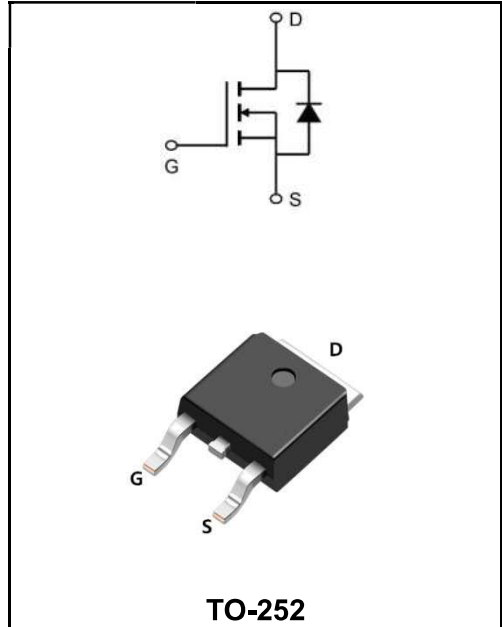


100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	30A
V_{DSS}	100V
R_{DS(on)-typ(@V_{GS}=10V)}	< 48mΩ (Type:36 mΩ)



Application

- ◆ Lithium battery protection
- ◆ Wireless impact
- ◆ Mobile phone fast charging

Product Specification Classification

Part Number	Package	Marking	Pack
YFW30N10AD	TO-252	YFW 30N10AD XXXXX	2500PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current, V _{GS} @ 10V @T _C =25°C	I_D	30	A
Drain Current, V _{GS} @ 10V @T _C =100°C	I_D	13	A
Pulsed Drain Current ¹	I_{DM}	90	A
Total Power Dissipation @T _C =25°C	P_D	42	W
Total Power Dissipation ³ @T _A =25°C	P_D	1.7	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Maximum Thermal Resistance, Junction ambient	R_{θJA}	62.5	°C/W
Maximum Thermal Resistance, Junction-case	R_{θJC}	3.6	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	V(BR)DSS	100	107	-	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	1.5	2.2	V
Static Drain-Source on-Resistance	$V_{GS}=10V, I_D=10A$	R_{DS(on)}	-	36	48	mΩ
	$V_{GS}=4.5V, I_D=6A$		-	39	55	
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$	C_{iss}	-	1964	-	pF
Output Capacitance		C_{oss}	-	90	-	
Reverse Transfer Capacitance		C_{rss}	-	74	-	
Total Gate Charge	$V_{DS}=80V$ $V_{GS}=4.5V$ $I_D=20A$	Q_g	-	20	-	nC
Gate-Source Charge		Q_{gs}	-	3.1	-	
Gate-Drain("Miller") Charge		Q_{gd}	-	14	-	
Turn-on delay time	$V_{DS}=80V$ $I_D=20A$ $R_G=3.1\Omega$ $V_{GS}=4.5V$	t_{d(on)}	-	11	-	ns
Turn-on Rise Time		T_r	-	91	-	
Turn-Off Delay Time		t_{d(OFF)}	-	40	-	
Turn-Off Fall Time		t_f	-	71	-	
Maximum Continuous Drain to Source Diode Forward Current		I_S	-	-	30	A
Maximum Pulsed Drain to Source Diode Forward Current		I_{SM}	-	-	80	A
Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	V_{SD}	-	-	1.2	V
Body Diode Reverse Recovery Time	$I_F=20A, di/dt=100A/\mu s$	t_{rr}	-	64	-	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	152	-	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 $V_{DD}=72V, V_{GS}=10V, L=0.1mH, I_{AS}=10A$
- 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

