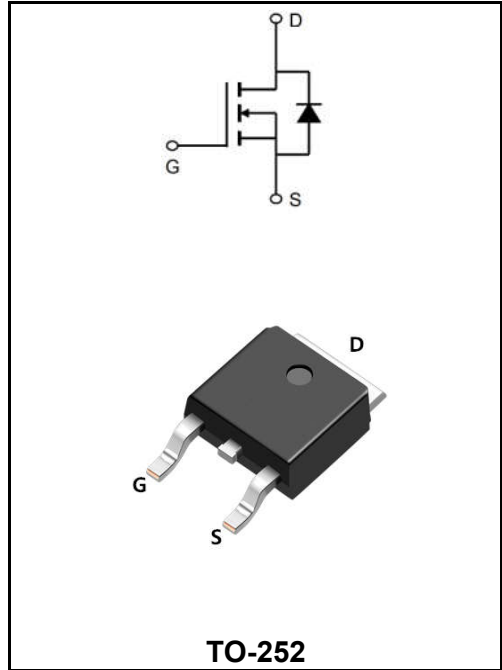


30V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	18A
V_{DSS}	30V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 25mΩ (Type:18 mΩ)
$R_{DS(on)-typ}(@V_{GS}=4.5V)$	< 31mΩ (Type:21 mΩ)



Application

- ♣3.3V MCU Drive
- ♣Load switch
- ♣Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW18N03AD	TO-252	YFW 18N03AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	30	V
Gate - Source Voltage	V_{GS}	± 12	V
Continuous Drain Current @T _A =25°C	I_D	18	A
Continuous Drain Current @T _A =70°C	I_D	12	A
Pulsed Drain Current ²	I_{DM}	50	A
Total Power Dissipation ³ @T _A =25°C	P_D	20.8	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-Ambient 1 (t ≤ 10s)	$R_{\theta JA}$	6	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	BV_{DSS}	30	33	-	V
BVDSS Temperature Coefficient	Reference to 25°C, $I_D=1mA$	$\Delta BV_{DSS}/\Delta T_J$	-	0.029	-	V/°C
Static Drain-Source On-Resistance ²	$V_{GS}=10V, I_D=5A$	$R_{DS(ON)}$	-	18	25	mΩ
	$V_{GS}=4.5V, I_D=3A$		-	21	31	
	$V_{GS}=2.5V, I_D=1A$		-	30	49	
Gate -Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	0.5	0.9	1.3	V
VGS(th) Temperature Coefficient		$\Delta V_{GS(th)}$	-	-2.82	-	mV/°C
Gate -Source Leakage Current	$V_{DS}=24V, V_{GS}=0V, T_J=25^\circ C$	I_{DSS}	-	-	1	μA
	$V_{DS}=24V, V_{GS}=0V, T_J=55^\circ C$		-	-	5	
Gate-Source Leakage Current	$V_{GS}=\pm 12V, V_{DS}=0V$	I_{GSS}	-	-	±100	nA
Forward Transconductance	$V_{DS}=5V, I_D=5A$	g_{FS}	-	25	-	S
Gate Resistance	$V_{DS}=0V, V_{GS}=0V, f=1MHz$	R_g	-	1.5	-	Ω
Total Gate Charge(4.5V)	$V_{DS}=15V$ $V_{GS}=4.5V$ $I_D=5.8A$	Q_g	-	11.5	-	nC
Gate-Source Charge		Q_{gs}	-	1.6	-	
Gate-Drain Charge		Q_{gd}	-	2.9	-	
Turn-on delay time	$V_{DD}=15V$ $V_{GS}=10V$ $R_G=3\Omega$ $I_D=5A$	$t_{d(on)}$	-	5	-	ns
Rise Time		T_r	-	47	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	26	-	
Fall Time		t_f	-	8	-	
Input Capacitance	$V_{DS}=15V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	530	-	pF
Output Capacitance		C_{oss}	-	130	-	
Reverse Transfer Capacitance		C_{rss}	-	36	-	
Continuous Source Current ^{1,4}	$V_G=V_D=0V$, Force Current	I_S	-	-	5.8	A
Diode Forward Voltage ²	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	V_{SD}	-	-	1.2	V

Note :

- 1、 The data tested by surface mounted on a 1 inch² FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Ratings and Characteristic Curves

