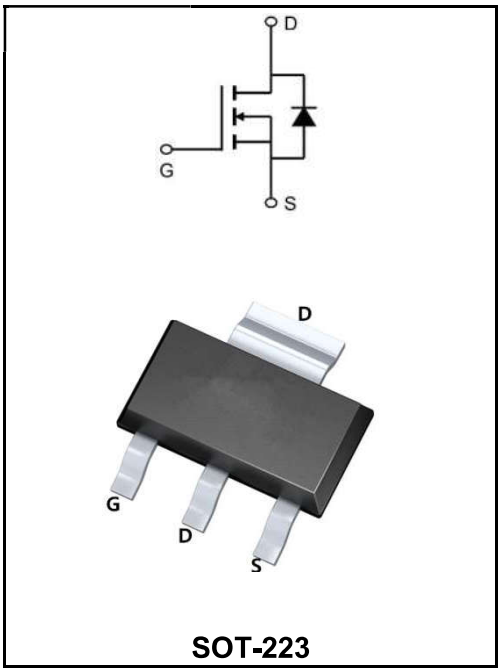
600V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	1A
V_{DSS}	600V
R_{DSON}-typ(@V_{GS}=10V)	< 11Ω(Type:8.5 mΩ)



SOT-223

Application

- Uninterruptible Power Supply(UPS)
- Power Factor Correction (PFC)

Product Specification Classification

Part Number	Package	Marking	Pack
YFW1N60MSI	SOT-223	YFW 1N60MSI XXXXX	3000PCS/Tape

Maximum Ratings at Tc=25°C unless otherwise specified

Characteristics	Symbols	Value	Units
Drain-Source Voltage	V_{DS}	600	V
Gate - Source Voltage	V_{GS}	±30	V
Continuous Drain Current T_C=25℃	I_D	1.0	A
Continuous Drain Current T_C=100℃	I_D	0.6	A
Drain Current- Pulsed	I_{DM}	4.0	A
Power Dissipation (T_L=25℃)	P_D	20	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 to +150	°C
Single Pulse Avalanche Energy	E_{AS}	14	mJ

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	BV_{DSS}	600	-	-	V
BVDSS Voltage Temperature Coefficient	Reference to 25℃ , I_D=250uA	$\Delta BV_{DSS/\Delta TJ}$	-	0.6	-	V/°C
Gate -Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	$V_{GS(th)}$	2.0	-	4.0	V
Static Drain-Source On-Resistance	V_{GS}=10V, I_D=0.5A ③	$R_{DS(ON)}$	-	8.5	11	Ω
Input Capacitance	V_{DS}=25V V_{GS}=0V f=1.0MHz	C_{iss}	-	150	-	pF
Output Capacitance		C_{oss}	-	25	-	
Reverse Transfer Capacitance		C_{rss}	-	5.4	-	
Turn-on delay time	V_{DD}=300V, I_D=1.0A R_G=25Ω③	$t_{d(on)}$	-	13	-	ns
Total Gate Charge	I_D=1.0A V_{DS}=480V V_{GS}=10V ③	Q_g	-	4.8	-	nC
Gate-to Source Charge		Q_{gs}	-	0.7	-	
Gate-to Drain Charge		Q_{gd}	-	2.7	-	
Continuous Diode Forward Current		I_S	-	-	1.0	A
Drain -Source Leakage Current	V_{DS}=600V , V_{GS}=0V , T_J=25℃	I_{DSS}	-	-	25	μA
	V_{DS}=480V , V_{GS}=0V , T_J=125℃		-	-	250	
Forward Transconductance	V_{DS}=40V, I_D=0.5A③	g_{FS}	0.5	-	-	S
Gate- body Leakage Current	V_{GS}=±30V, V_{DS}=0V	I_{GSS}	-	-	±100	nA
Diode Forward Voltage	V_{GS}=0V , I_S=0.5A , T_J=25℃③	V_{SD}	-	-	1.4	V
Reverse Recovery Time	I_F=1.0A , dI/dt=100A/μs , T_J=25℃ ③	t_{rr}	-	190	-	ns
Reverse Recovery Charge		Q_{rr}	-	0.53	-	nC