Typical Characteristics

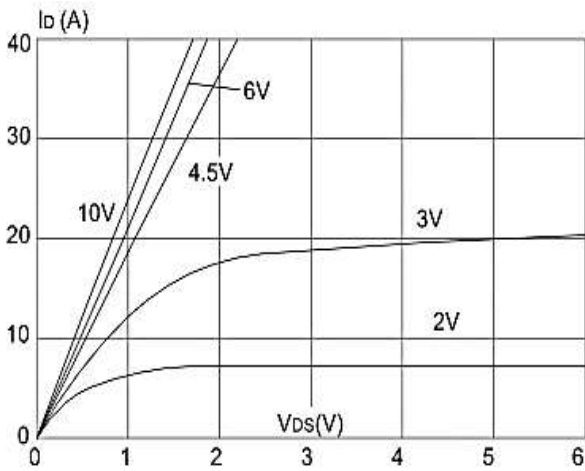


Figure 1: Output Characteristics

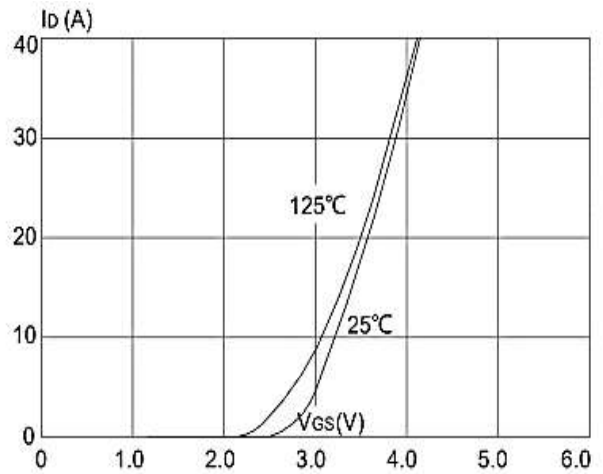


Figure 2: Typical Transfer Characteristics

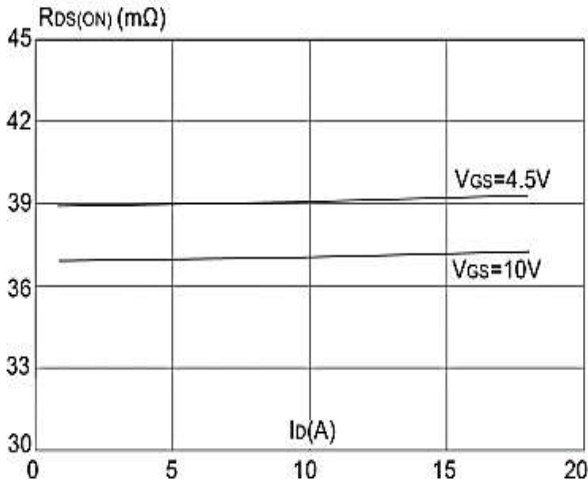


Figure 3: On-resistance vs. Drain Current

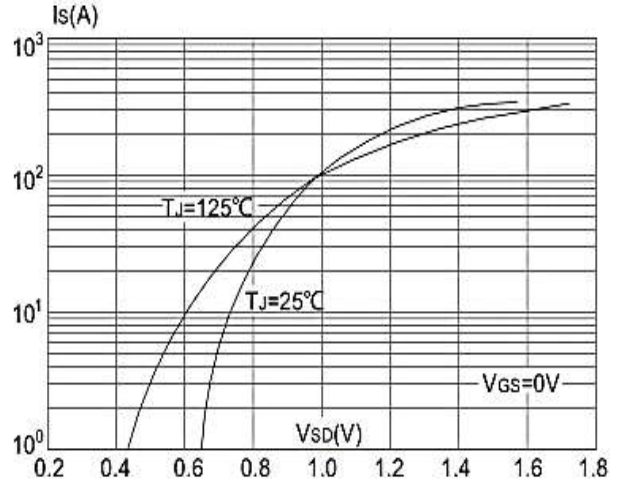


Figure 4: Body Diode Characteristics

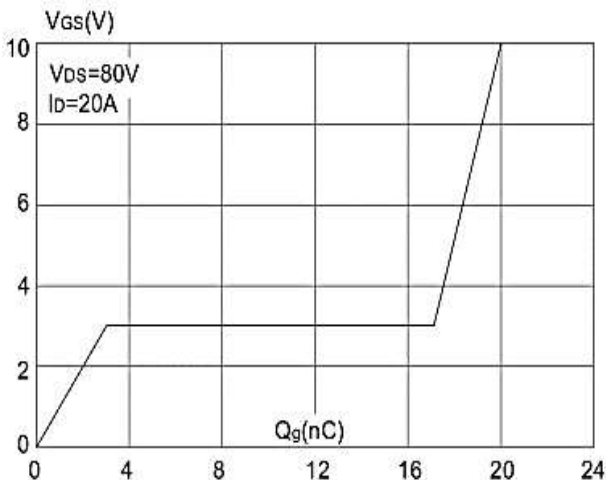


Figure 5: Gate Charge Characteristics

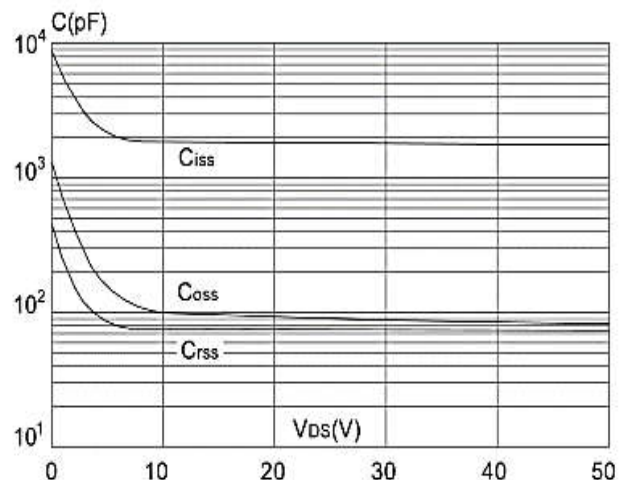


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

