

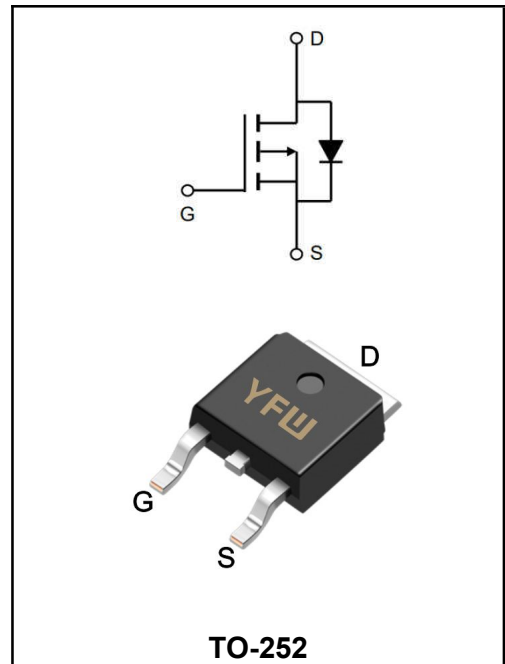
-30V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-60A
V_{DSS}	-30V
R_{DS(on)-typ(@V_{GS}=-10V)}	<9mΩ (Typ:7.2mΩ)

Application

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



Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DSS}	-30	V
Gate - Source Voltage	V_{GSS}	±20	V
Continuous Drain Current, V _{GS} @ -10V @T _c =25°C	I_D	-60	A
Continuous Drain Current, V _{GS} @ -10V @T _c =100°C	I_D	-26	A
Pulsed Drain Current ^{note1}	I_{DM}	-220	A
Single Pulsed Avalanche Energy ^{note2}	E_{AS}	121	mJ
Total Power Dissipation ⁴ @T _c =25°C	P_D	52	W
Thermal Resistance Junction to Case	R_{θJC}	2.9	°C/W
Storage Temperature Range	T_{STG}	-55 to +175	°C
Operating Junction Temperature Range	T_J	-55 to +175	°C

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

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	V _{(BR)DSS}	-30	-	-	V
Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} =0V,	I _{DSS}	-	-	-1	μA
Gate to Body Leakage Current	V _{DS} =0V, V _{GS} = ±20V	I _{GSS}	-	-	±100	nA
Gate Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	V _{GS(th)}	-1.0	-1.6	-2.5	V
Static Drain-Source on-Resistance <small>note3</small>	V _{GS} = -10V, I _D = -12A	R _{DS(ON)}	-	7.2	9	mΩ
	V _{GS} = -4.5V, I _D = -8A		-	10	15	mΩ
Input Capacitance	V _{DS} =-15V V _{GS} =0V f=1.0MHz	C _{iss}	-	3564	-	pF
Output Capacitance		C _{oss}	-	416	-	
Reverse Transfer Capacitance		C _{rss}	-	373	-	
Total Gate Charge	V _{DS} = -15V I _D = -20A V _{GS} = -10V	Q _g	-	37		nC
Gate-Source Charge		Q _{gs}	-	6.5		nC
Gate-Drain("Miller") Charge		Q _{gd}	-	9.4		nC
Turn-on Delay Time	V _{DD} = -15V I _D = -30A V _{GS} = -10V R _{GEN} =2.5Ω	t _{d(on)}	-	16		ns
Turn-on Rise Time		T _r	-	21		ns
Turn-off Delay Time		t _{d(OFF)}	-	68		ns
Turn-off Fall Time		t _f	-	52		ns
Maximum Continuous Drain to Source Diode Forward Current		I _S	-	-	-55	A
Maximum Pulsed Drain to Source Diode Forward Current		I _{SM}	-	-	-220	A
Drain to Source Diode Forward Voltage	V _{GS} =0V, I _S = -30A	V _{SD}	-	-0.8	-1.2	V

Note :

1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. EAS condition: T_J=25°C, V_{DD}= -15V, V_G= -10V, R_G=25Ω, L=0.5mH, I_{AS}= -22A
3. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Typical Characteristics

