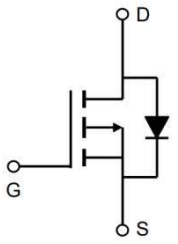
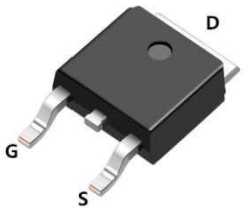
-20V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-20A
V_{DSS}	-20V
R_{DSON}-typ(@V_{GS}=-4.5V)	< 18mΩ(Type:15 mΩ)





TO-252

Application

- Battery protection
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW20P02AD	TO-252	YFW 20P02AD 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}@ -4.5V[1] @T_C=25℃	I_D	-20	A
Continuous Drain Current, V_{GS}@ -4.5V[1] @T_C=100℃	I_D	-12	A
Drain Current- Pulsed[2]	I_{DM}	-60	A
Total Power Dissipation[3] @T_C=25℃	P_D	39	W
Total Power Dissipation[3] @T_C=70℃	P_D	20	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating and Storage Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	65	°C/W
Thermal Resistance Junction-Ambient [1] (t ≤10s)	$R_{\theta JA}$	36	°C/W
Thermal Resistance, Junction to Case[1]	$R_{\theta JC}$	3.2	°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=-250uA	**V(BR)DSS**	-20	-	-	**V**
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=-250uA	**$V_{GS(th)}$**	-0.4	-0.7	-1.0	**V**
Static Drain-Source on-Resistance note2	V_{GS}=-4.5V, I_D=-5A	**$R_{DS(ON)}$**	-	15	18	**mΩ**
	V_{GS}=-2.5V, I_D=-3A		-	17	25	
Zero Gate Voltage Drain Current	V_{DS}=-20V , V_{GS}=0V	**I_{DSS}**	-	-	-1	**μA**
Gate to Body Leakage Current	V_{GS}=±12V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Input Capacitance	V_{DS}=-15V V_{GS}=0V f=1MHz	**C_{iss}**	-	2700	-	**pF**
Output Capacitance		**C_{oss}**	-	680	-	
Reverse Transfer Capacitance		**C_{rss}**	-	590	-	
Total Gate Charge	V_{DS}=-15V V_{GS}=-4.5V I_D=-8A	**Q_g**	-	35	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	5	-	
Gate-Drain Charge		**Q_{gd}**	-	10	-	
Turn-on delay time	V_{DD} =-10V V_{GS}=-4.5V I_D= -4A R_G=2.5Ω	**$t_{d(on)}$**	-	11	-	**ns**
Rise Time		**T_r**	-	35	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	30	-	
Fall Time		**t_f**	-	10	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	-8	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	-32	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=-8A	**V_{SD}**	-	-0.8	-1.2	**V**

Notes:
1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature
2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

