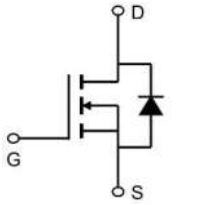
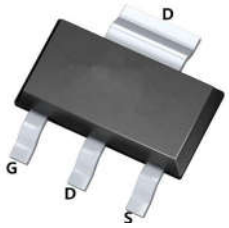
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	8A
V_{DSS}	100V
R_{DSON}-typ(@V_{GS}=10V)	< 100mΩ(Type:88 mΩ)





SOT223-3L

Application

- Automative lighting
- Load switch
- Uninterruptible power supply

Product Specification Classification

Part Number	Package	Marking	Pack
YFW8N10MSI	SOT-223	YFW 8N10MSI XXXXX	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	100	V
Gate - Source Voltage	V_{GS}	±20	V
Drain Current, V_{GS} @ 10V @T_C=25℃	I_D	8	A
Drain Current, V_{GS} @ 10V @T_C=100℃	I_D	6.5	A
Pulsed Drain Current[1]	I_{DM}	24	A
Total Power Dissipation @T_C=25℃	P_D	30	W
Total Power Dissipation[3] @T_A=25℃	P_D	2.7	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	$R_{\theta JA}$	100	°C/W
Maximum Thermal Resistance, Junction-case	$R_{\theta JC}$	5.1	°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**	100	107	-	**V**
Zero Gate Voltage Drain Current	V_{DS}=100V , V_{GS}=0V	**I_{DSS}**	-	-	1.0	**μA**
Gate to Body Leakage Current	V_{GS}=±20V, V_{DS}=0V	**I_{GSS}**	-	-	±100	**nA**
Gate Threshold Voltage	V_{DS}= V_{GS}, I_D=250μA	**$V_{GS(th)}$**	1.0	1.5	2.5	**V**
Static Drain-Source on-Resistance note3	V_{GS}=10V, I_D=5A	**$R_{DS(ON)}$**	-	88	110	**mΩ**
	V_{GS}=4.5V, I_D=3A		-	96	140	
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	**C_{iss}**	-	765	-	**pF**
Output Capacitance		**C_{oss}**	-	38	-	
Reverse Transfer Capacitance		**C_{rss}**	-	33	-	
Total Gate Charge	V_{DS}=30V V_{GS}=10V I_D=5A	**Q_g**	-	12	-	**nC**
Gate-Source Charge		**Q_{gs}**	-	2.2	-	
Gate-Drain("Miller") Charge		**Q_{gd}**	-	2.5	-	
Turn-on delay time	V_{DS}=30V I_D=10A R_G=1.8Ω V_{GS}=10V	**$t_{d(on)}$**	-	7	-	**ns**
Turn-on Rise Time		**T_r**	-	5	-	
Turn-Off Delay Time		**$t_{d(OFF)}$**	-	16	-	
Turn-Off Fall Time		**t_f**	-	6	-	
Maximum Continuous Drain to Source Diode Forward Current		**I_S**	-	-	10	**A**
Maximum Pulsed Drain to Source Diode Forward Current		**I_{SM}**	-	-	40	**A**
Drain to Source Diode Forward Voltage	V_{GS}=0V , I_S=10A	**V_{SD}**	-	-	1.2	**V**
Body Diode Reverse Recovery Time	I_F=1A , dI/dt=100A/μs	**t_{rr}**	-	21	-	**ns**
Body Diode Reverse Recovery Charge		**Q_{rr}**	-	21	-	**nC**

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 ≦ 300us , duty cycle ≦ 2%
3、The power dissipation is limited by 150℃ 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

