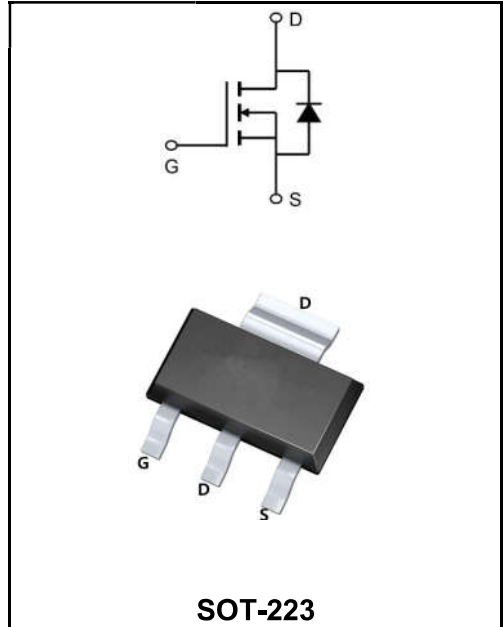


150V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	5A
V_{DSS}	150V
R_{DS(on)-typ(@V_{GS}=10V)}	< 320mΩ (Type:260 mΩ)



Application

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

Product Specification Classification

Part Number	Package	Marking	Pack
YFW5N15MSI	SOT-223	YFW 5N15MSI XXXXX	3000PCS/Tape

Maximum Ratings at T_c=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	150	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current, V _{GS} @ 10V @T _C =25°C	I_D	5	A
Drain Current, V _{GS} @ 10V @T _C =100°C	I_D	3.1	A
Pulsed Drain Current ¹	I_{DM}	15	A
Total Power Dissipation @T _C =25°C	P_D	2	W
Total Power Dissipation ³ @T _A =25°C	P_D	1.1	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}	70	°C/W
Maximum Thermal Resistance, Junction-case	R_{θJC}	36	°C/W

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Test Condition	Symbols	Min	Typ	Max	Units
Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	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}	-	-	± 100	nA
Zero Gate Voltage Drain Current	$V_{DS}=150V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Drain-Source On- Resistance	$V_{GS}=10V, I_D=7A$	$R_{DS(ON)}$	-	260	320	m Ω
	$V_{GS}=4.5V, I_D=6A$		-	300	380	
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 power dissipation is limited by 150°C junction temperature
- 4、 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

