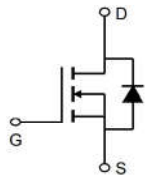
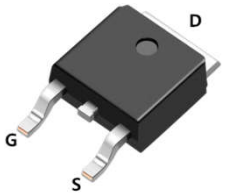
20V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	90A
V_{DSS}	20V
R_{DSON}-typ(@V_{GS}=4.5V)	< 3.5mΩ(Type:2.8 mΩ)





TO-252

Pb lead-free ROHS

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW90N02AD	TO-252	YFW 90N02AD XXXXX	2500PCS/Tape

Maximum Ratings at Tc=25°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} @ 10V[1] @T_C=25℃	I_D	90	A
Continuous Drain Current, V_{GS} @ 10V[1] @T_C=100℃	I_D	59	A
Pulsed Drain Current note1	I_{DM}	360	A
Single Pulse Avalanche Energy note2	E_{AS}	110	mJ
Power Dissipation	P_D	81	W
Thermal Resistance Junction to Case	$R_{\theta JC}$	1.85	°C/W
Operating and Storage Temperature Range	T_J ,T_{STG}	-55 to +175	°C

Download from alldatasheet.com

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=250uA	**V(BR)DSS**	20	22	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=20V, V_{GS}=0V	**I_{DSS}**	-	-	1	**μA**
Gate - Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	**$V_{GS(th)}$**	0.5	0.68	1.0	**V**
Static Drain-Source on-Resistance note3	V_{GS}=4.5V, I_D=30A	**$R_{DS(ON)}$**	-	2.8	3.5	**mΩ**
	V_{GS}=2.5V, I_D=20A		-	4	6	
Input Capacitance	V_{DS}=10V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	3200	-	**pF**
Output Capacitance		**C_{oss}**	-	460	-	
Reverse Transfer Capacitance		**C_{rss}**	-	445	-	
Total Gate Charge	V_{DS}=10V I_D=30A V_{GS}=4.5V	**Q_g**	-	48	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	3.6	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	19	-	
Turn-on delay time	V_{DS} =10V I_D= 30A R_{GEN} = 1.8Ω V_{GS}=4.5V	**$t_{D(on)}$**	-	9.7	-	**ns**
Turn-on Rise Time		**T_r**	-	37	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	63	-	
Turn- Off Fall Time		**t_f**	-	52	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	90	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	360	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V, I_{SD}=30A, T_J=25℃	**V_{SD}**	-	-	1.2	**V**
Reverse Recovery Time	T_J=25°C, IF=30A, di/dt =100A/μs	**t_{rr}**	-	23	-	**ns**
Reverse Recovery Charge		**Q_{rr}**	-	10	-	**nC**

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 .The EAS data shows Max. rating .
3、The EAS condition: TJ=25℃, VDD=15V, VG=4.5V, RG=25Ω, L=0.5mH, IAS=21A
4、The power dissipation is limited by 175℃ junction temperature
5、The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Download from alldatasheet.com

