

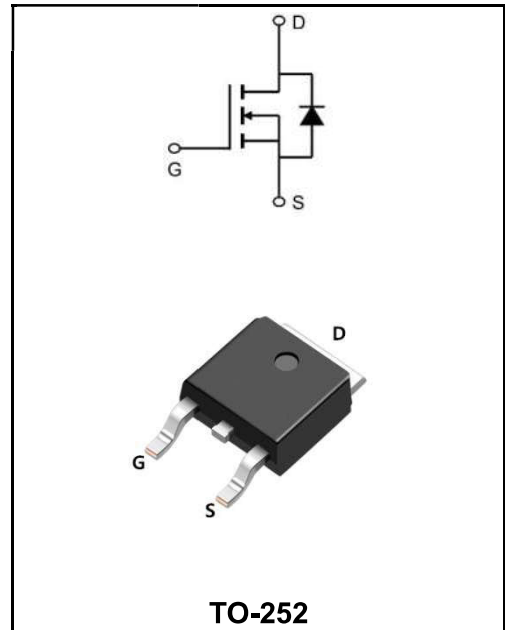
**150V N-CHANNEL ENHANCEMENT MODE MOSFET**

**MAIN CHARACTERISTICS**

<b>I<sub>D</sub></b>	10A
<b>V<sub>DSS</sub></b>	150V
<b>R<sub>DS(on)-typ(@V<sub>GS</sub>=10V)</sub></b>	< 285mΩ( <b>Type:230 mΩ</b> )

**Application**

- ◆Automotive lighting
- ◆Load switch
- ◆Uninterruptible power supply



**Product Specification Classification**

Part Number	Package	Marking	Pack
YFW10N15AD	TO-252	YFW 10N15AD XXXXX	2500PCS/Tape

**Maximum Ratings at T<sub>c</sub>=25°C unless otherwise specified**

Characteristics	Symbols	Value	Units
Drain-Source Voltage	<b>V<sub>DS</sub></b>	150	<b>V</b>
Gate - Source Voltage	<b>V<sub>GS</sub></b>	±20	<b>V</b>
Drain Current, V <sub>GS</sub> @ 10V @T <sub>c</sub> =25°C	<b>I<sub>D</sub></b>	10	<b>A</b>
Drain Current, V <sub>GS</sub> @ 10V @T <sub>c</sub> =100°C	<b>I<sub>D</sub></b>	6.1	<b>A</b>
Pulsed Drain Current <sup>1</sup>	<b>I<sub>DM</sub></b>	30	<b>A</b>
Total Power Dissipation @T <sub>c</sub> =25°C	<b>P<sub>D</sub></b>	32.1	<b>W</b>
Total Power Dissipation <sup>3</sup> @T <sub>A</sub> =25°C	<b>P<sub>D</sub></b>	20.5	<b>W</b>
Storage Temperature Range	<b>T<sub>STG</sub></b>	-55 to +150	<b>°C</b>
Operating Junction Temperature Range	<b>T<sub>J</sub></b>	-55 to +150	<b>°C</b>
Maximum Thermal Resistance, Junction ambient	<b>R<sub>θJA</sub></b>	62.5	<b>°C/W</b>
Maximum Thermal Resistance, Junction-case	<b>R<sub>θJC</sub></b>	3.9	<b>°C/W</b>

