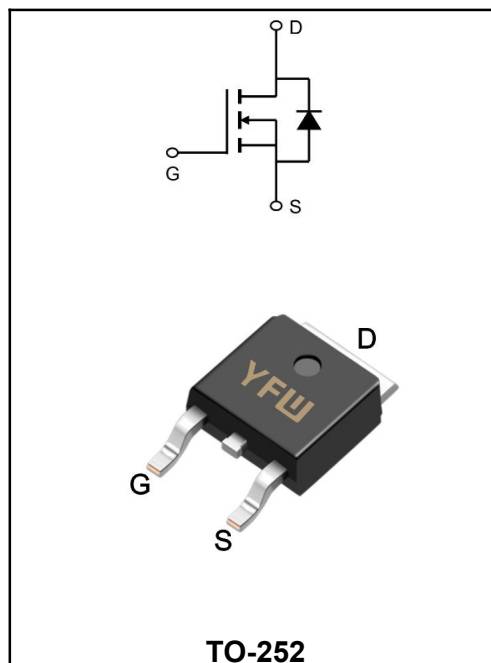


20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	60A
V_{DSS}	20V
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	< 5.5mΩ (Type: 4.1 mΩ)



Application

- ◆ Battery protection
- ◆ Load switch
- ◆ Uninterruptible power supply

Maximum Ratings at $T_c=25^{\circ}\text{C}$ unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	20	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=25^{\circ}\text{C}$	I_D	60	A
Continuous Drain Current, V_{GS} @ 4.5V @ $T_A=70^{\circ}\text{C}$	I_D	42	A
Pulsed Drain Current note1	I_{DM}	210	A
Single Pulse Avalanche Energy note2	E_{AS}	56.2	mJ
Power Dissipation @ $T_A=25^{\circ}\text{C}$	P_D	57	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	2.63	$^{\circ}\text{C/W}$
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +175	$^{\circ}\text{C}$

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	20	24	-	V
Zero Gate Voltage Drain Current	$V_{DS}=20V, V_{GS}=0V$	I_{DSS}	-	-	1.0	μA
Gate - Body Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	V_{GS(th)}	0.5	0.7	1.2	V
Static Drain-Source on-Resistance note3	$V_{GS}=4.5V, I_D=30A$	R_{DS(ON)}	-	4.1	5.5	mΩ
	$V_{GS}=2.5V, I_D=20A$		-	7.4	9.0	
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	2500	-	pF
Output Capacitance		C_{oss}	-	407	-	
Reverse Transfer Capacitance		C_{rss}	-	386	-	
Total Gate Charge	$V_{DS}=10V$ $I_D=30A$ $V_{GS}=4.5V$	Q_g	-	32	-	nC
Gate-Source Charge		Q_{gs}	-	3	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	11	-	
Turn-on delay time	$V_{DS}=10V$ $I_D=30A$ $R_{GEN}=3\Omega$ $V_{GS}=4.5V$	t_{D(on)}	-	17	-	ns
Turn-on Rise Time		T_r	-	49	-	
Turn-Off Delay Time		t_{d(OFF)}	-	74	-	
Turn- Off Fall Time		t_f	-	26	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	75	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	300	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=30A$	V_{SD}	-	-	1.2	V

Notes:

- 1、Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
- 2、The test condition is, VDD=10V, VG=4.5V, L=0.5mH, RG=25Ω, IAS=15A
- 3、The data tested by pulsed Pulse Test: Pulse Width≤300μs, Duty Cycle≤0.5%
- 4、The power dissipation is limited by 150°C junction temperature

