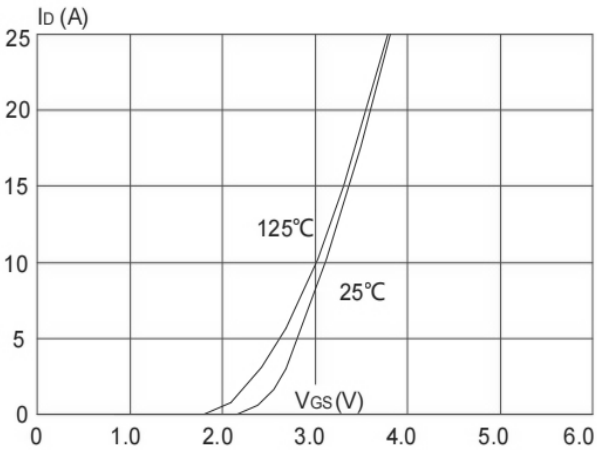


Figure 3: On-resistance vs. Drain Current

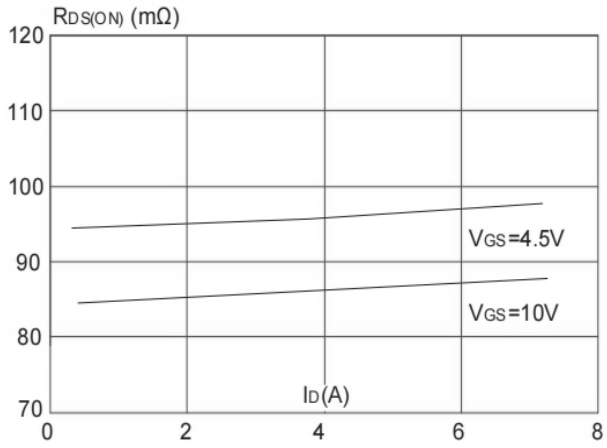


Figure 4: Body Diode Characteristics

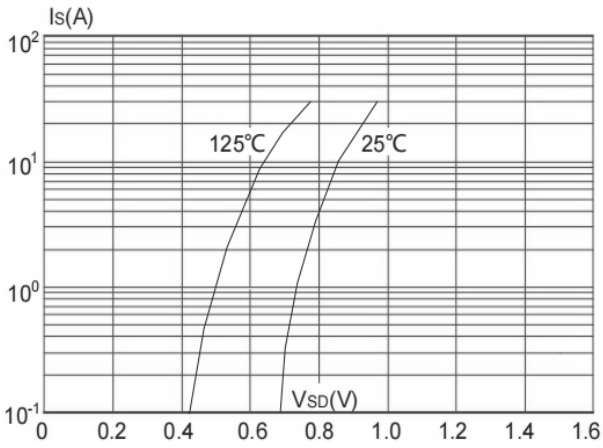


Figure 5: Gate Charge Characteristics

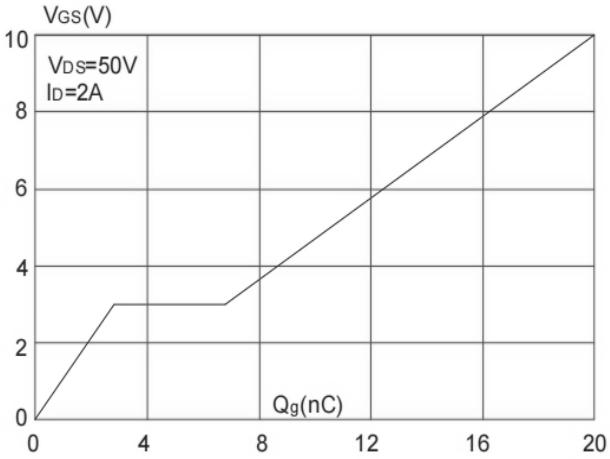
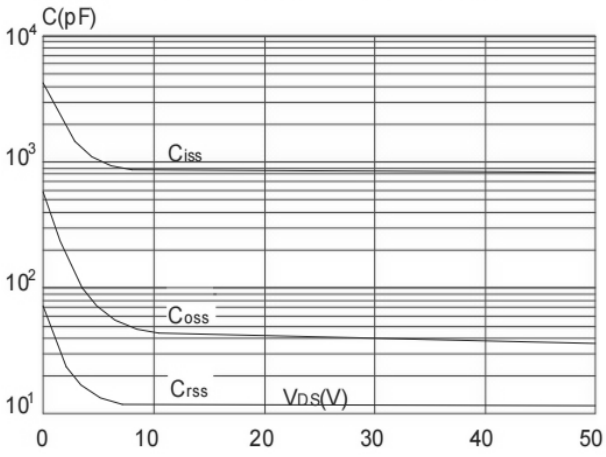