**Maximum Ratings at Tc=25°C unless otherwise specified**

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	$BV_{DSS}$	150	170	-	V
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1	1.6	3	V
Gate Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	$I_{GSS}$	-	-	$\pm 100$	nA
Zero Gate Voltage Drain Current	$V_{DS}=150V, V_{GS}=0V$	$I_{DSS}$	-	-	1	$\mu A$
Drain-Source On- Resistance	$V_{GS}=10V, I_D=7A$	$R_{DS(ON)}$	-	285	345	m $\Omega$
	$V_{GS}=4.5V, I_D=6A$		-	290	365	
Diode Forward Voltage	$V_{GS}=0V, I_S=1.8A$	$V_{SD}$	-	0.8	1.2	V
Total Gate Charge	$V_{DS}=75V$ $I_D=10A$ $V_{GS}=10V$	$Q_g$	-	17.5	-	nC
Gate-Source Charge		$Q_{gs}$	-	4.5	-	
Gate-Drain Charge		$Q_{gd}$	-	4.7	-	
Input Capacitance	$V_{DS}=25V$ $V_{GS}=0V$ $f=1MHz$	$C_{iss}$	-	538	-	pF
Output Capacitance		$C_{oss}$	-	55	-	
Reverse Transfer Capacitance		$C_{rss}$	-	21	-	
Turn-on delay time	$V_{DD}=75V$ $R_L=10.68\Omega$ $V_{GEN}=10V$ $R_G=6\Omega$	$t_{d(on)}$	-	11.6	-	nS
Turn-on Rise Time		$T_r$	-	9.3	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	29.3	-	
Turn-Off Fall Time		$t_f$	-	3.7	-	

