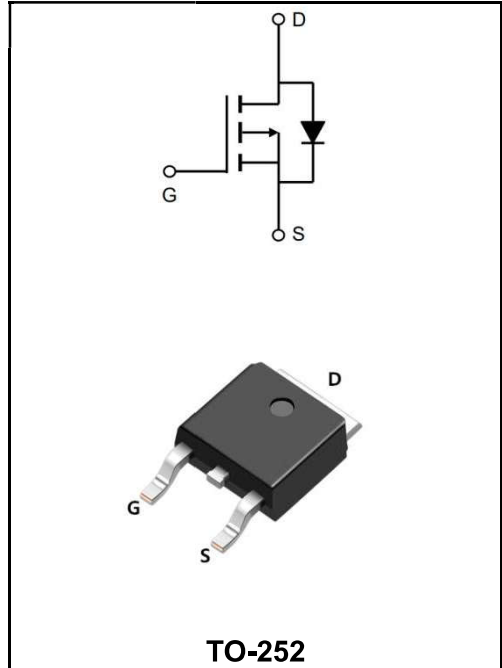


-200V P-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	-4A
V_{DSS}	-200V
R_{DS(on)-typ}(@V_{GS}=-10V)	< 1.7Ω (Type:1.4 Ω)



Application

- ◆ Power amplifier
- ◆ motor drive

Product Specification Classification

Part Number	Package	Marking	Pack
YFW4P20AD	TO-252	YFW 4P20AD XXXXX	2500PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	-200	V
Gate - Source Voltage	V_{GS}	±20	V
Continuous Drain Current T _C =25°C	I_D	-4	A
Continuous Drain Current T _C =100°C		-2.3	A
Pulsed Drain Current ^a	I_{DM}	-14	A
Single Pulse Avalanche Energy ^b	E_{AS}	310	mJ
Repetitive Avalanche Current ^a	I_{AR}	-3.6	A
Repetitive Avalanche Energy ^a	E_{AR}	4.2	mJ
Maximum Power Dissipation T _C = 25 °C	P_D	42	W
Maximum Power Dissipation (PCB Mount) ^e T _A = 25 °C		2.5	W
Peak Diode Recovery dV/dt ^c	dV/dt	-5.0	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C
Maximum Junction-to-Ambient	R_{θJA}	110	°C/W
Maximum Junction-to-Ambient (PCB Mount) ^a	R_{θJA}	50	°C/W
Maximum Junction-to-Case (Drain)	R_{θJC}	3.0	°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_{DS}	-200	-	-	V
V_{DS} Temperature Coefficient	Reference to 25°C, $I_D=-1mA$	$\Delta V_{DS}/T_J$	-	-0.22	-	V/°C
Gate-Source Threshold Voltage	$V_{DS}=V_{GS}, I_D=-250\mu A$	$V_{GS(th)}$	-2.0	-3.5	-4.0	V
Drain-Source On-State Resistance	$V_{GS}=-10V, I_D=-2A^b$	$R_{DS(on)}$	-	1.4	1.7	Ω
	$V_{GS}=-5.5V, I_D=-1A^b$		-	1.8	2.5	
Gate-Source Leakage	$V_{GS}=\pm 20V$	I_{GSS}	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=-200V, V_{GS}=0V$	I_{DSS}	-	-	-100	μA
	$V_{DS}=-160V, V_{GS}=0V, T_J=125^\circ C$		-	-	-500	
Forward Transconductance	$V_{DS}=-50V, I_D=-2.2A$	g_{fs}	1.1	-	-	S
Input Capacitance	$V_{GS}=0V$ $V_{DS}=-25V$ $f=1MHz$	C_{iss}	-	340	-	μF
Output Capacitance		C_{oss}	-	110	-	
Reverse Transfer Capacitance		C_{rss}	-	33	-	
Total Gate Charge	$I_D=-3.9A$ $V_{DS}=-160V$ $V_{GS}=-10V$	Q_g	-	-	20	nC
Gate-Source Charge		Q_{gs}	-	-	3.3	
Gate-Drain Charge		Q_{gd}	-	-	11	
Turn-on delay time	$V_{DD}=-100V$ $I_D=-3.9A$ $R_G=18\Omega$ $R_D=24\Omega$ see fig. 10 ^b	$t_{d(on)}$	-	8.8	-	ns
Rise Time		T_r	-	27	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	7.3	-	
Fall Time		t_f	-	19	-	
Continuous Source-Drain Diode Current	MOSFET symbol showing the integral reversep - n junction diode	I_S	-	-	-3.6	A
Pulsed Diode Forward Current ^a		I_{SM}	-	-	-14	A
Body Diode Voltage	$T_J = 25^\circ C, I_S = -3.6A,$ $V_{GS} = 0V^b$	V_{SD}	-	-	-6.3	V
Body Diode Reverse Recovery Time	$T_J = 25^\circ C, I_F = -3.9A,$ $dI/dt = 100A/\mu s^b$	t_{rr}	-	150	300	ns
Body Diode Reverse Recovery Charge		Q_{rr}	-	0.97	2.0	μC
Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by LS and LD)	t_{on}	-	-	-	-