Figure 6: Capacitance Characteristics



Ratings And Characteristic Curves

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

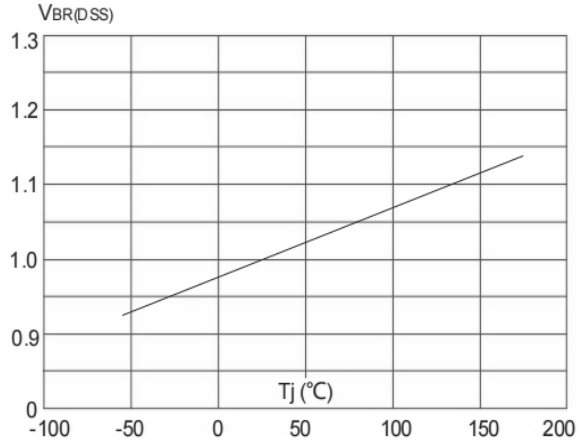


Figure 8: Normalized on Resistance vs. Junction Temperature

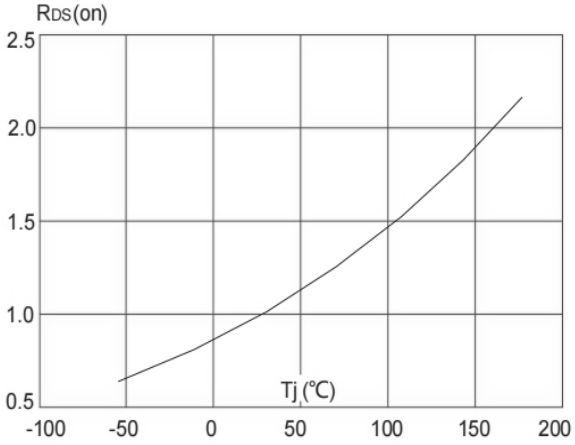


Figure 9: Maximum Safe Operating Area

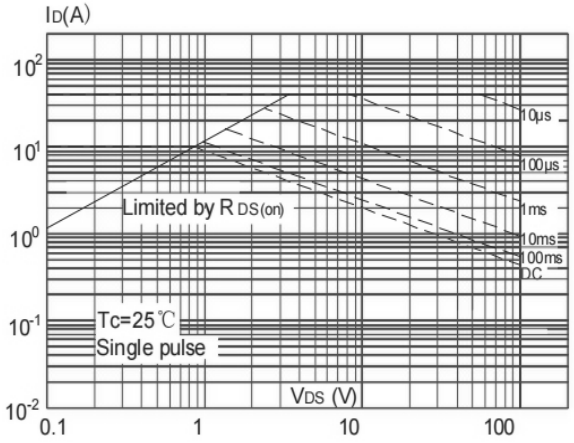


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

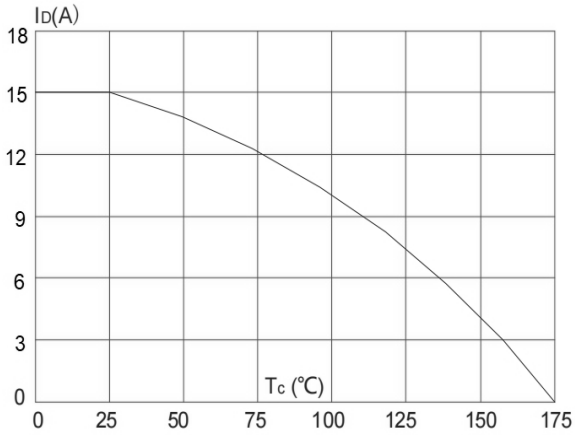
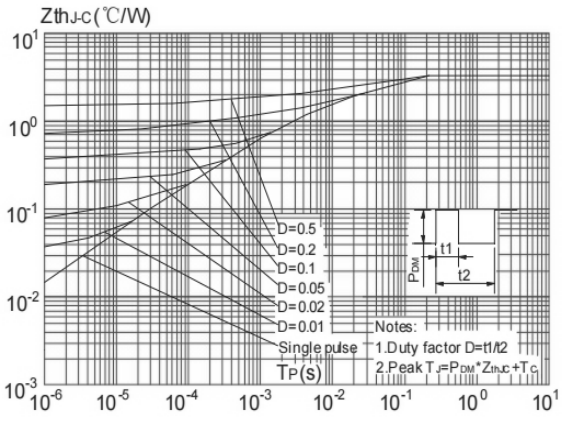
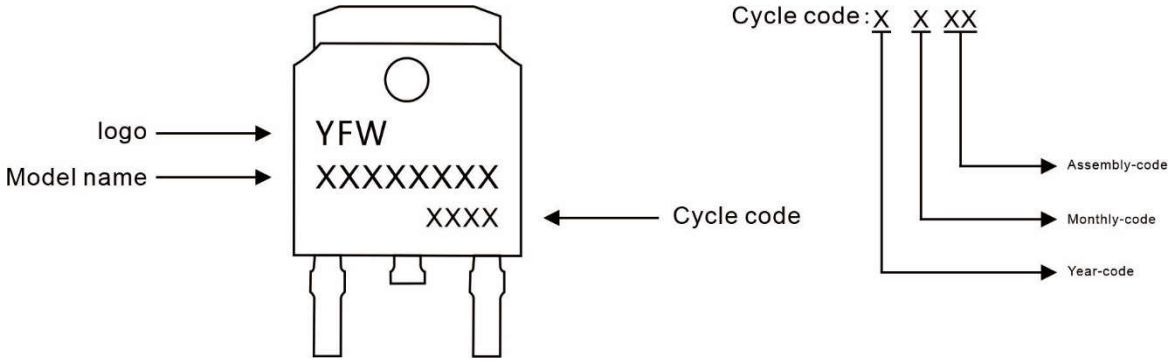


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Marking Diagram

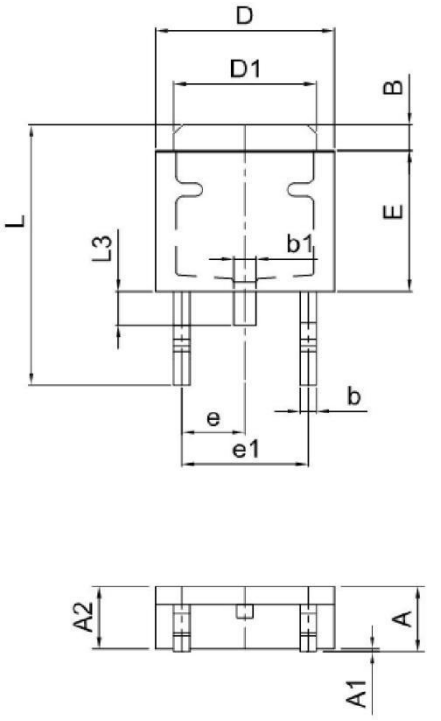


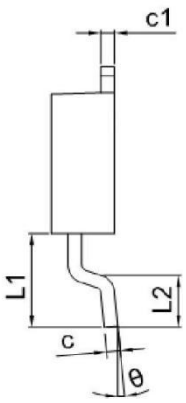
Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW15N10AD	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	0.95	1.55	0.037	0.061
b	0.50	0.80	0.020	0.031
b1	0.60	0.90	0.024	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	5.80	6.40	0.228	0.252
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	3.50	0.106	0.138
L2	1.40	1.80	0.055	0.071
L3	0.90	1.50	0.035	0.059

Disclaimer

The information presented in this document is for reference only. GuangDong Youfeng Microelectronics Co.,Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise. The product listed herein is designed to be used with ordinary electronic equipment or devices, and not designed to be used with equipment or devices which require high level of reliability and the malfunction of with would directly endanger human life (such as medical instruments, transportation equipment, aerospace machinery, nuclear-reactor controllers, fuel controllers and other safety devices),YFW or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale. This publication supersedes & replaces all information previously supplied. For additional information, please visit our website https://www.yfwdiode.com, or consult YFW sales office for further assistance.