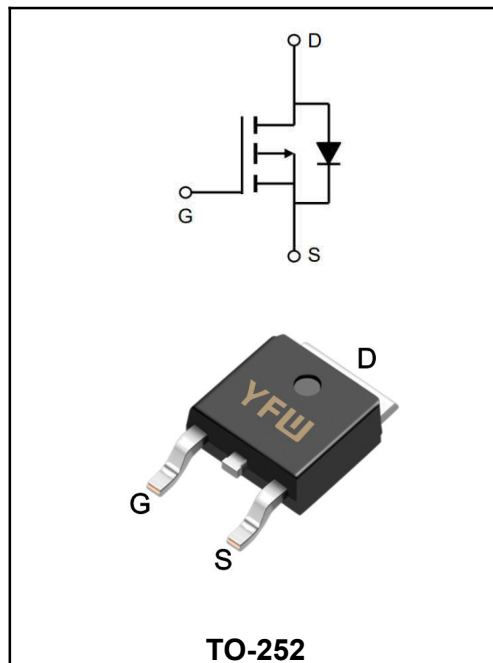


-100V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-50A
V_{DSS}	-100V
$R_{DS(on)-typ}(@V_{GS}=-10V)$	< 52mΩ (Type:40 mΩ)



Application

- ◆Brushless motor
- ◆Load switch
- ◆Uninterruptible power supply

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-100	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current, V_{GS} @ -10V ¹ @T _C =25°C	I_D	-50	A
Continuous Drain Current, V_{GS} @ -10V ¹ @T _C =100°C	I_D	-28	A
Pulsed Drain Current ²	I_{DM}	-150	A
Single Pulse Avalanche Energy ³	E_{AS}	87	mJ
Avalanche Current	I_{AS}	-35	A
Total Power Dissipation ⁴ @T _C =25°C	P_D	140	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	62.5	°C/W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	1.1	°C/W

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	-100	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=-100V, V_{GS}=0V$	I_{DSS}	-	-	-1.0	μA
Gate to Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	V_{GS(th)}	-1.0	-1.6	-2.5	V
Static Drain-Source on-Resistance	$V_{GS}=-10V, I_D=-20A$	R_{DS(ON)}	-	40	52	mΩ
	$V_{GS}=-4.5V, I_D=-10A$		-	44	62	
Input Capacitance	$V_{DS}=-50V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	2120	-	pF
Output Capacitance		C_{oss}	-	194	-	
Reverse Transfer Capacitance		C_{rss}	-	13	-	
Total Gate Charge	$V_{DS}=-50V$ $V_{GS}=-10V$ $I_D=-5A$	Q_g	-	40	-	nC
Gate-Source Charge		Q_{gs}	-	7.8	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	8.6	-	
Turn-on delay time	$V_{DD}=-50V$ $V_{GS}=-10V$ $I_D=-5A$ $R_G=6\Omega$	t_{d(on)}	-	13	-	ns
Turn-on Rise Time		T_r	-	39	-	
Turn-Off Delay Time		t_{d(OFF)}	-	100.1	-	
Turn-Off Fall Time		t_f	-	105.3	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	-35	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	-140	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=-30A$	V_{SD}	-	-	-1.2	V
Body Diode Reverse Recovery Time	$I_F=-5A, dI/dt=100A/\mu s, T_J=25^\circ C$	t_{rr}	-	104	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	280	-	nC

Note :

- 1、The data tested by surface mounted on a 1 inch 2 FR-4 board with 2OZ copper.
- 2、The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、The EAS data shows Max. rating . The test condition is $V_{DD}=-25V, V_{GS}=-10V, L=0.1mH, I_{AS}=-24A$
- 4、The power dissipation is limited by 150°C junction temperature
- 5、The data is theoretically the same as I_D and I_{DM} , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