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

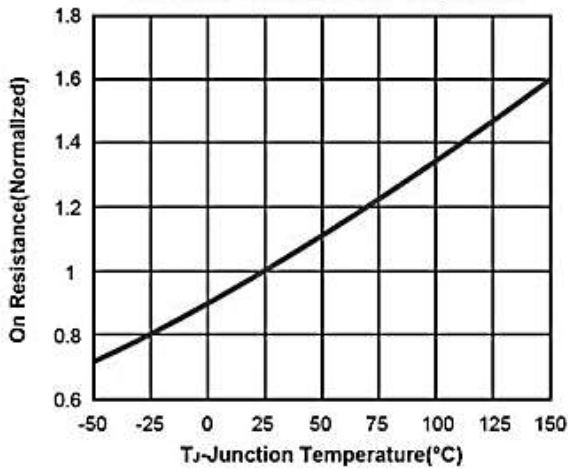


Fig.1 On Resistance Vs Junction Temperature

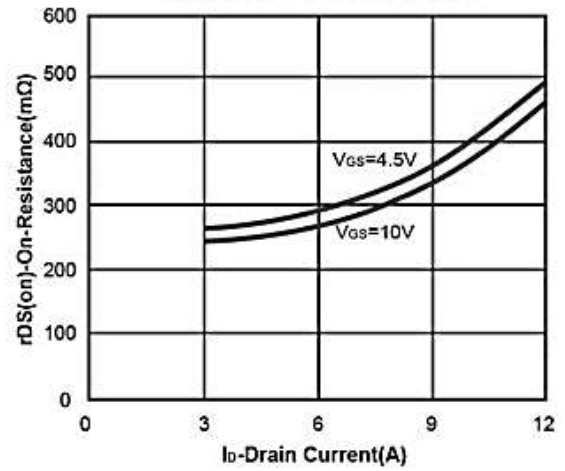


Fig.2 On-Resistance Vs.Drain Current

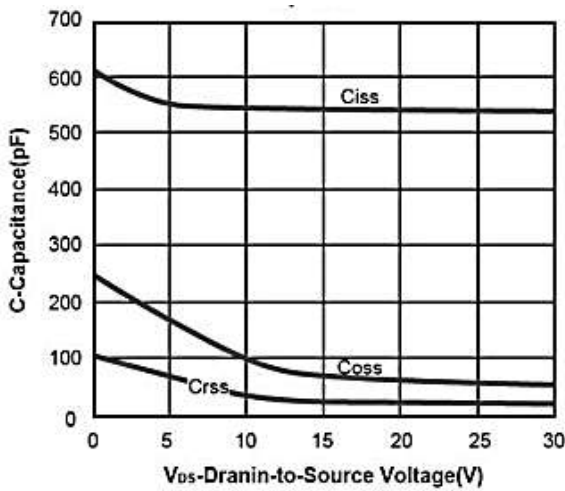


Fig.3 Capacitance

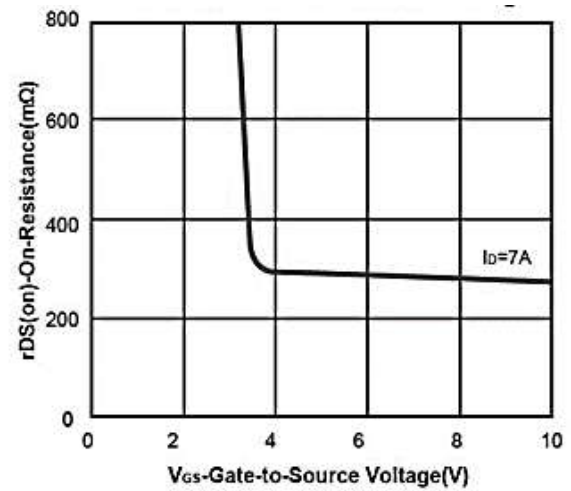


Fig.4 On-Resistance Vs. Gate-to-Source Voltage

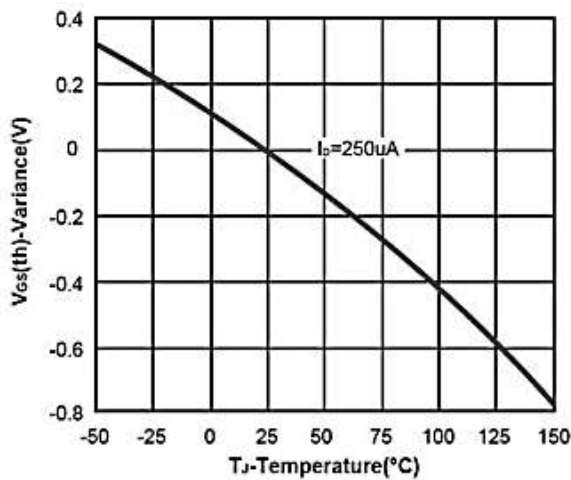


Fig.5 Threshold Voltage