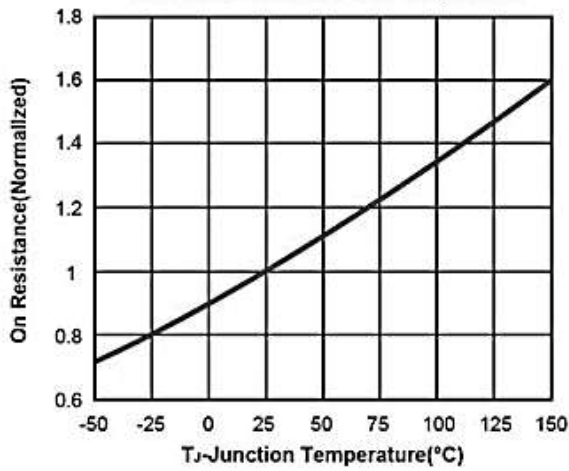


Fig.1 On Resistance Vs Junction Temperature

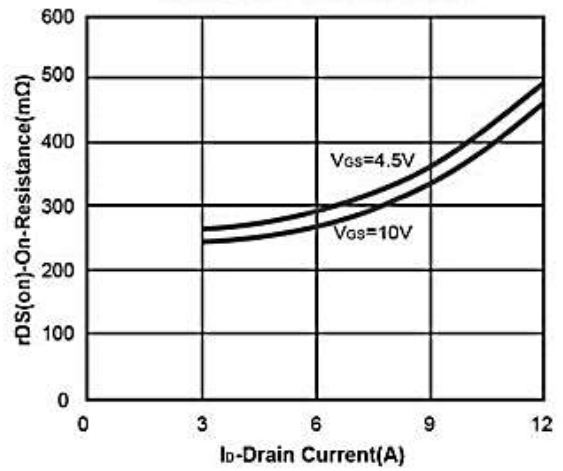


Fig.2 On-Resistance Vs. Drain Current

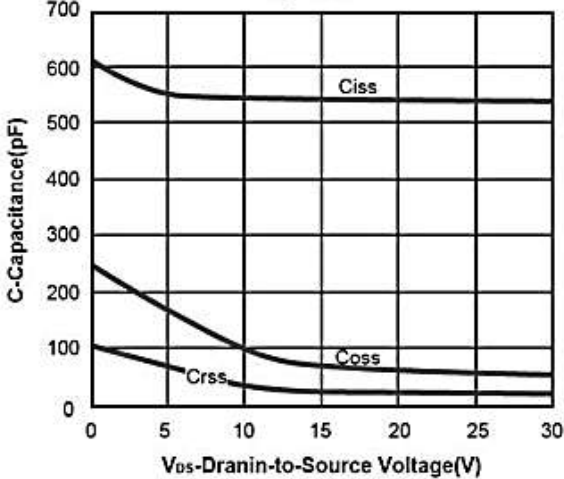


Fig.3 Capacitance

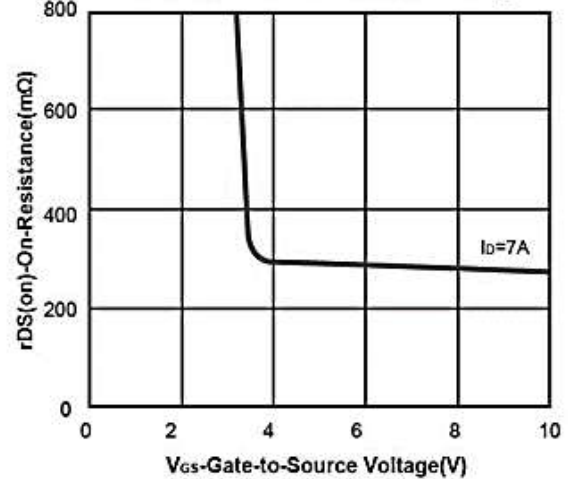


Fig.4 On-Resistance Vs. Gate-to-Source Voltage

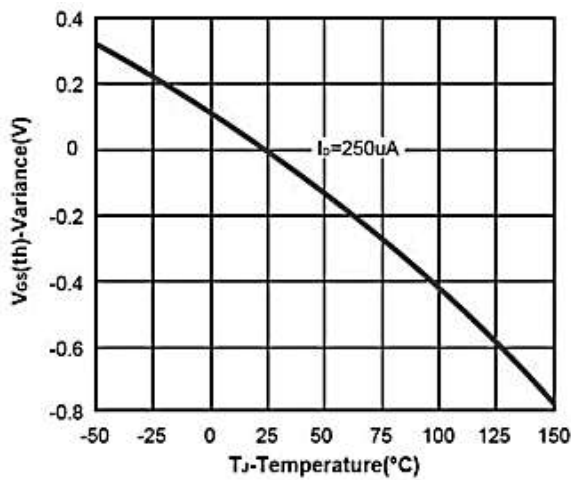


Fig.5 Threshold Voltage