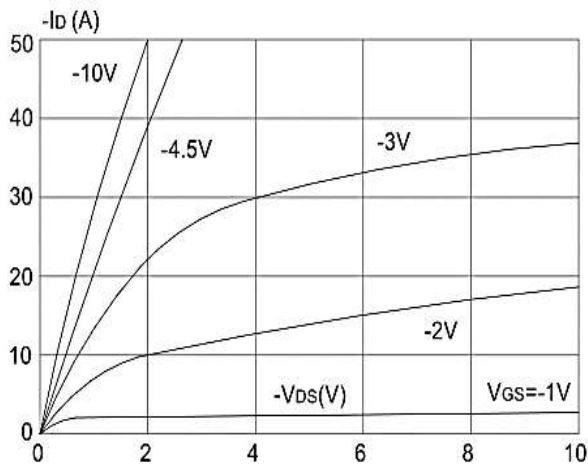


Figure1: Output Characteristics

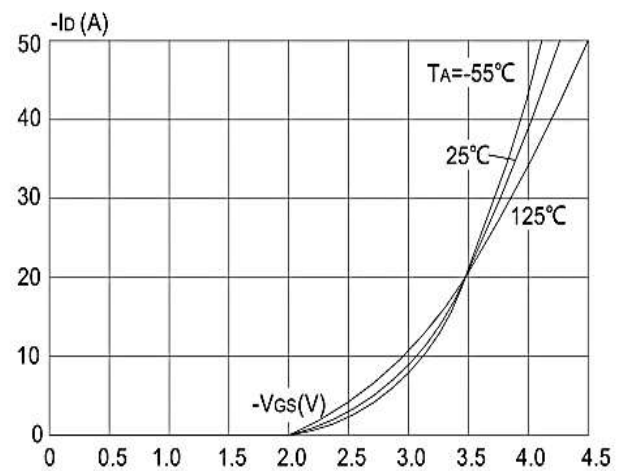


Figure 2: Typical Transfer Characteristics

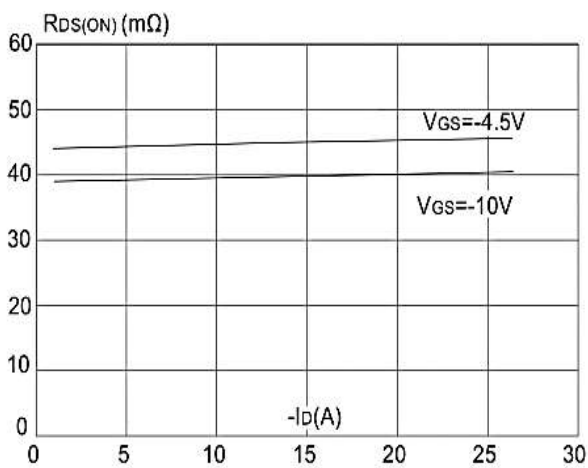


Figure 3: On-resistance vs. Drain Current

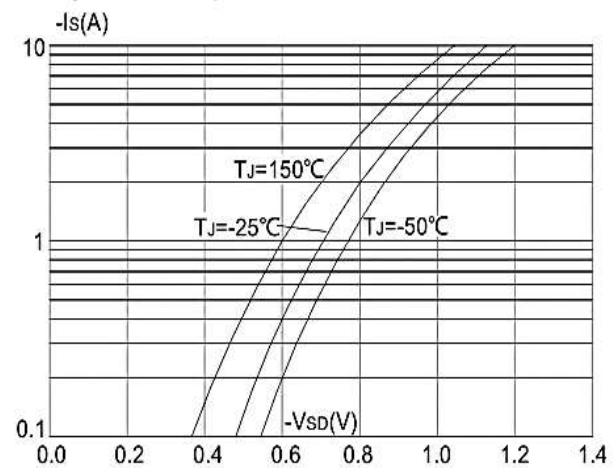


Figure 4: Body Diode Characteristics

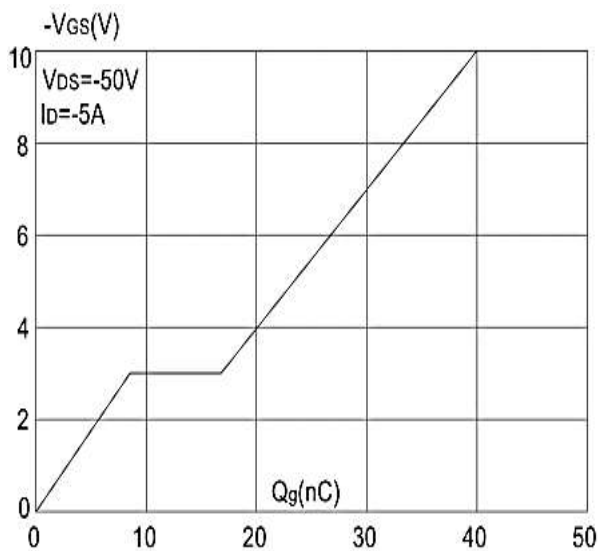


Figure 5: Gate Charge Characteristics