Ratings and Characteristic Curves

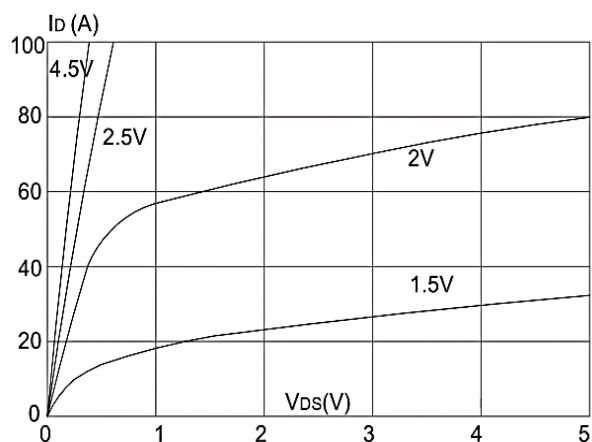


Figure1: Output Characteristics

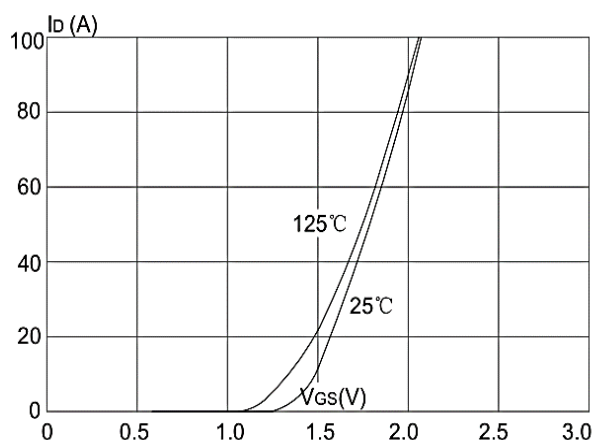


Figure 2: Typical Transfer Characteristics

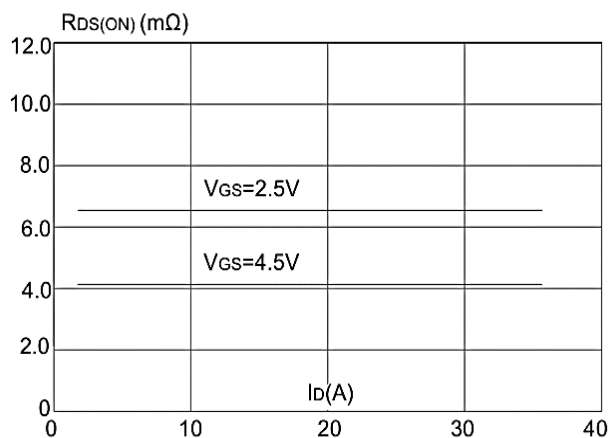


Figure 3: On-resistance vs. Drain Current

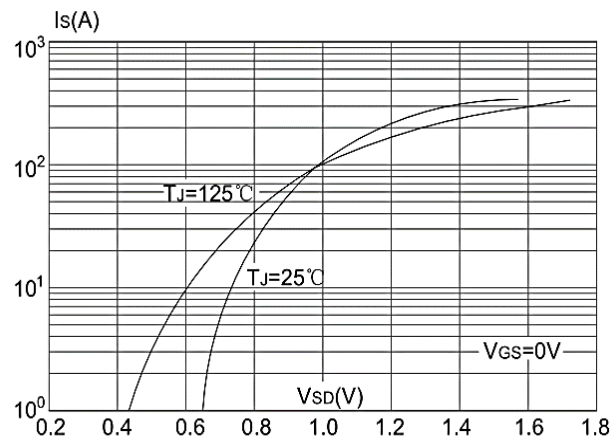


Figure 4: Body Diode Characteristics

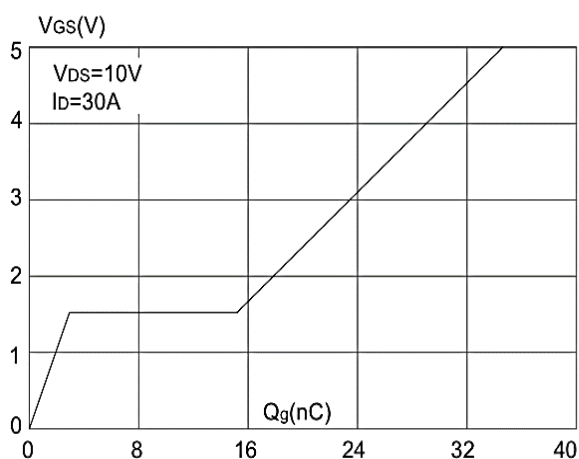