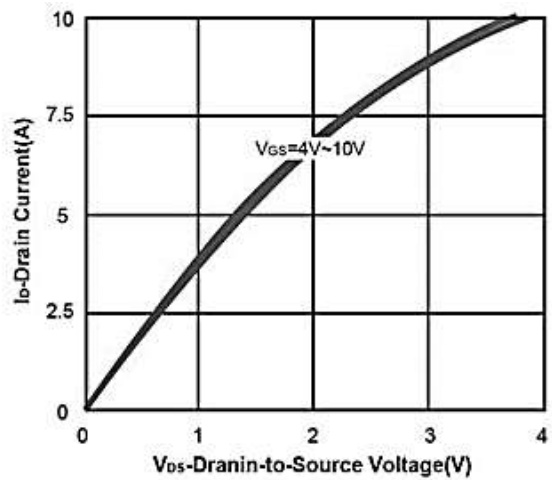


Fig.6 On-Region Characteristics

Ratings and Characteristic Curves

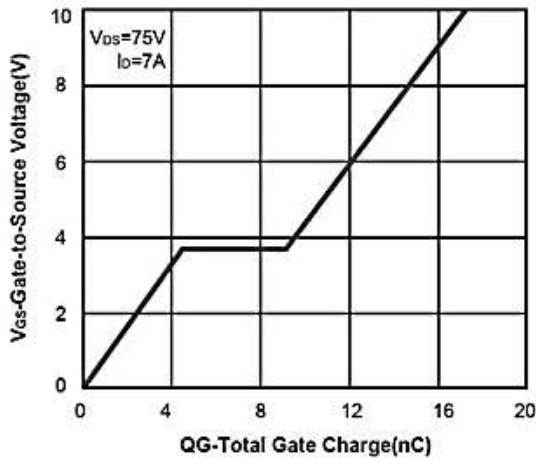


Fig.7 Gate Charge

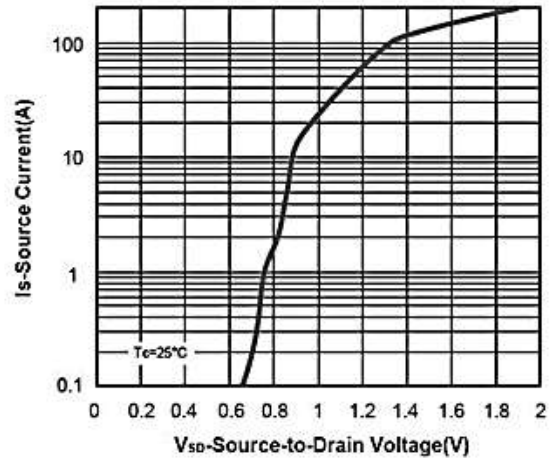


Fig.8 Body-diode Characteristic

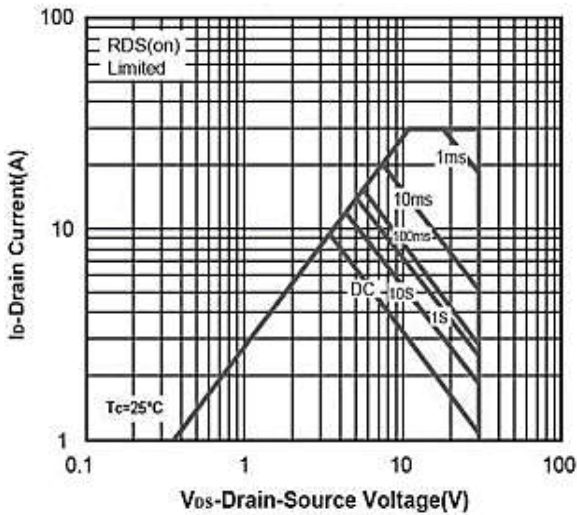


Fig.9 Safe Operating Area

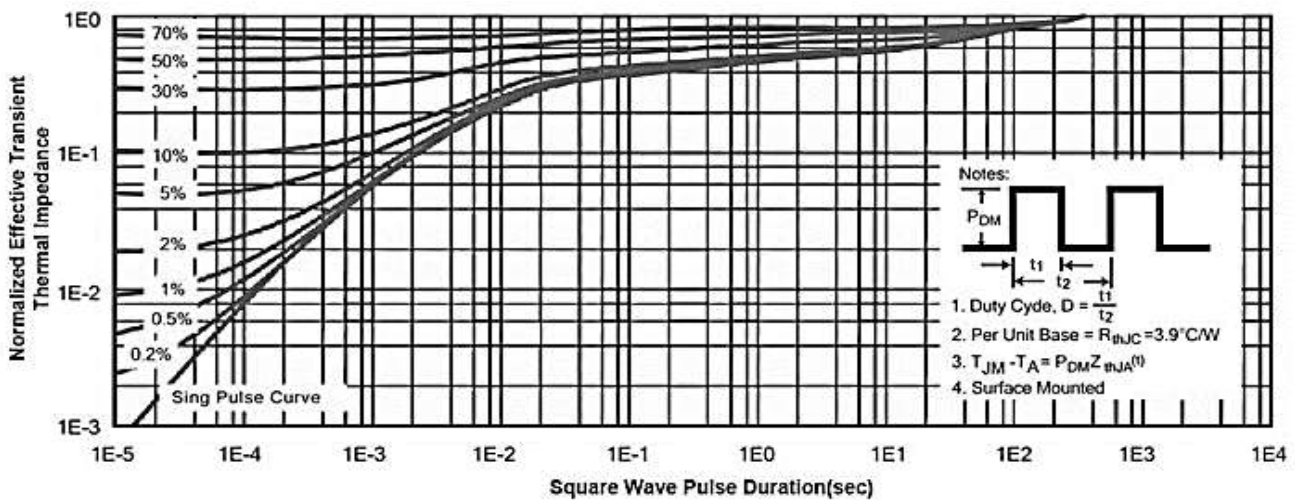
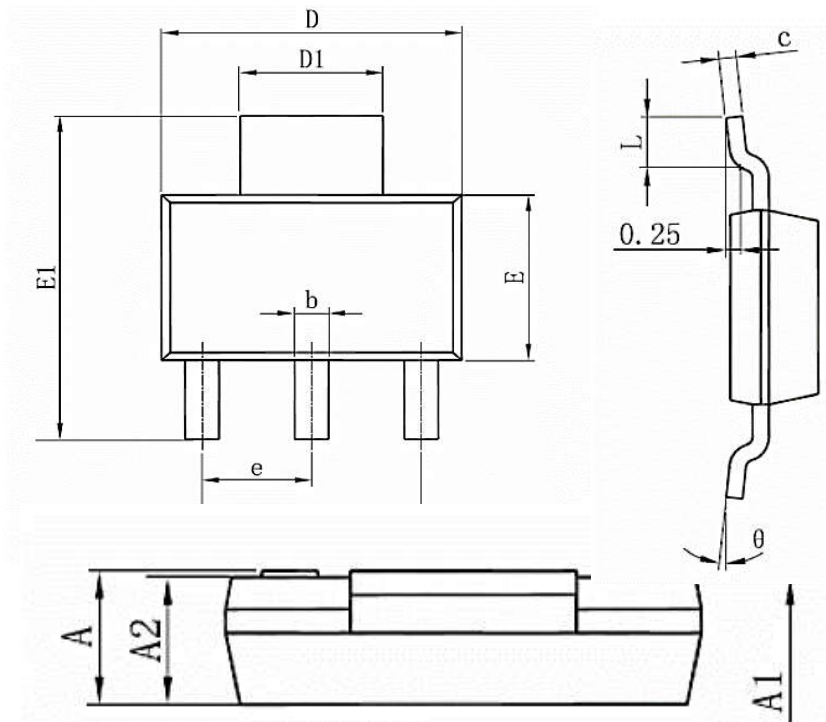


Fig.10 Normalized Maximum Transient Thermal Impedance

SOT-223



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.52	1.8	0.06	0.049
A1	0.000	0.100	0.000	0.004
A2	1.5	1.7	0.059	0.045
b	0.66	0.82	0.026	0.032
c	0.25	0.35	0.010	0.014
D	6.2	6.4	0.244	0.252
D1	2.9	3.1	0.114	0.122
E	3.3	3.7	0.130	0.146
E1	6.83	7.07	0.269	0.278
e	2.300(BSC)		0.037(BSC)	
e1	4.500	4.700	0.177	0.185
L	0.900	1.15	0.035	0.045
θ	0°	10°	0°	10°