Ratings and Characteristic Curves

Typical Characteristics

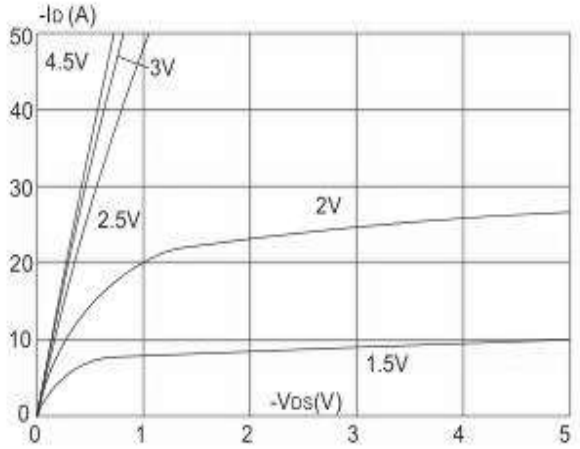


Figure1: Output Characteristics

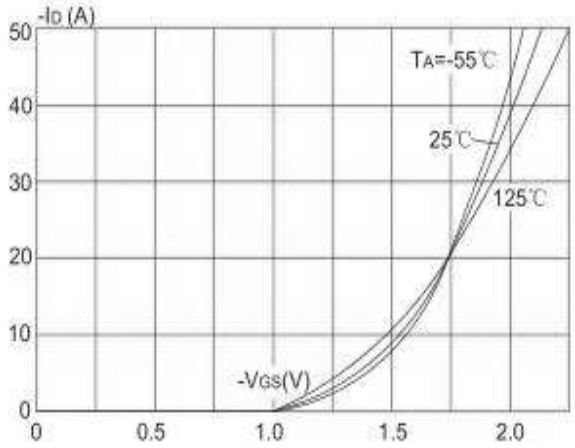


Figure 2: Typical Transfer Characteristics

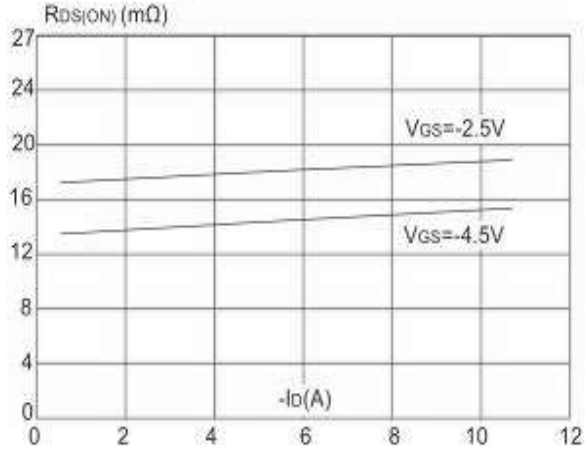


Figure 3: On-resistance vs. Drain Current

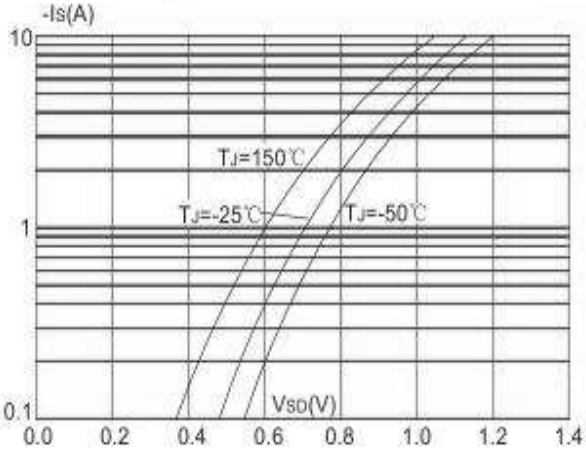


Figure 4: Body Diode Characteristics

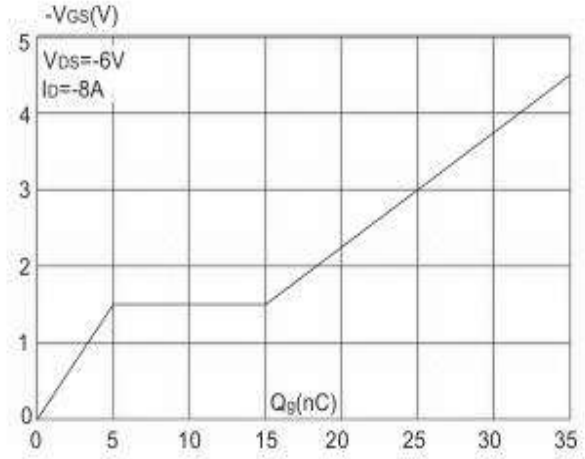


Figure 5: Gate Charge Characteristics

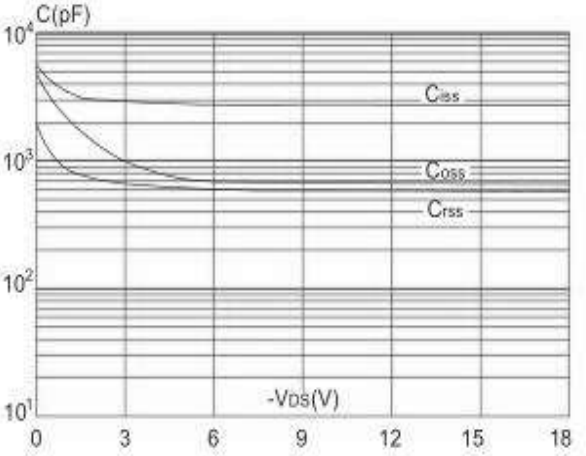


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