Figure 1: Output Characteristics

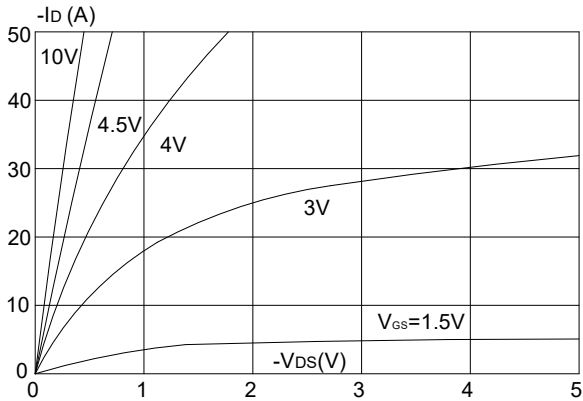


Figure 2: Typical Transfer Characteristics

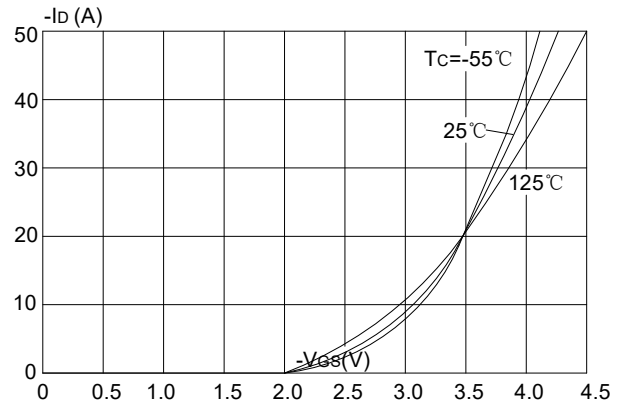


Figure 3: On-resistance vs. Drain Current

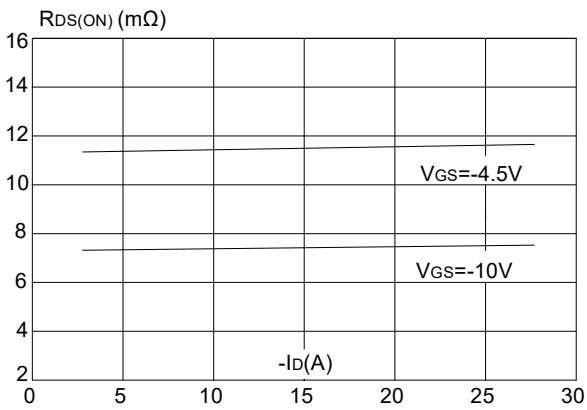


Figure 4: Body Diode Characteristics

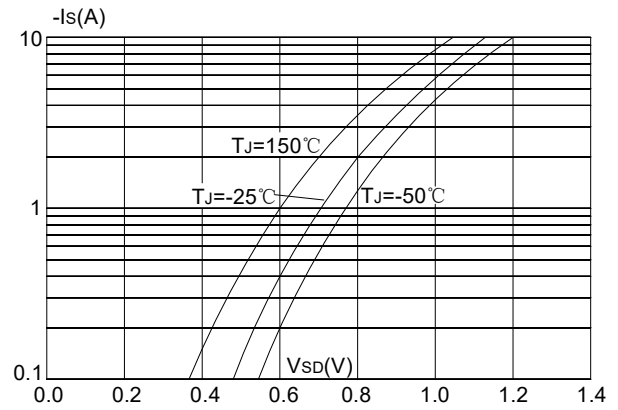


Figure 5: Gate Charge Characteristics

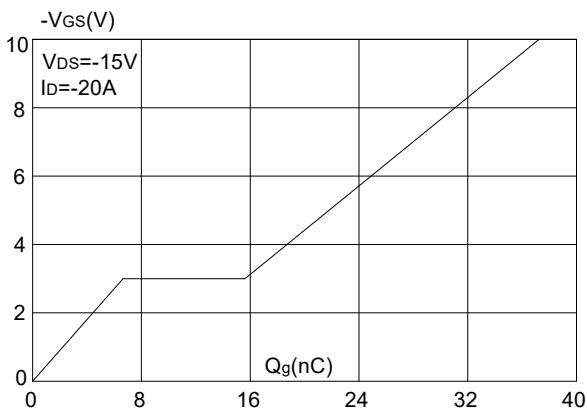
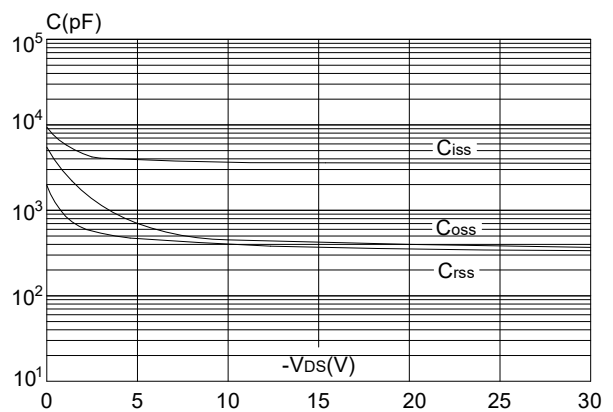


