

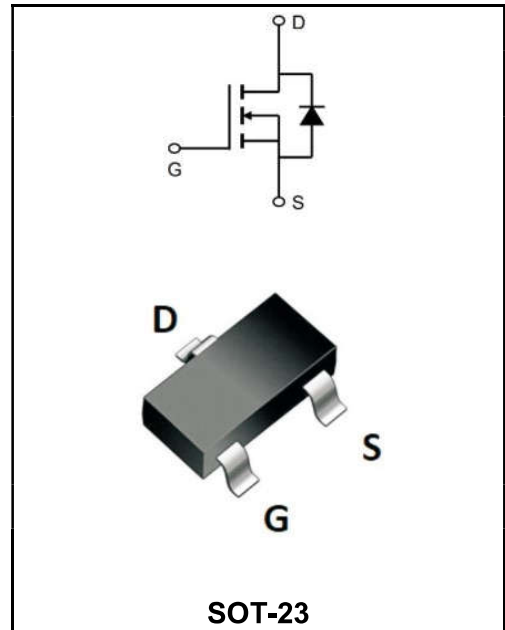
100V N-CHANNEL ENHANCEMENT MODE MOSFET

MAIN CHARACTERISTICS

I_D	1.5A
V_{DSS}	100V
$R_{DS(on)-typ}(@V_{GS}=10V)$	< 500mΩ (Type:430 mΩ)

Application

- ◆Atomizer
- ◆Load switch
- ◆Uninterruptible power supply



Product Specification Classification

Part Number	Package	Marking	Pack
YFW1N10	SOT-23	MA3	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
Continuous Drain Current, $V_{GS} @ 10V^1 @ T_A=25^\circ C$	I_D	1.5	A
Continuous Drain Current, $V_{GS} @ 10V^1 @ T_A=100^\circ C$	I_D	1.2	A
Pulsed Drain Current ²	I_{DM}	6	A
Total Power Dissipation ³ @ $T_A=25^\circ C$	P_D	1.2	W
Storage Temperature Range	T_{STG}	-55 to +150	°C
Operating Junction Temperature Range	T_J	-55 to +150	°C
Thermal Resistance Junction-Ambient ¹	$R_{\theta JA}$	104	°C/W
Thermal Resistance Junction-Case ¹	$R_{\theta JC}$	75	°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}	100	-	-	V
Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS}=0V$	I_{DSS}	-	-	1	μA
Gate-Body Leakage Current	$V_{GS}=\pm 20V, V_{DS}=0V$	I_{GSS}	-	-	± 100	nA
	$V_{GS}=\pm 10V, V_{DS}=0V$		-	-	± 50	
Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	$V_{GS(th)}$	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	$V_{GS}=10V, I_D=1.5A$	$R_{DS(ON)}$	-	430	500	m Ω
	$V_{GS}=4.5V, I_D=1A$		-	460	550	
Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$	C_{iss}	-	232	-	pF
Output Capacitance		C_{oss}	-	23	-	
Reverse Transfer Capacitance		C_{rss}	-	24	-	
Total Gate Charge	$V_{GS}=10V$ $V_{DS}=50V$ $I_D=2A$	Q_g	-	6.47	-	nC
Gate-Source Charge		Q_{gs}	-	1.27	-	
Gate-Drain Charge		Q_{gd}	-	1.29	-	
Reverse Recovery Charge	$I_F=2A, di/dt=100A/\mu s$	Q_{rr}	-	18.1	-	ns
Reverse Recovery Time		t_{rr}	-	36.9	-	
Turn-on delay time	$V_{GS}=10V$ $V_{DS}=50V$ $I_D=1.3A$ $R_{GEN}=1\Omega$	$t_{d(on)}$	-	4.6	-	ns
Turn-on Rise Time		T_r	-	18	-	
Turn-Off Delay Time		$t_{d(OFF)}$	-	16	-	
Turn-Off Fall Time		t_f	-	27.4	-	
Diode Forward Voltage	$V_{GS}=0V, I_S=1.5A$	V_{SD}	-	-	1.2	V

Note :

- 1、 The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
- 2、 The data tested by pulsed , pulse width $\cong 300\mu s$, duty cycle $\cong 2\%$
- 3、 The power dissipation is limited by 150°C junction temperature
- 4、 The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics