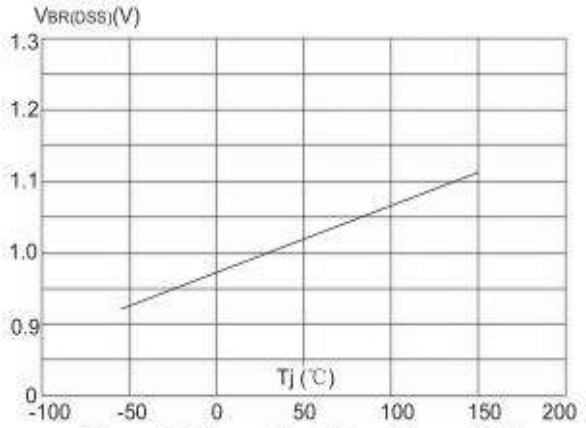


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

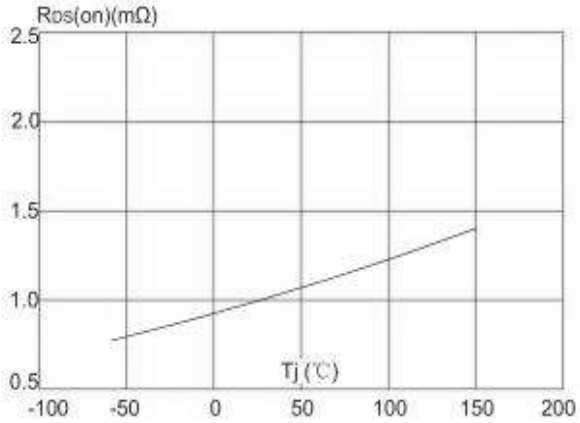


Figure 8: Normalized on Resistance vs. Junction Temperature

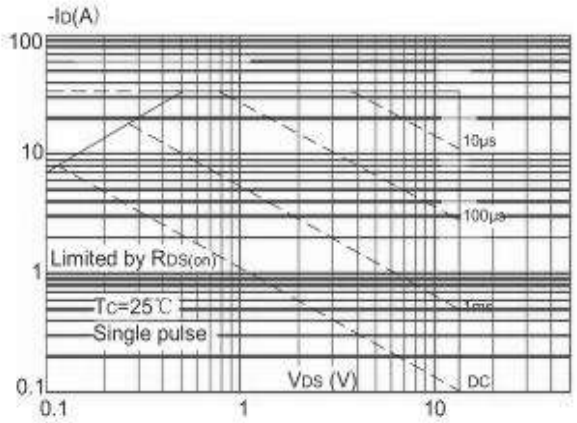


Figure 9: Maximum Safe Operating Area

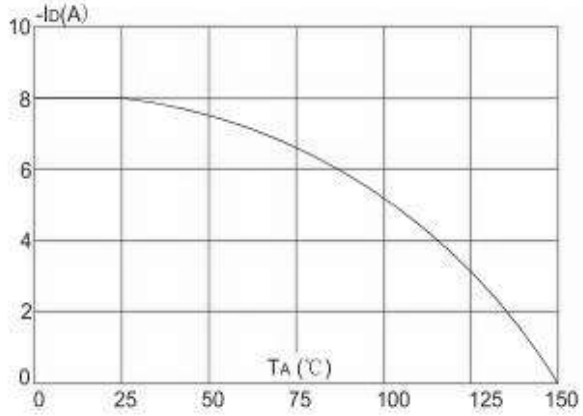


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

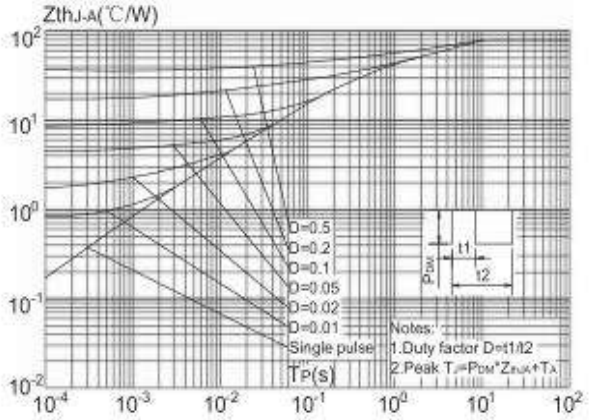
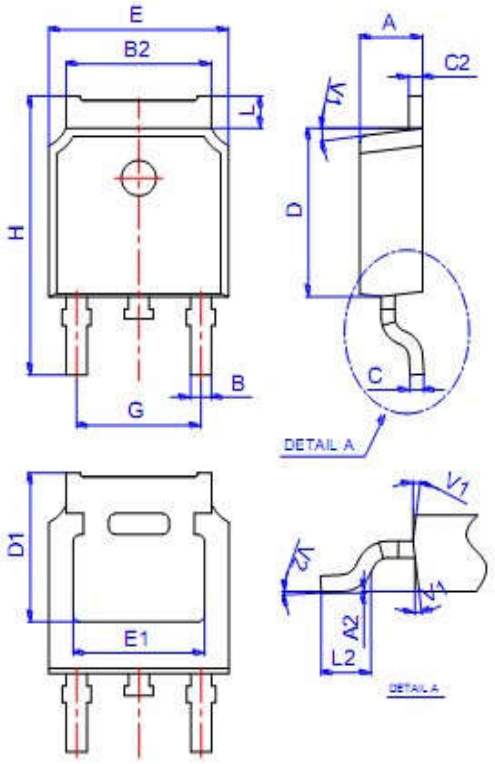


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient

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