Notes

- 1、Repetitive rating; pulse width limited by maximum junction temperature (see fig. 11).
- 2、Pulse width $\leq 300 \mu s$; duty cycle ≤ 2

Ratings and Characteristic Curves

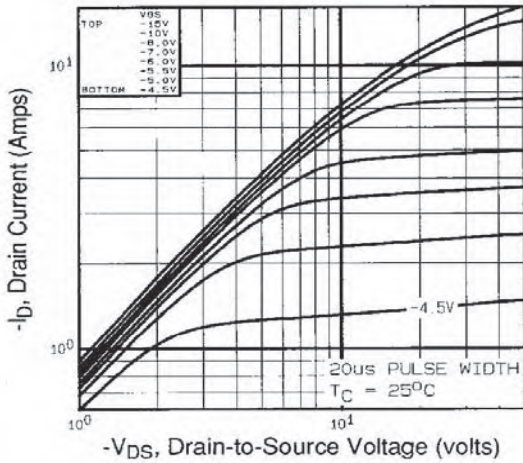


Fig. 1 - Typical Output Characteristics, $T_C = 25^{\circ}C$

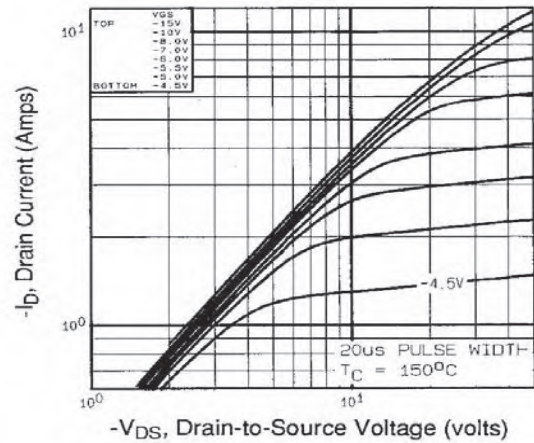


Fig. 2 - Typical Output Characteristics, $T_C = 150^{\circ}C$

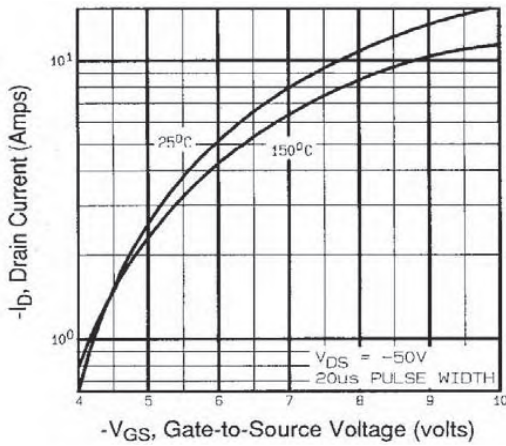


Fig. 3 - Typical Transfer Characteristics

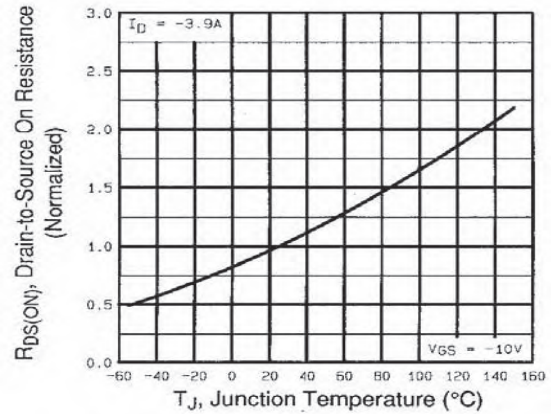


Fig. 4 - Normalized On-Resistance vs. Temperature

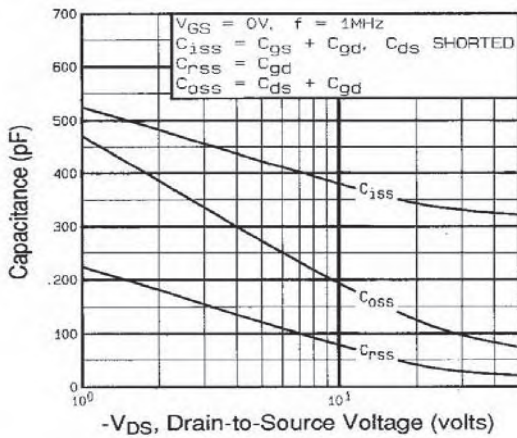


Fig. 5 - Typical Capacitance vs. Drain-to-Source Voltage