Ratings and Characteristic Curves

Typical Characteristics

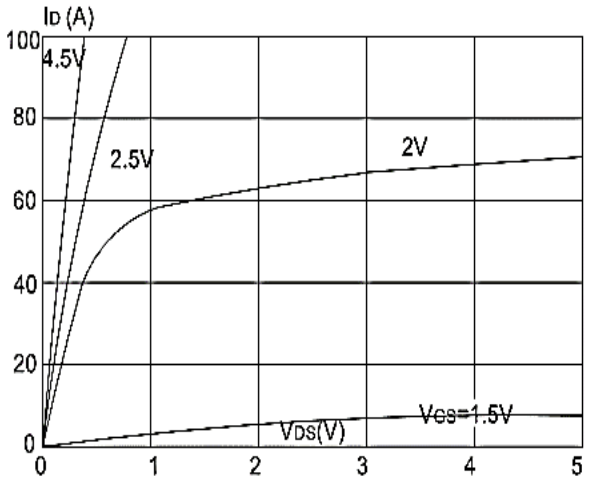


Figure1: Output Characteristics

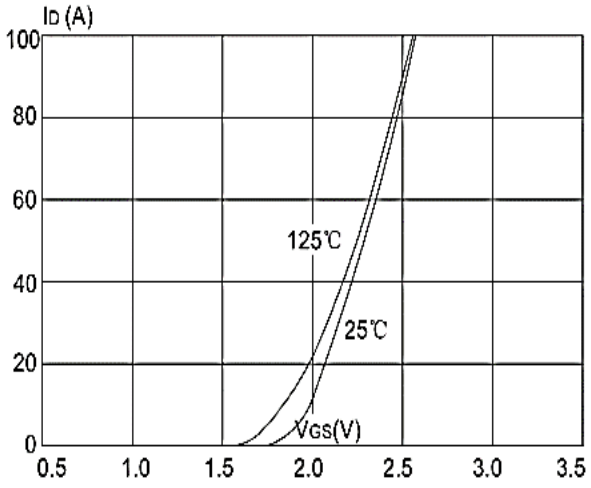


Figure 2: Typical Transfer Characteristics

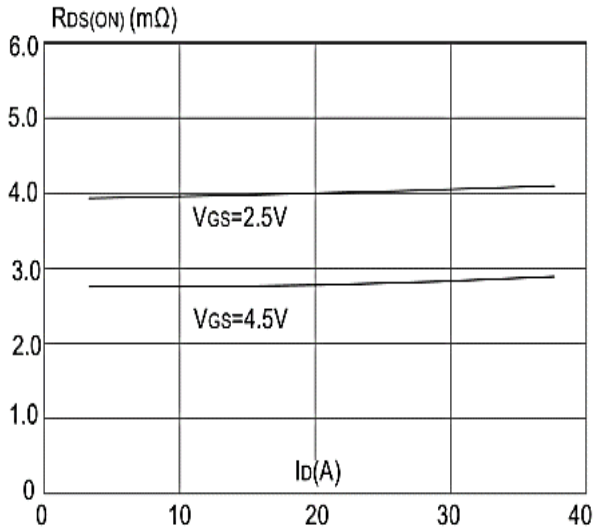


Figure 3:On-resistance vs. Drain Current

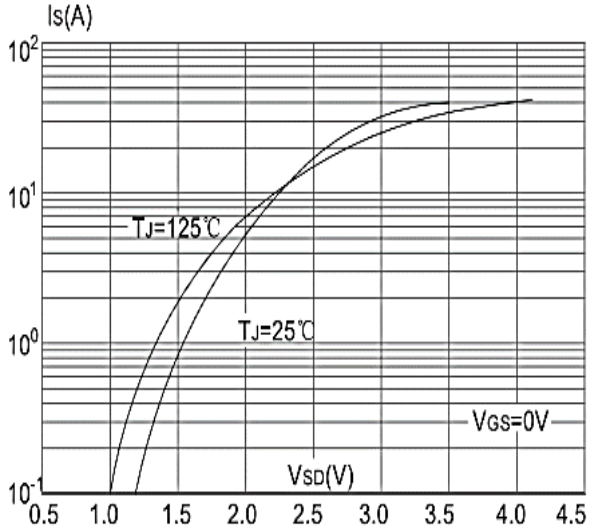
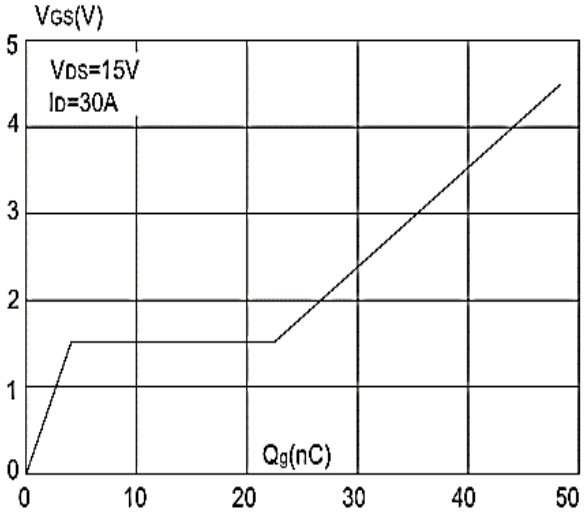
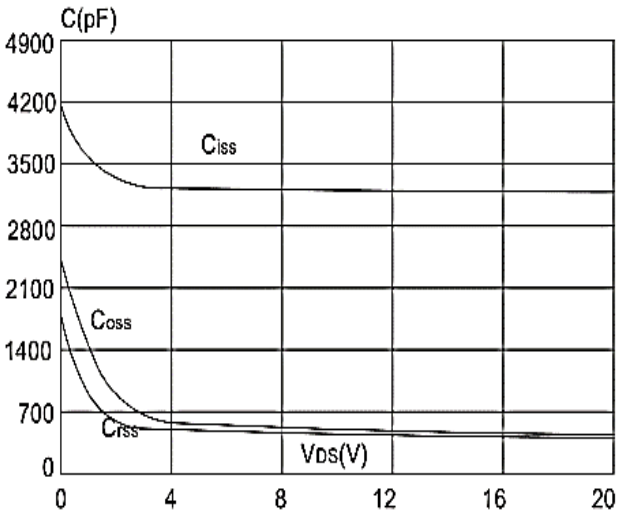