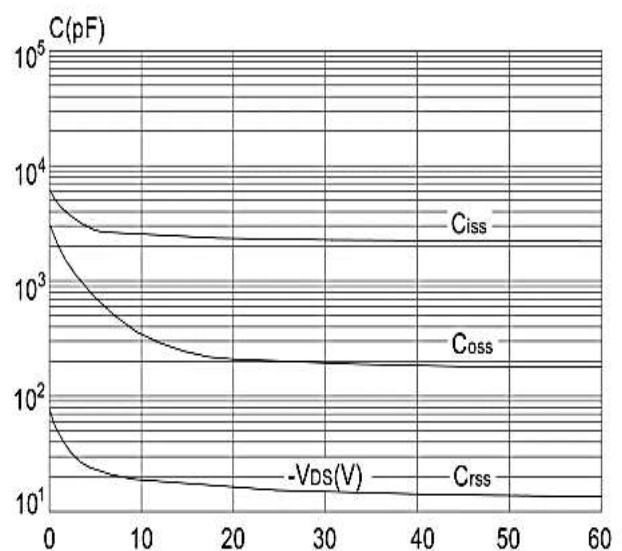


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

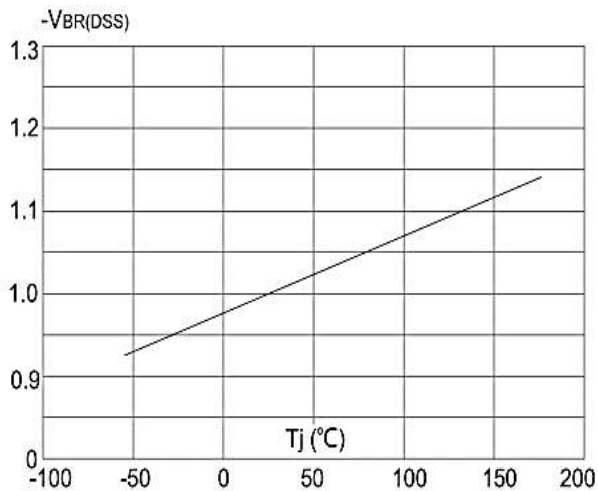


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

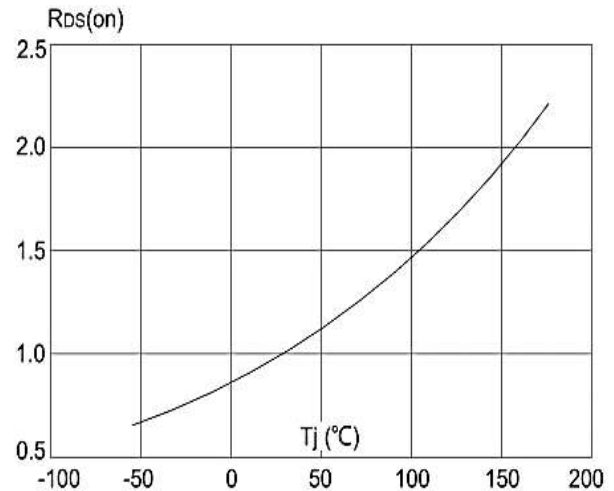


Figure 8: Normalized on Resistance vs. Junction Temperature

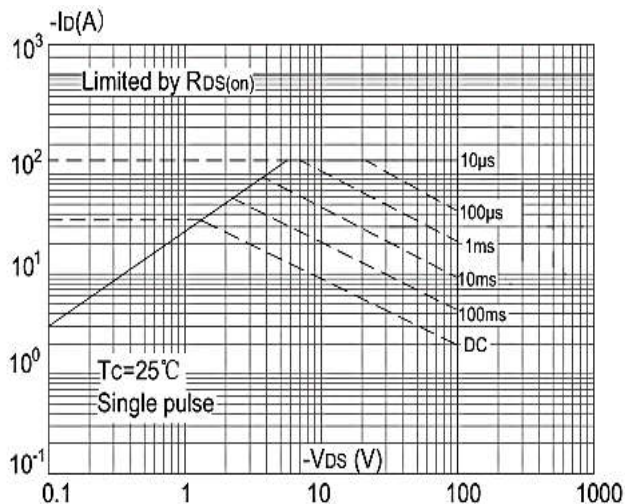


Figure 9: Maximum Safe Operating Area

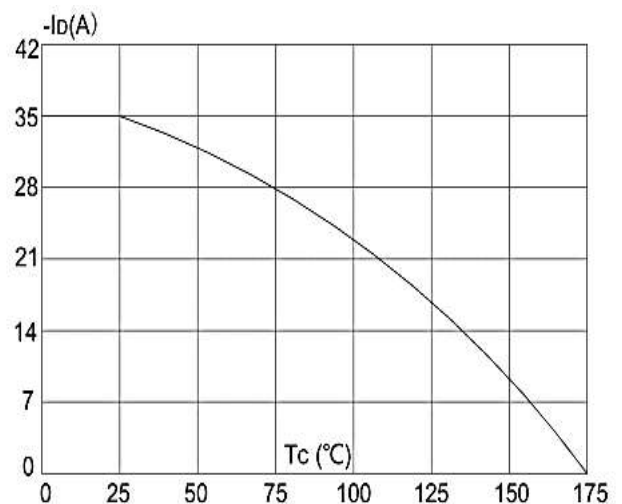