Typical Characteristics

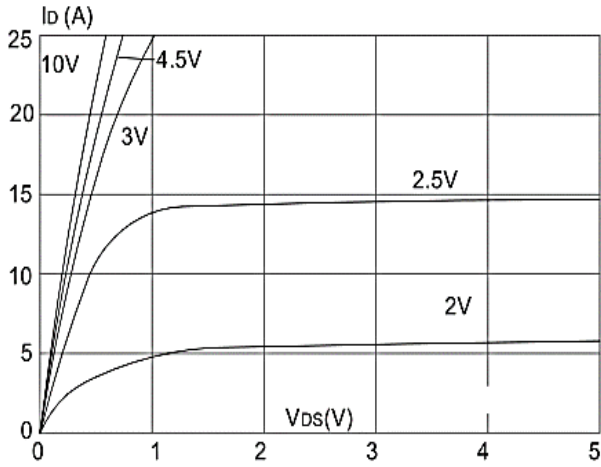


Figure1: Output Characteristics

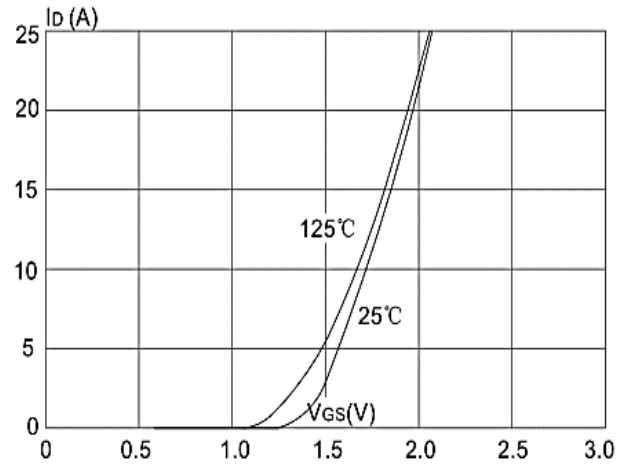


Figure 2: Typical Transfer Characteristics

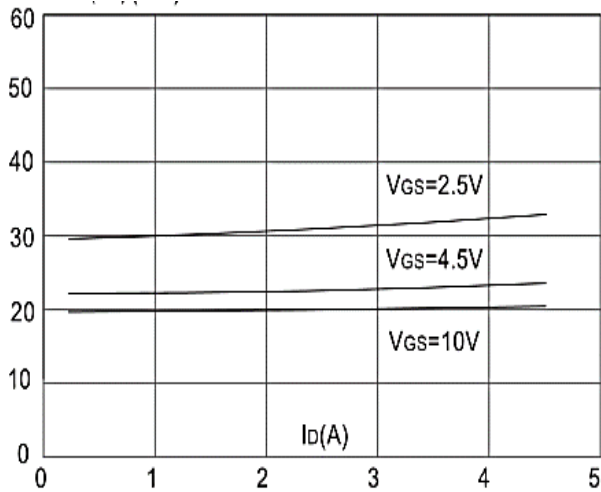


Figure 3: On-resistance vs. Drain Current

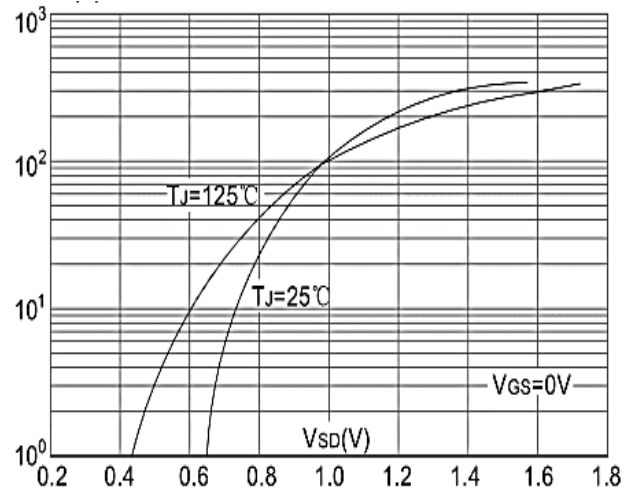


Figure 4: Body Diode Characteristics

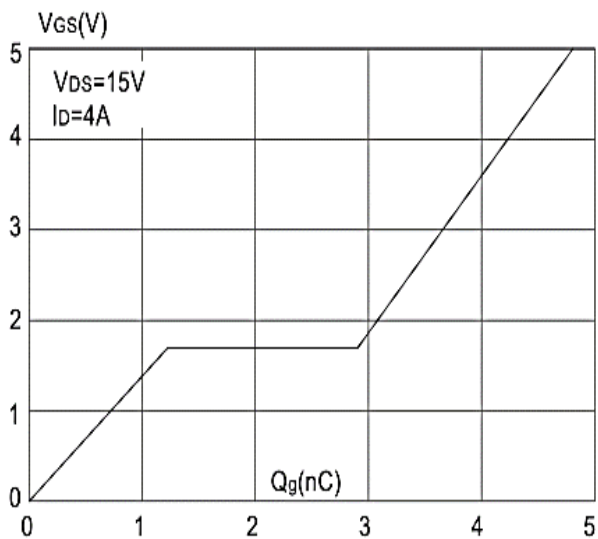


Figure 5: Gate Charge Characteristics