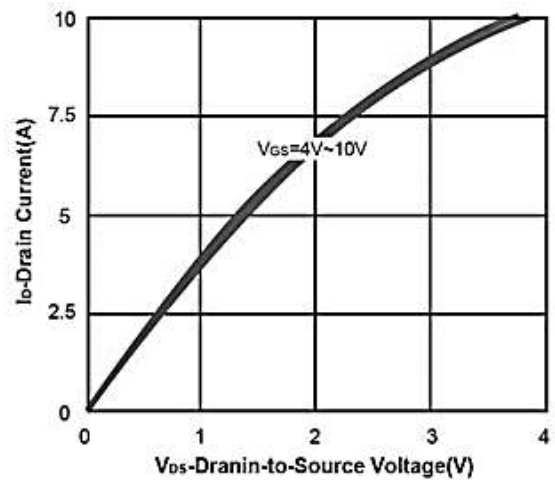


Fig.6 On-Region Characteristics

Ratings and Characteristic Curves

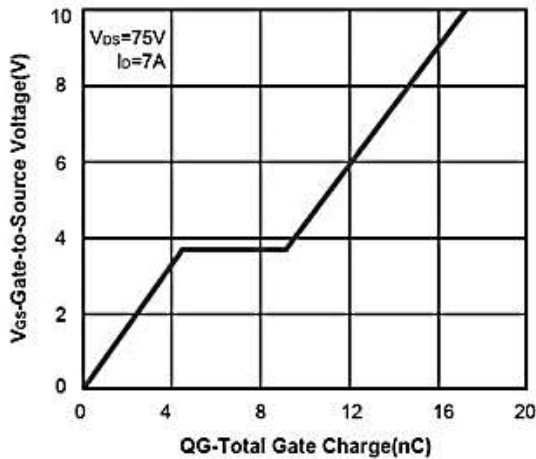


Fig.7 Gate Charge

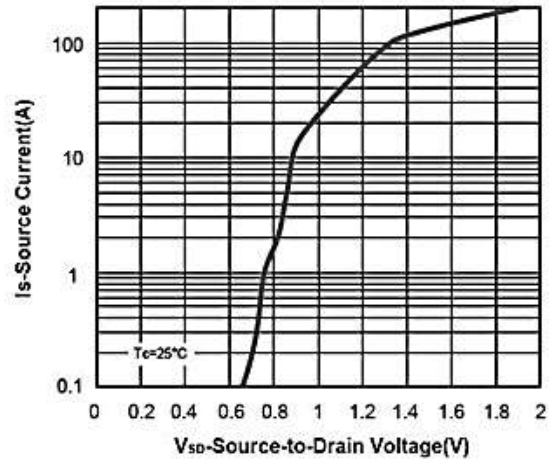


Fig.8 Body-diode Characteristic

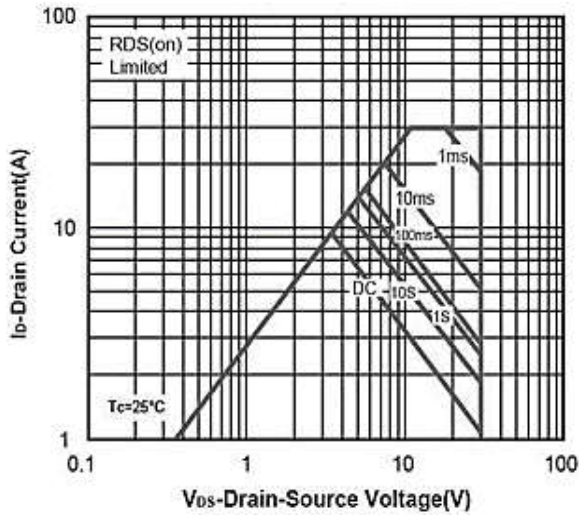


Fig.9 Safe Operating Area

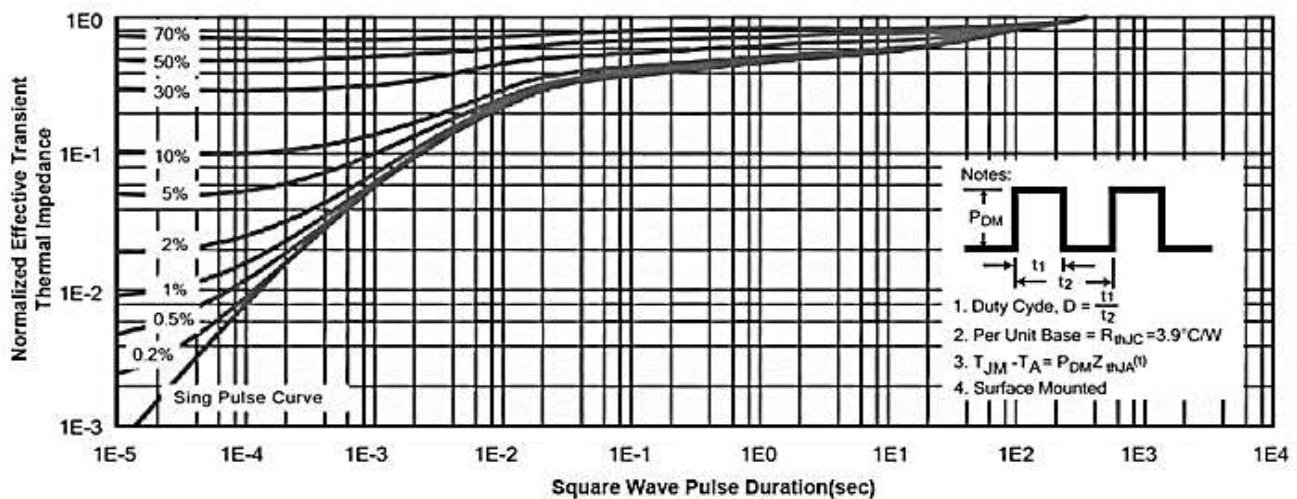


Fig.10 Normalized Maximum Transient Thermal Impedance

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			