(Notes):
1、Repetitive rating: Pulse width limited by maximum junction temperature
2、Starting Tj=25oC, VDD =50V, L=30mH, RG =25Ω, IAS=1.0A
3、Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%erating Area

Ratings and Characteristic Curves

Typical Characteristics

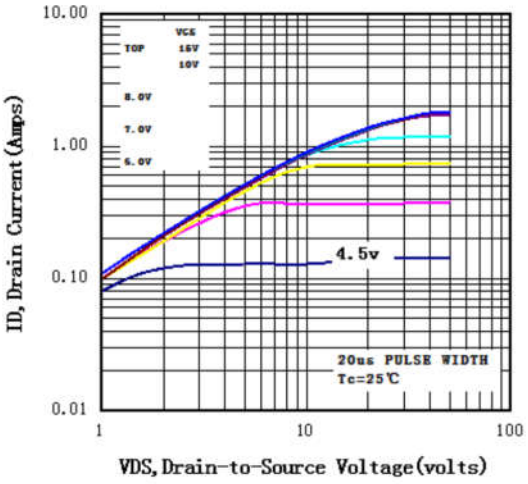


Fig1 Typical Output Characteristics, Tc=25℃

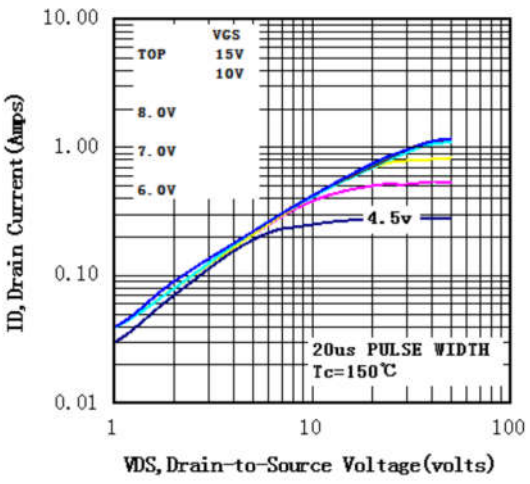


Fig2 Typical Output Characteristics, Tc=150℃

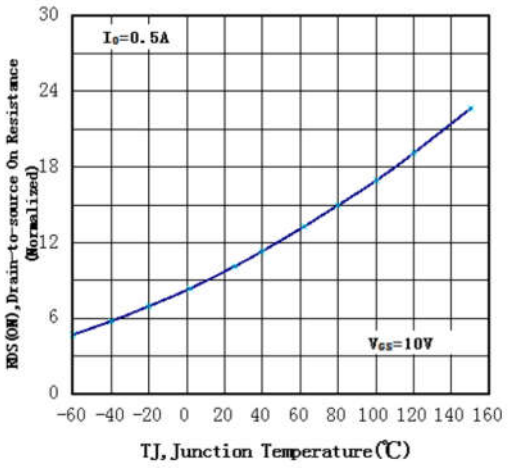


Fig3 Normalized On-Resistance Vs.Temperature