Figure 4: Body Diode Characteristics





Download from alldatasheet.com

Ratings and Characteristic Curves

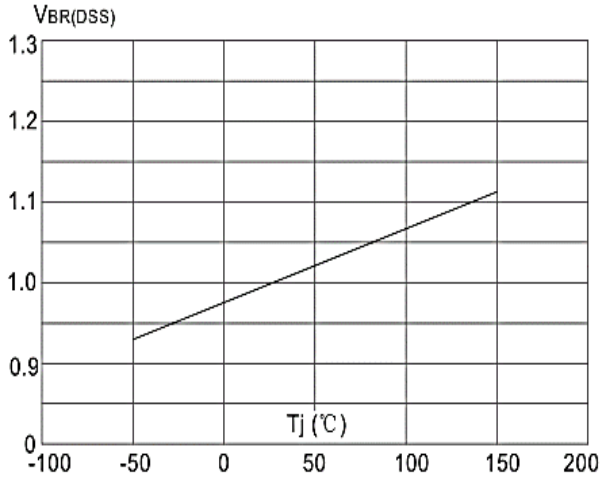


Figure 7: Normalized Breakdown Voltage vs Junction Temperature

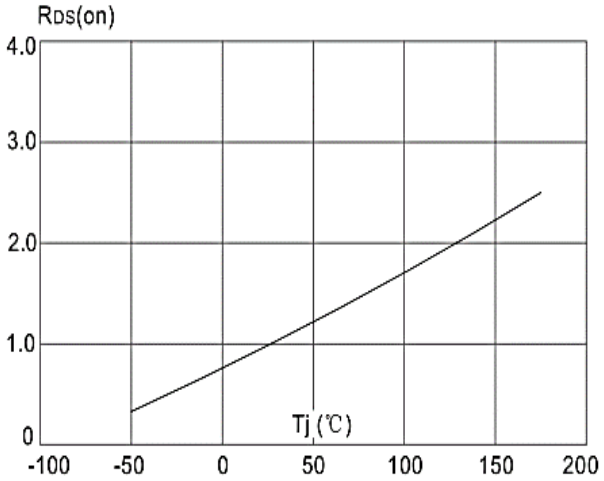


Figure 8: Normalized on Resistance vs. Junction Temperature

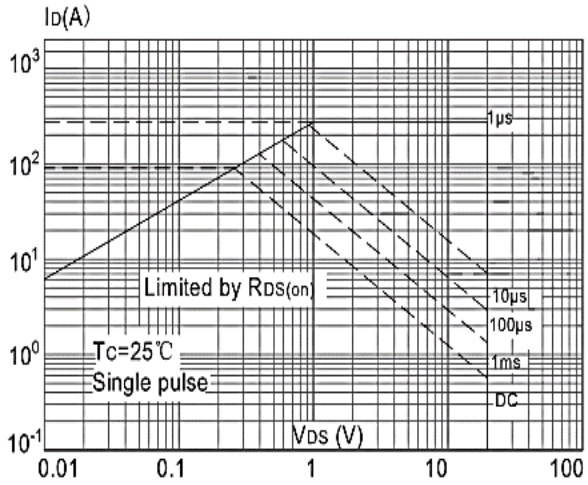