Figure 5: Gate Charge Characteristics

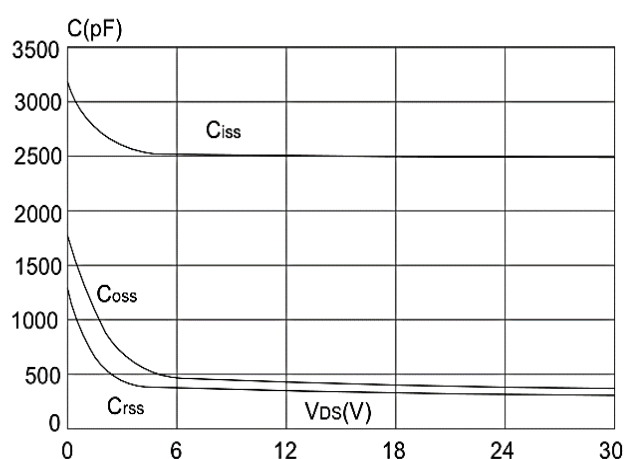


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

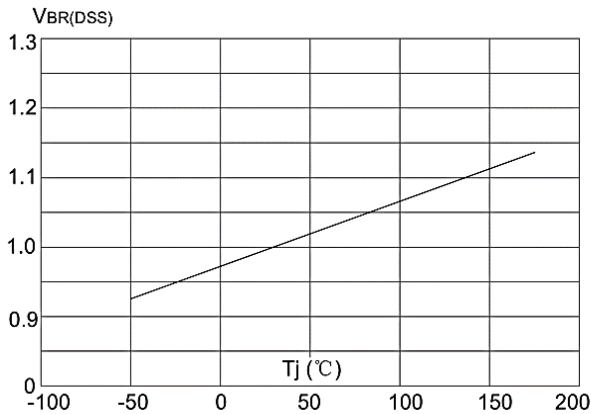


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

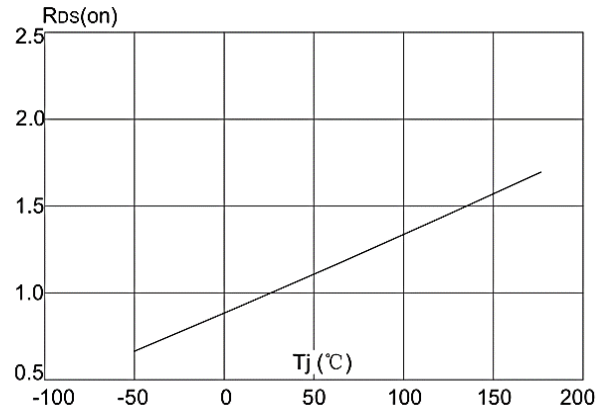


Figure 8: Normalized on Resistance vs. Junction Temperature

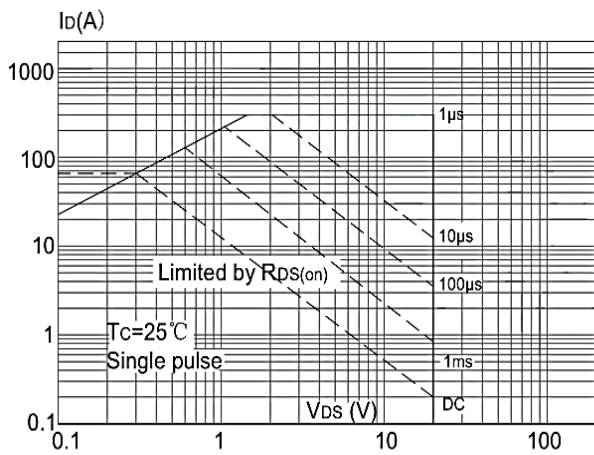


Figure 9: Maximum Safe Operating Area Current Temperature