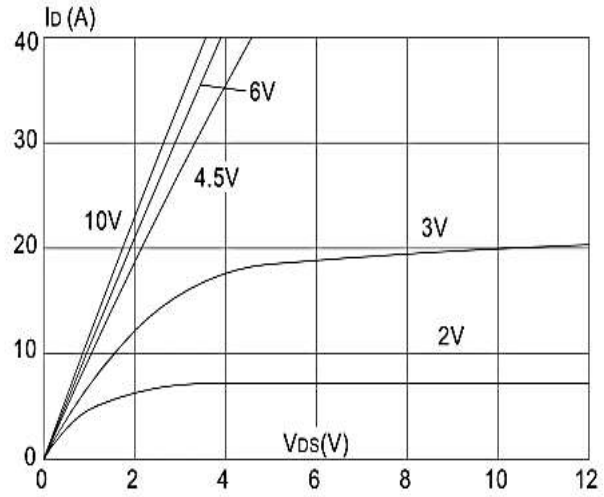


Figure1: Output Characteristics

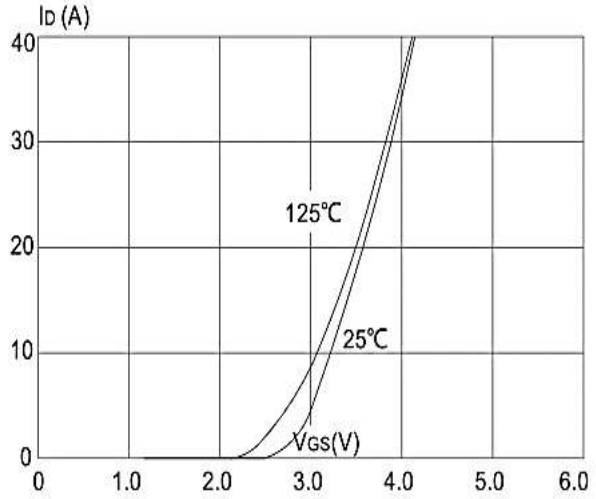


Figure 2: Typical Transfer Characteristics

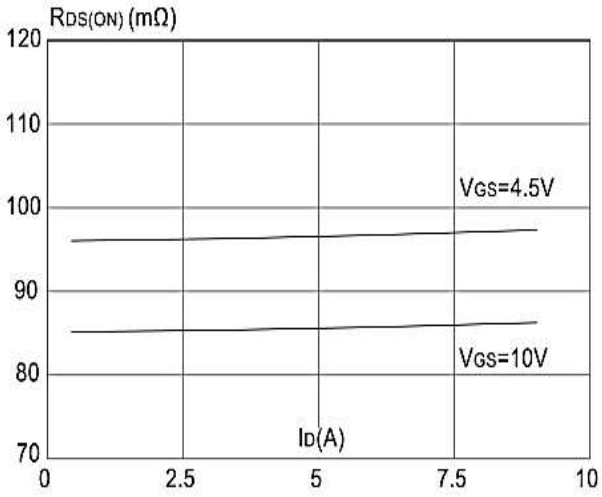


Figure 3:On-resistance vs. Drain Current

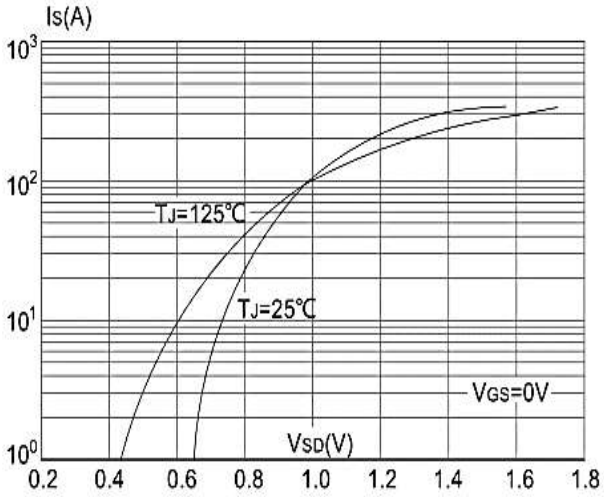


Figure 4: Body Diode Characteristics

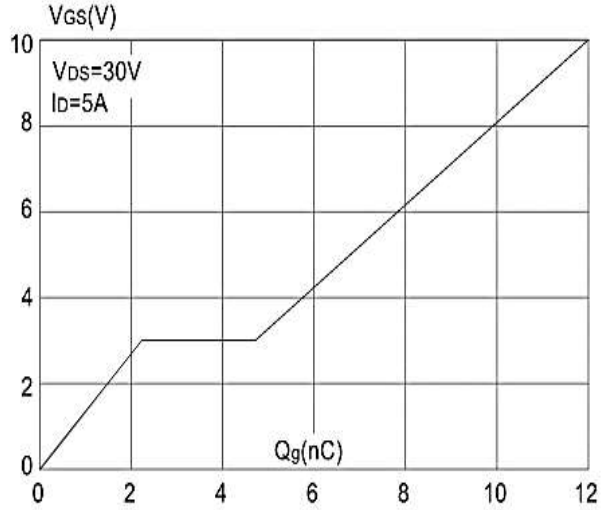