Figure 9: Maximum Safe Operating Area

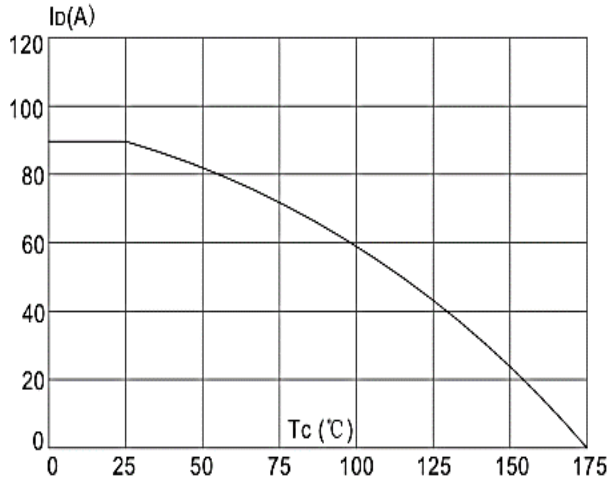


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

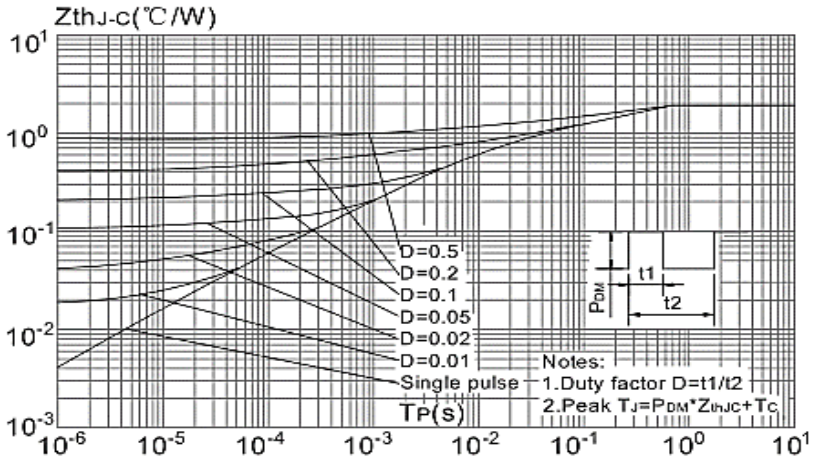
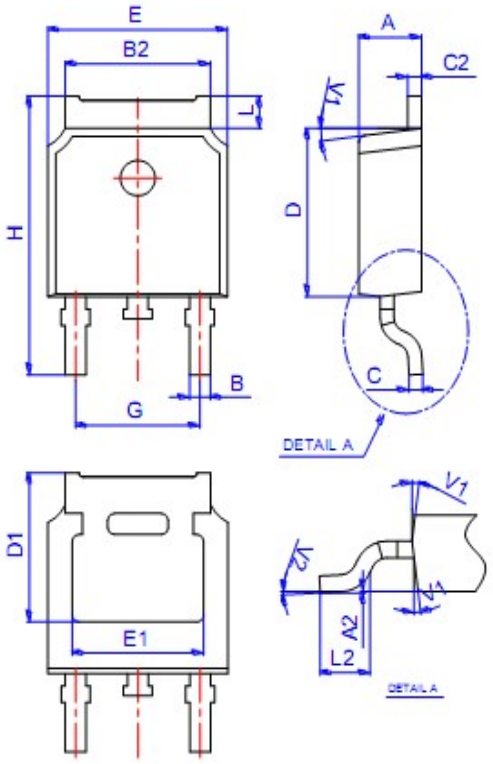


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambien

Download from alldatasheet.com

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

Download from alldatasheet.com