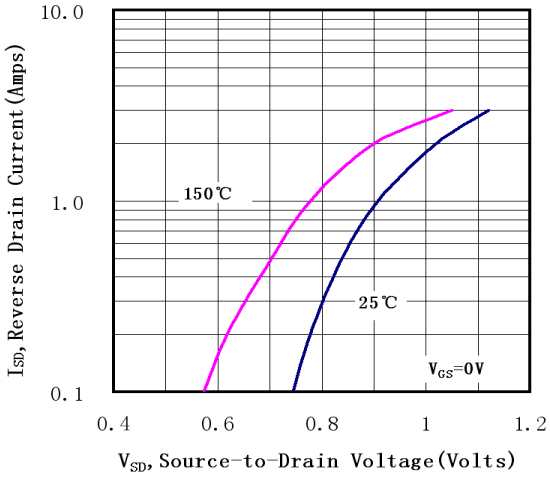


Fig4 Typical Source-Drain Diode Forward Voltage

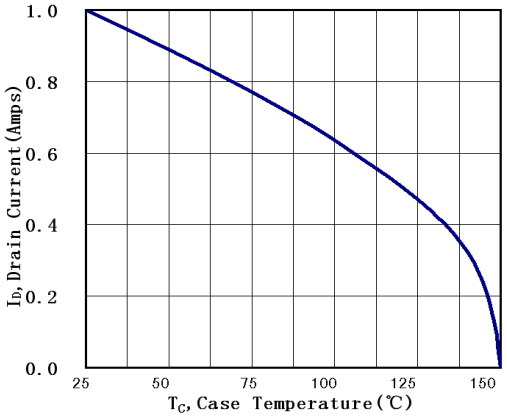


Fig5 Maximum Drain Current Vs.Case Temperature

Ratings and Characteristic Curves

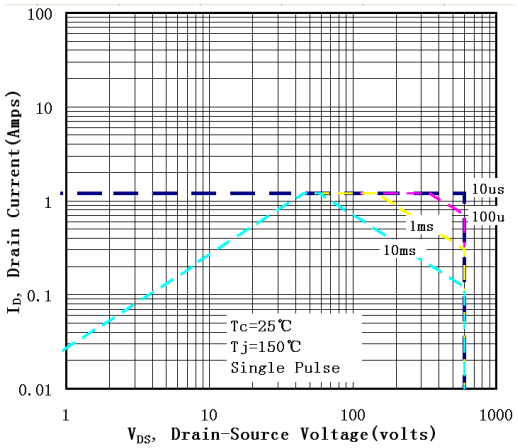


Fig6 Maximum Safe Operating Area

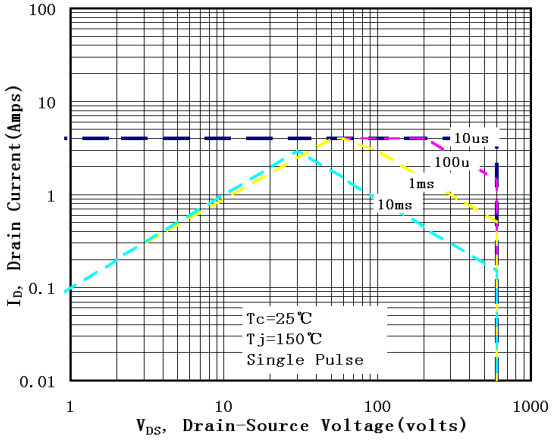


Fig **7** Maximum Safe Operating Area

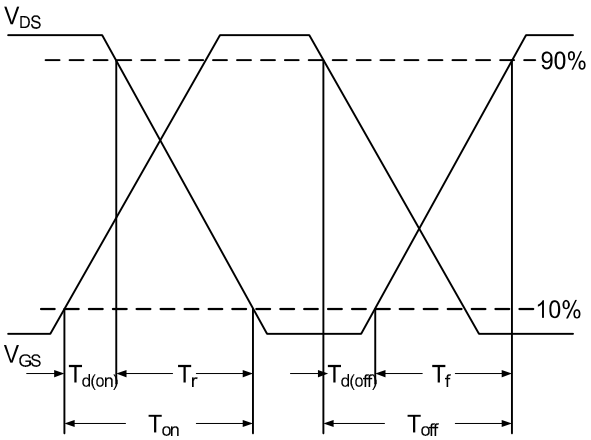


Fig.8 Switching Time Waveform

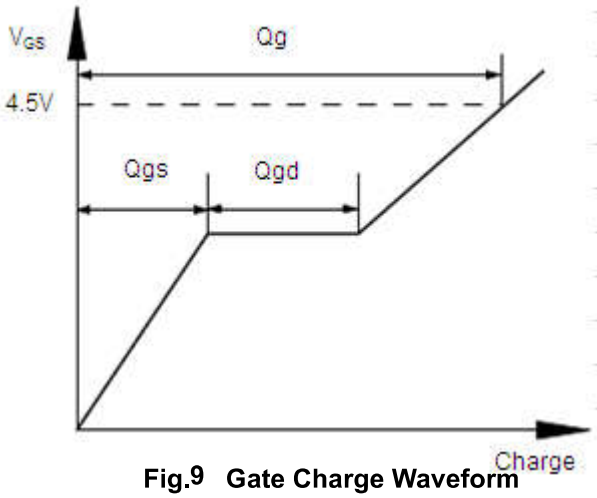


Fig.9 Gate Charge Waveform