Figure 5: Gate Charge Characteristics

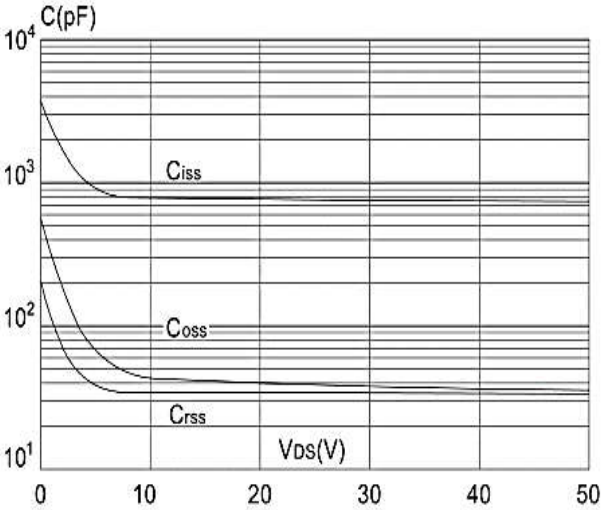


Figure 6: Capacitance Characteristics

Ratings and Characteristic Curves

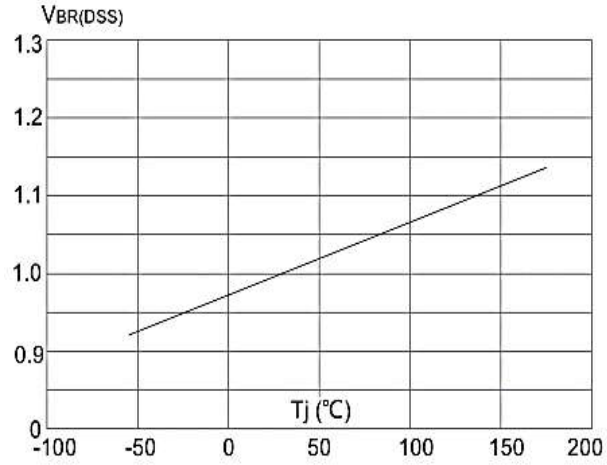


Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

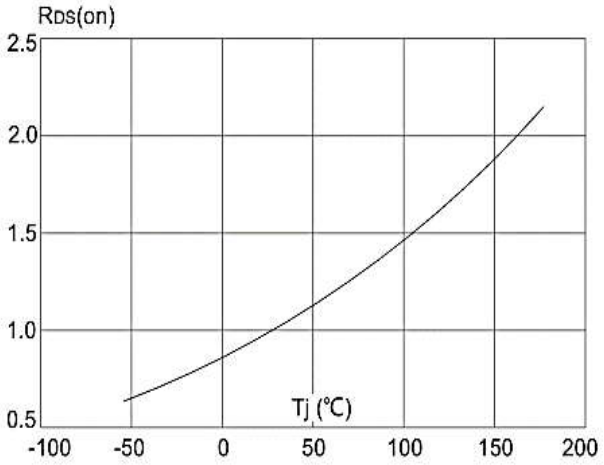


Figure 8: Normalized on Resistance vs. Junction Temperature

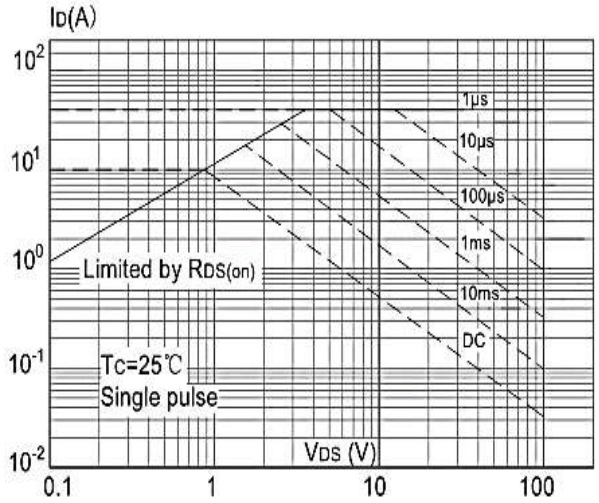