Figure 6: Capacitance Characteristics



Typical Characteristics

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

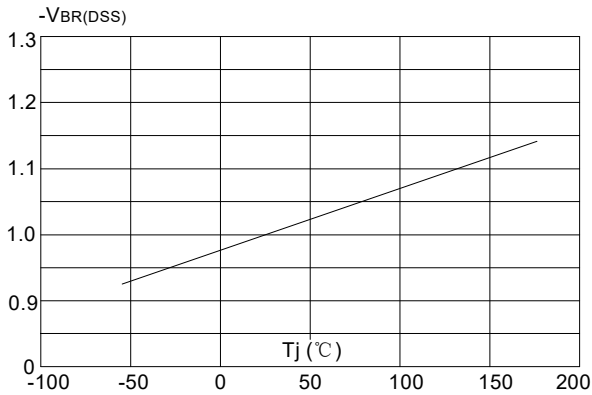


Figure 8: Normalized on Resistance vs. Junction Temperature

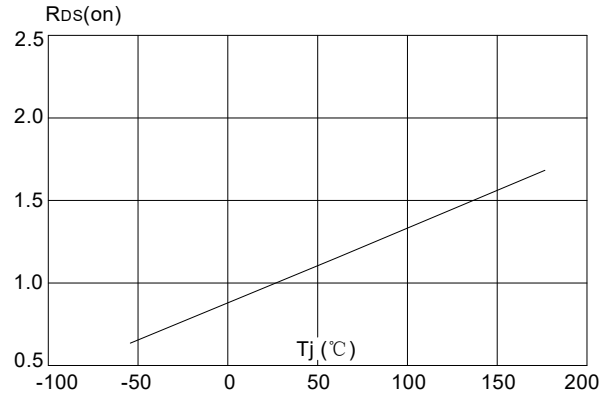


Figure 9: Maximum Safe Operating Area

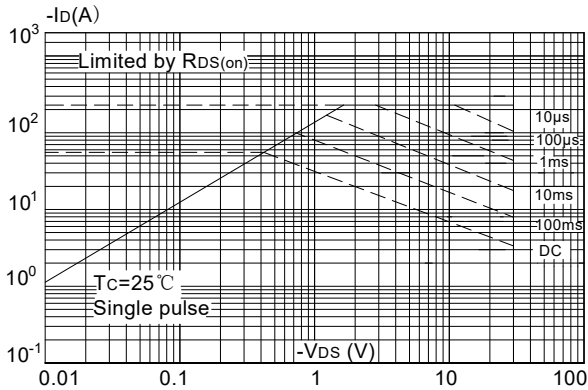


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

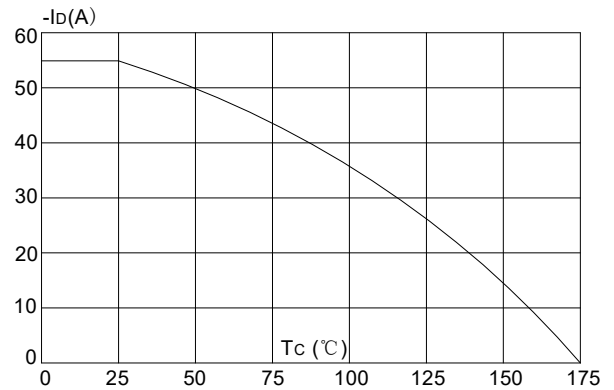
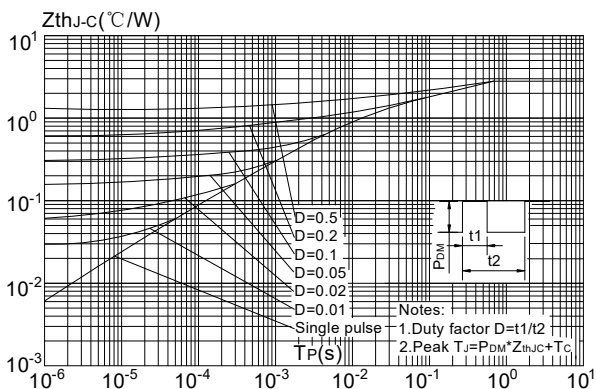
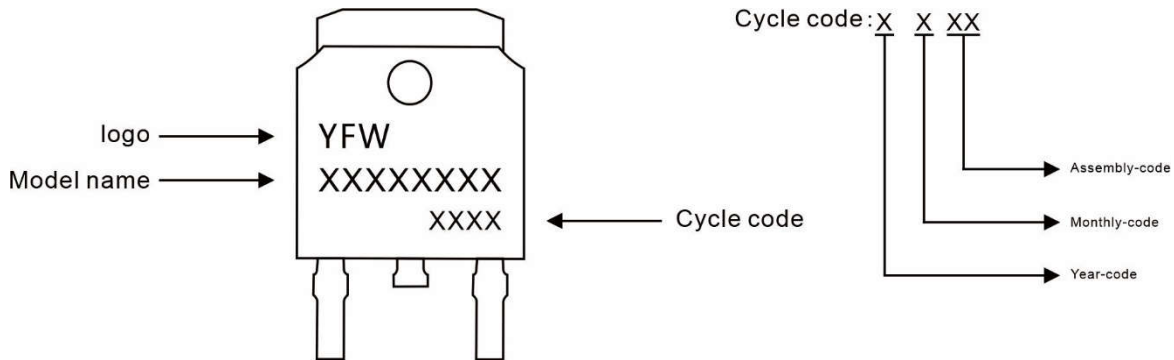


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case



Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW60P03AD	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.