Package Outline Dimensions Millimeters

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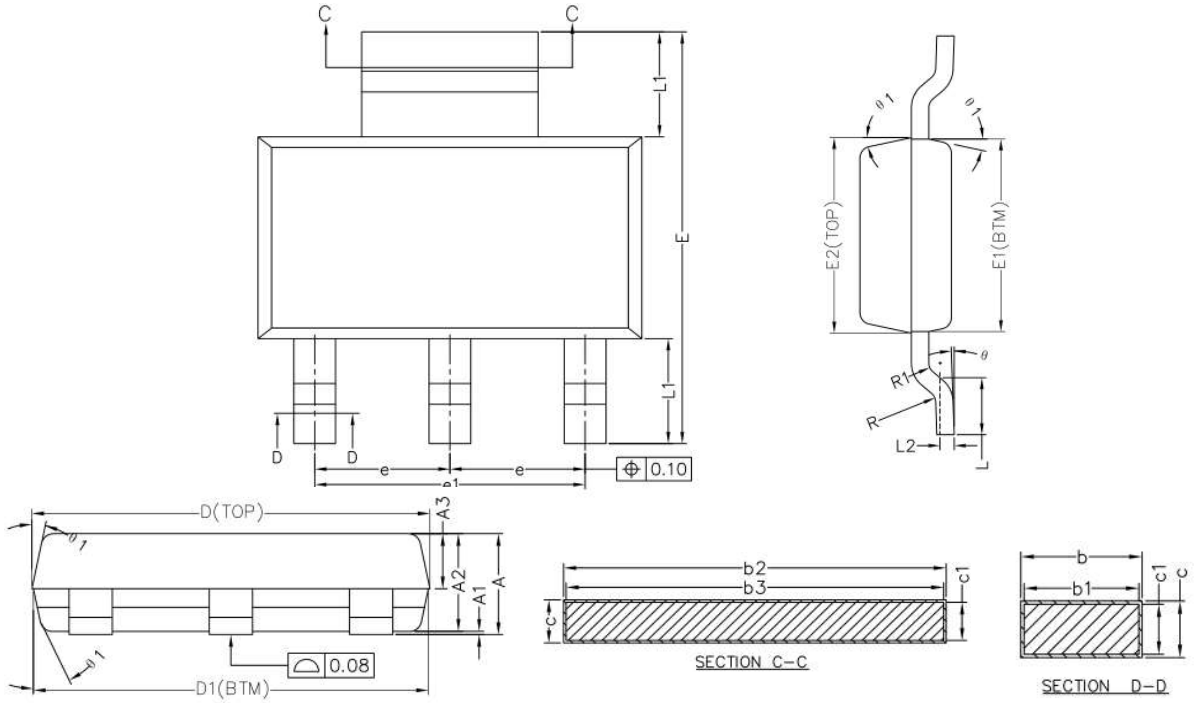

Symbol	Min	Nom	Max
A	--	--	1.80
A1	0.02	--	0.10
A2	1.50	1.60	1.70
A3	0.80	0.90	1.00
b	0.67	--	0.80
b1	0.66	0.71	0.76
b2	2.96	--	3.09
b3	2.95	3.00	3.05
C	0.30	--	0.35
C1	0.29	0.30	0.31
D	6.48	6.53	6.58
D1	6.55	6.60	6.65
E	6.80	--	7.20
E1	3.40	3.50	3.60
E2	3.33	3.43	3.53
e	2.30BSC		
e1	4.60BSC		
L	0.80	1.00	1.20
L1	1.75REF		
L2	0.25BSC		
R	0.10	--	--
R1	0.10	--	--
θ	0°	--	8°
θ1	10°	12°	14°