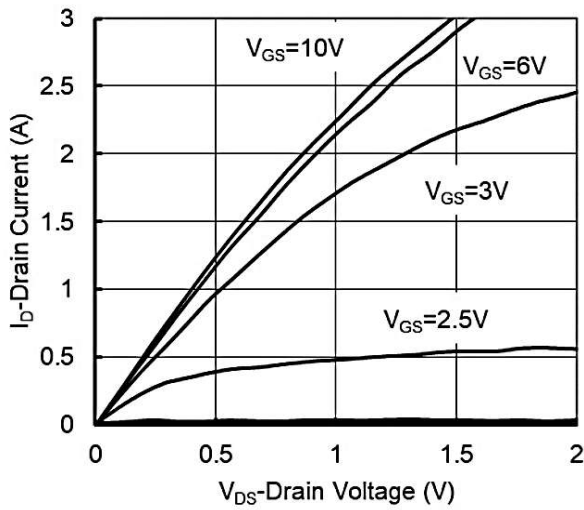


Figure1. Output Characteristics

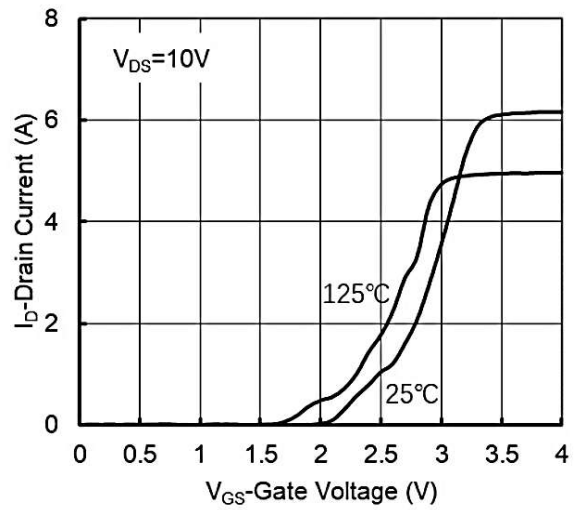


Figure2. Transfer Characteristics

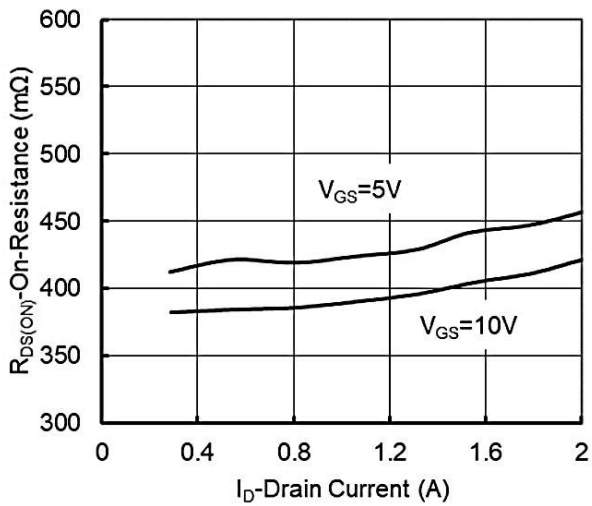


Figure 3: On-Resistance vs. Drain Current

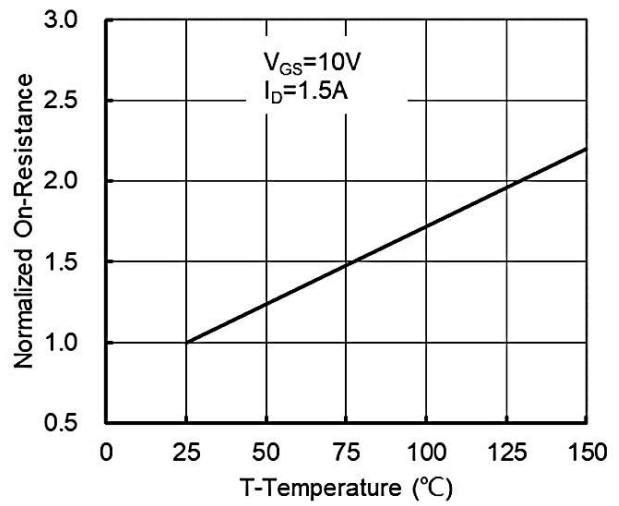


Figure 4: On-Resistance vs. Junction Temperature

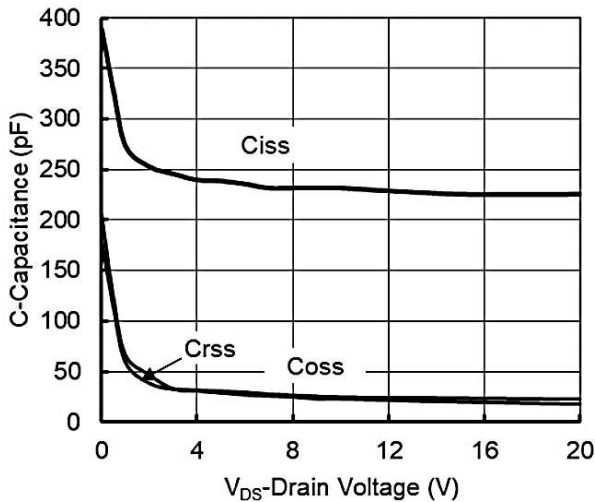