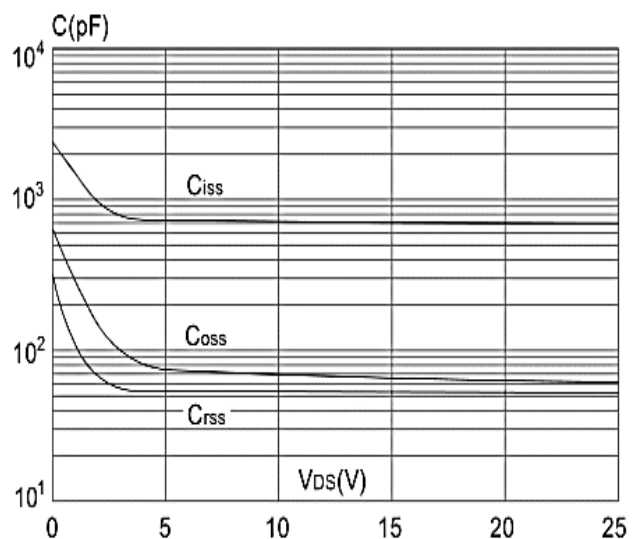


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

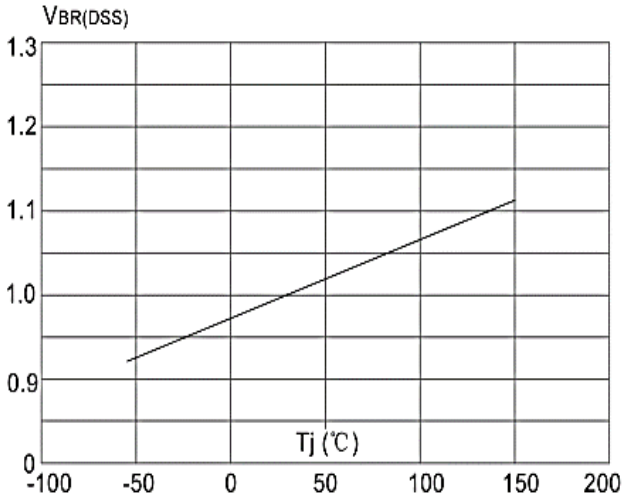


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

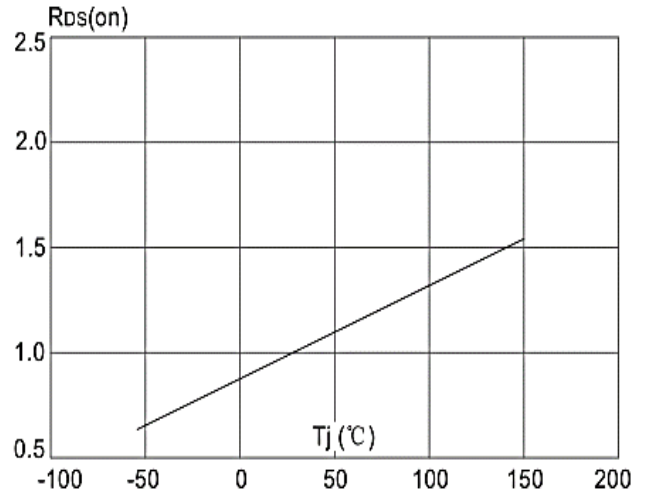


Figure 8: Normalized on Resistance vs. Junction Temperature

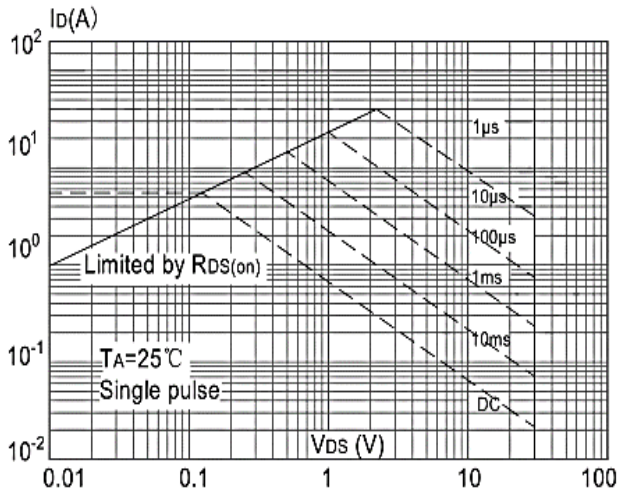


Figure 9: Maximum Safe Operating Area vs. Case Temperature

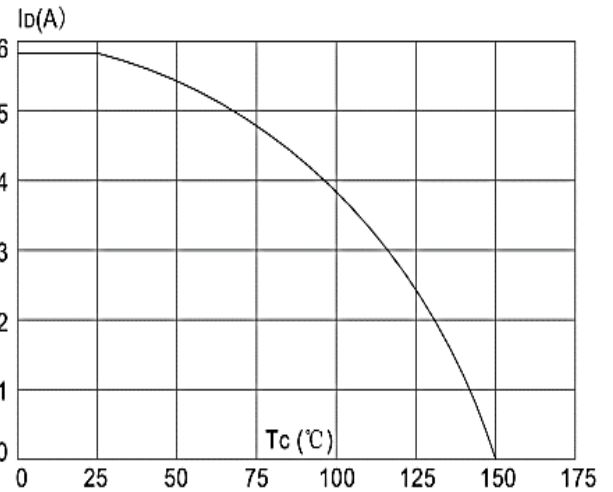