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

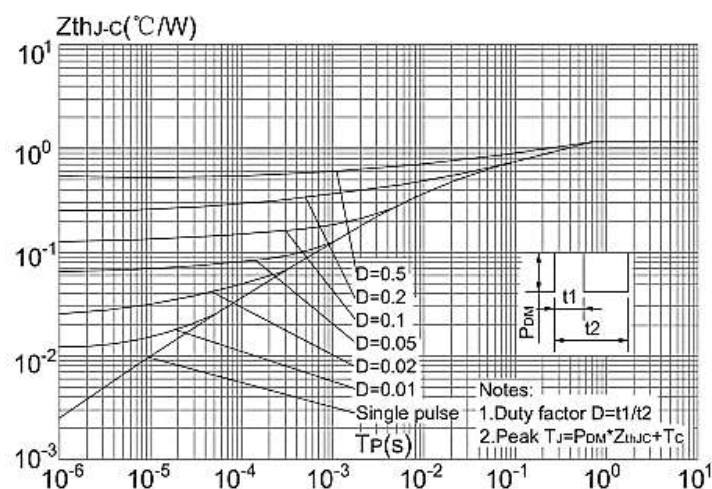
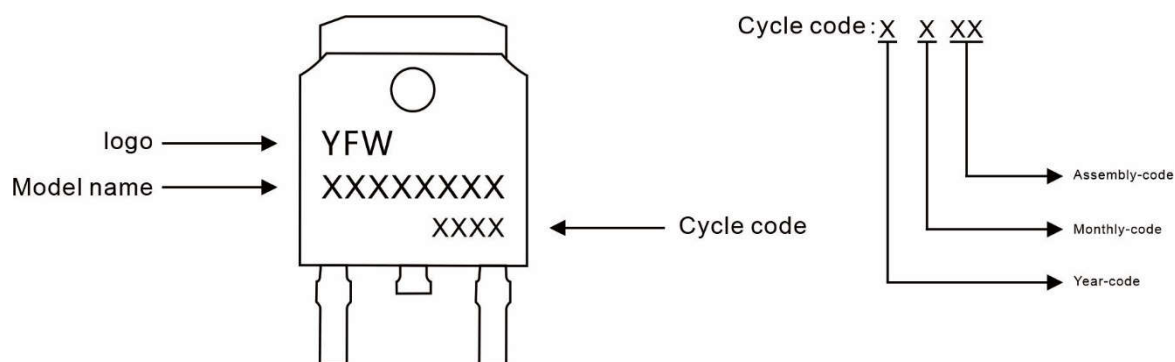


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

Marking Diagram



Ordering information

Model name	Package	Unit Weight	Base Quantity	Packing Quantity
YFW50P10AD	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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