Figure 9: Maximum Safe Operating Area

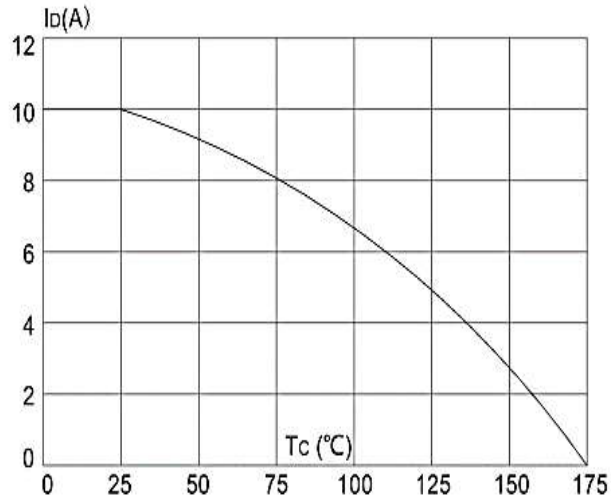


Figure 10: Maximum Continuous Drain Current vs. Case Temperature

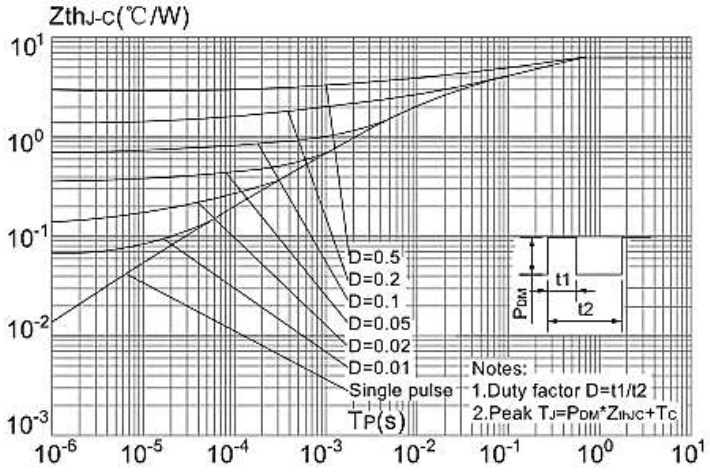
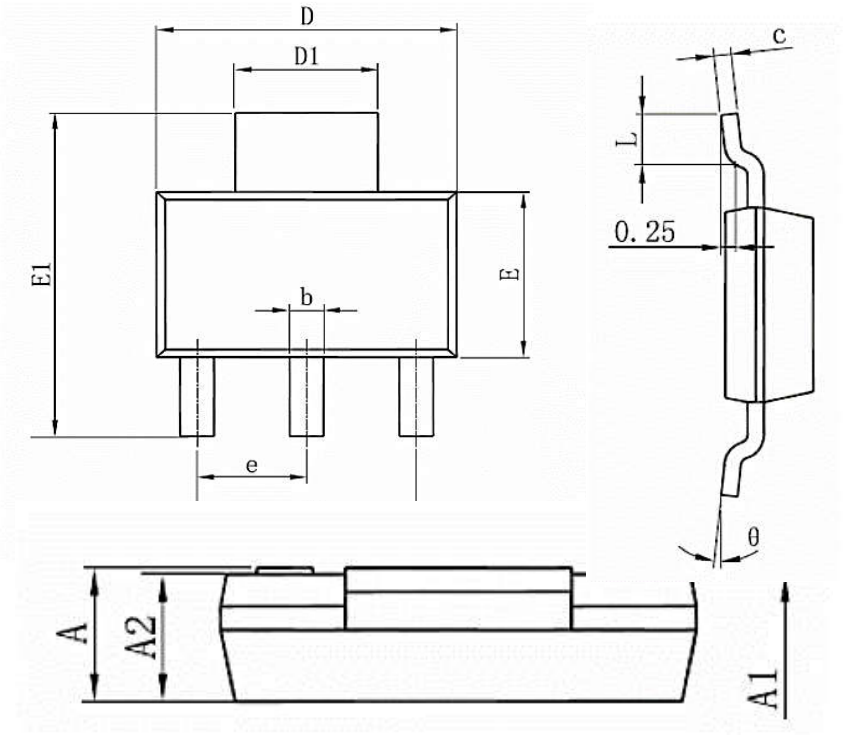


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Case

Package Outline Dimensions Millimeters

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°