Figure 10: Maximum Continuous Drain Current

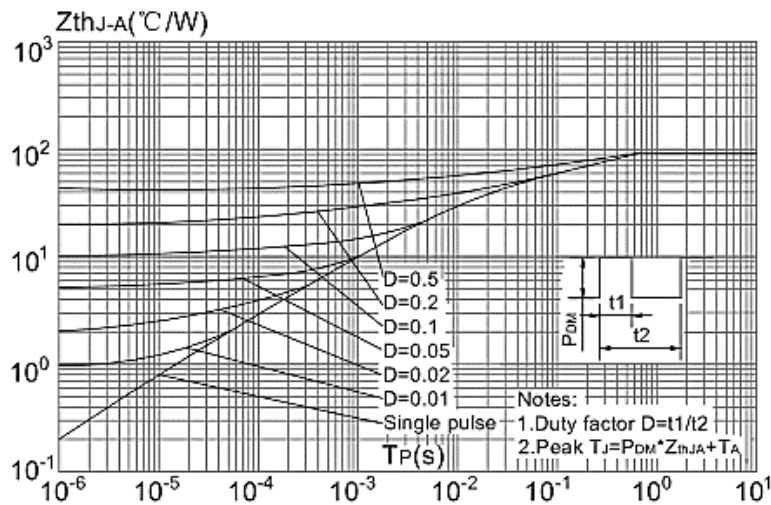


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions Millimeters

TO-252

Dim.	Min.	Typ.	Max.
A	2.10	-	2.50
A2	0	-	0.10
B	0.66	-	0.86
B2	5.18	-	5.48
C	0.40	-	0.60
C2	0.44	-	0.58
D	5.90	-	6.30
D1	5.30REF		
E	6.40	-	6.80
E1	4.63	-	-
G	4.47	-	4.67
H	9.50	-	10.70
L	1.09	-	1.21
L2	1.35	-	1.65
V1	-	7°	-
V2	0°	-	6°
All Dimensions in millimeter			