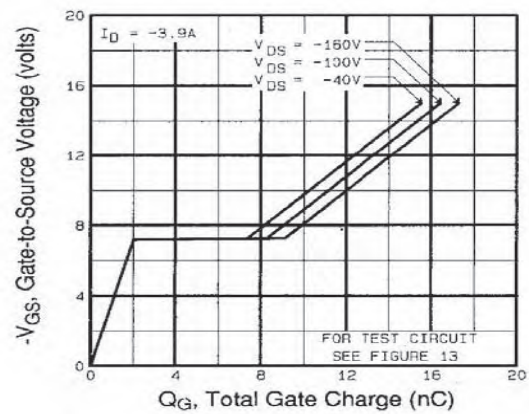


Fig. 6 - Typical Gate Charge vs. Gate-to-Source Voltage

Ratings and Characteristic Curves

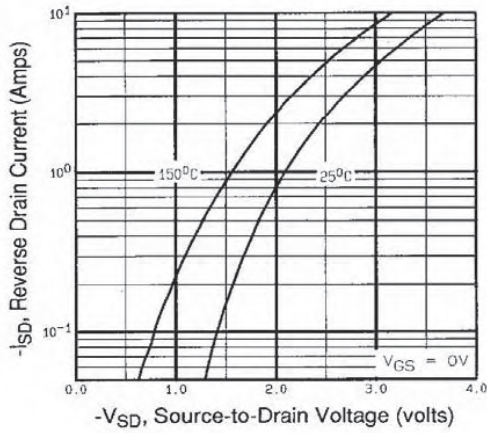


Fig. 7 - Typical Source-Drain Diode Forward Voltage

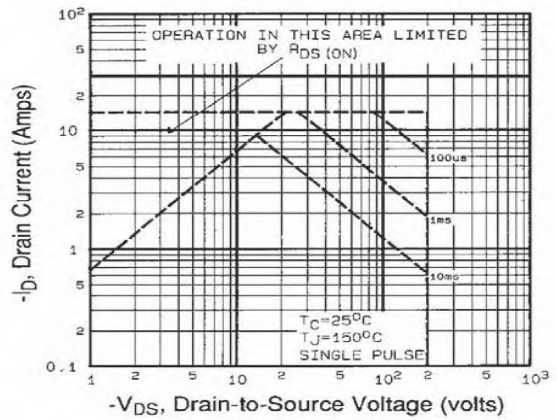


Fig. 8 - Maximum Safe Operating Area

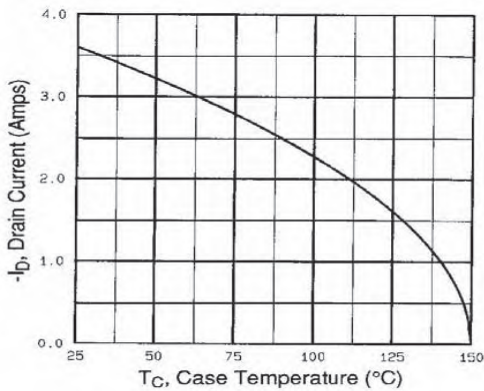


Fig 9. Maximum Drain Current Vs. Case Temperature

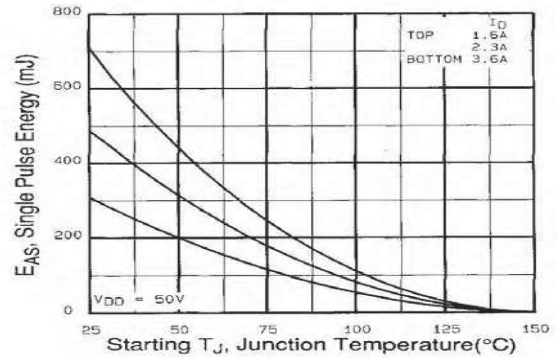


Fig. 10 - Maximum Avalanche Energy vs. Drain Current

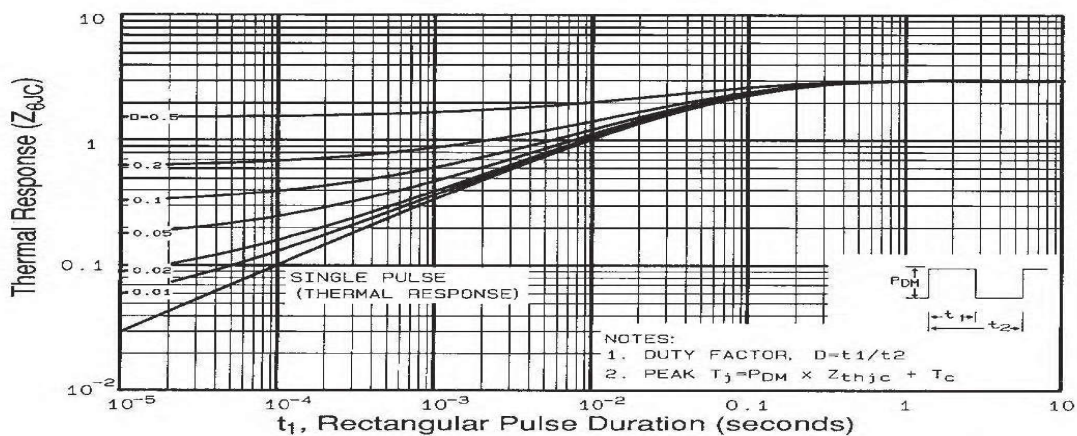


Fig. 11 - Maximum Effective Transient Thermal Impedance, Junction-to-Case

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			