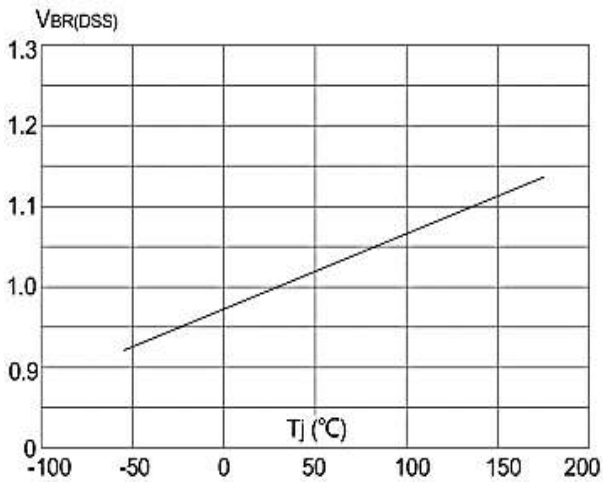


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

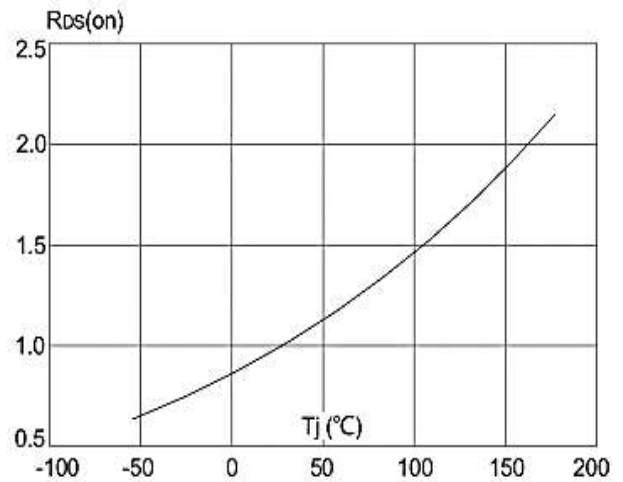


Figure 8: Normalized on Resistance vs. Junction Temperature

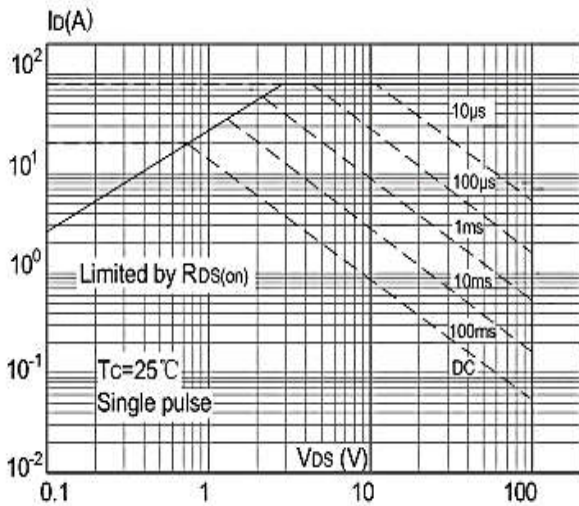


Figure 9: Maximum Safe Operating Area vs. Case Temperature

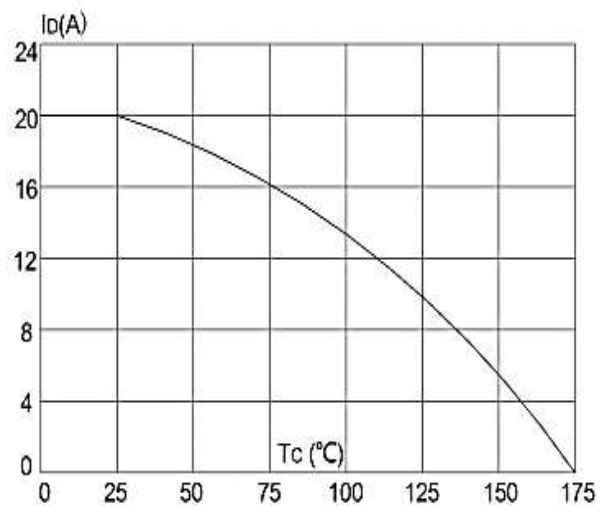


Figure 10: Maximum Continuous Drain Current

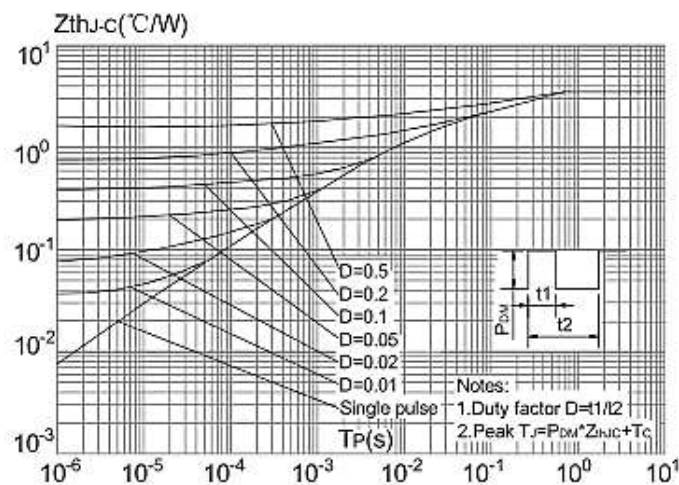


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

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			