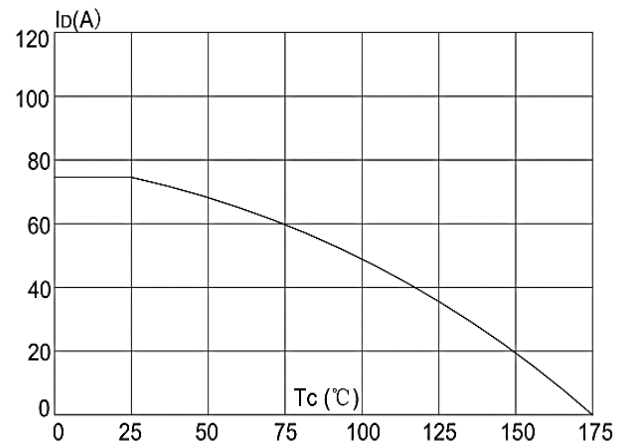


Figure 10: Maximum Continuous Drain vs. Case

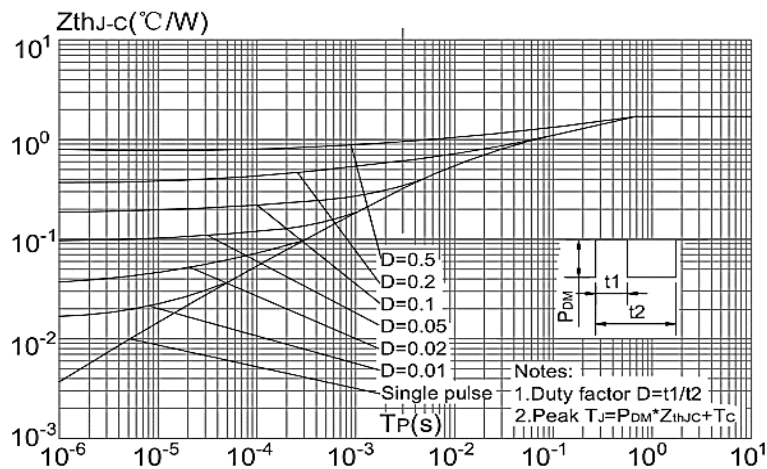
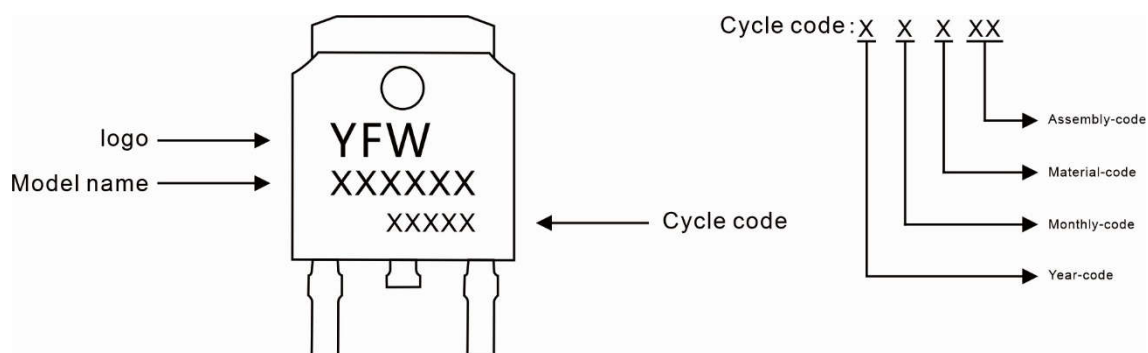


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW60N02AD	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

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 which 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.