Figure5. Capacitance Characteristics

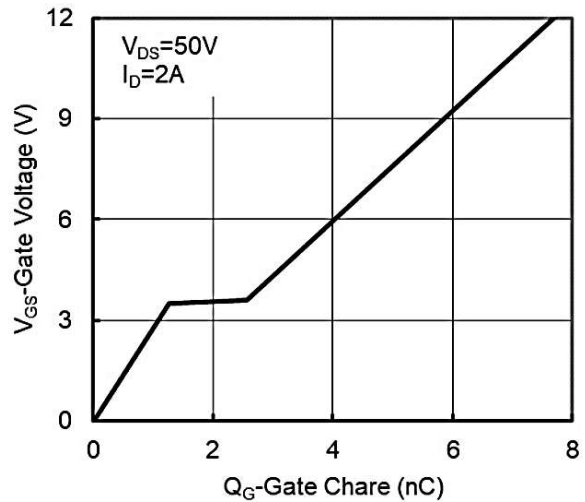


Figure6. Gate Charge

Ratings and Characteristic Curves

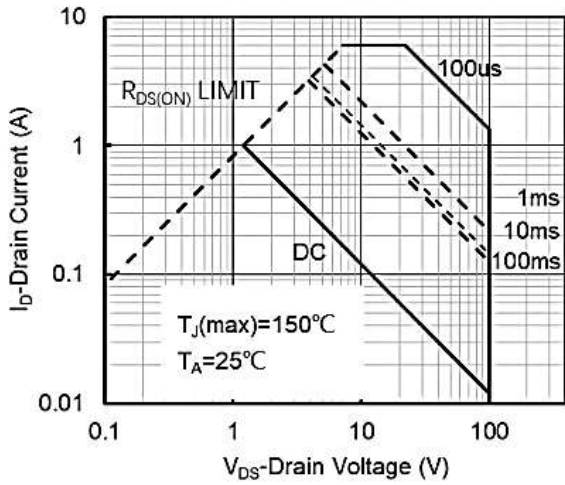


Figure7. Safe Operation Area

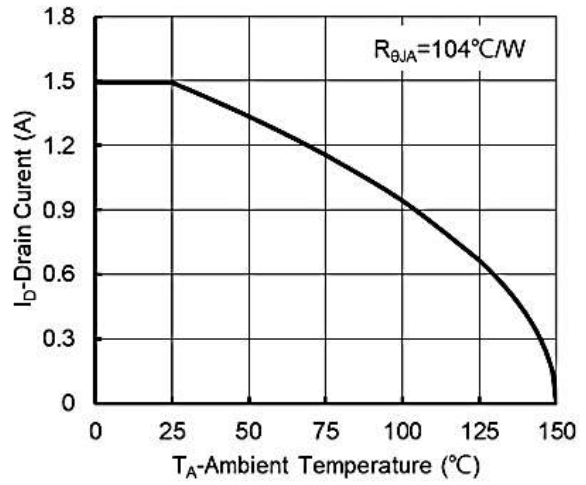


Figure8. Maximum Continuous Drain Current vs Ambient Temperature

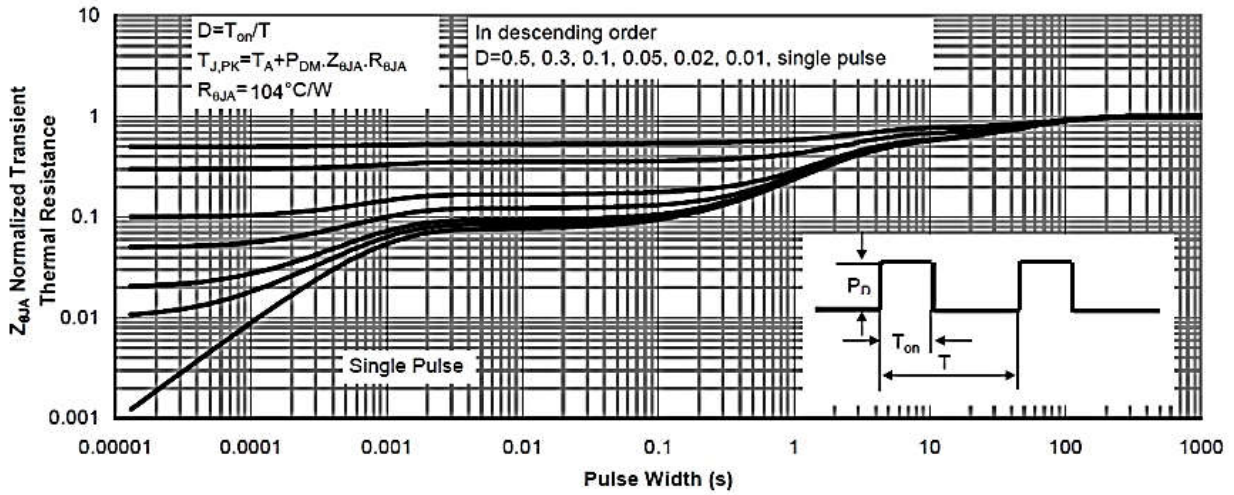
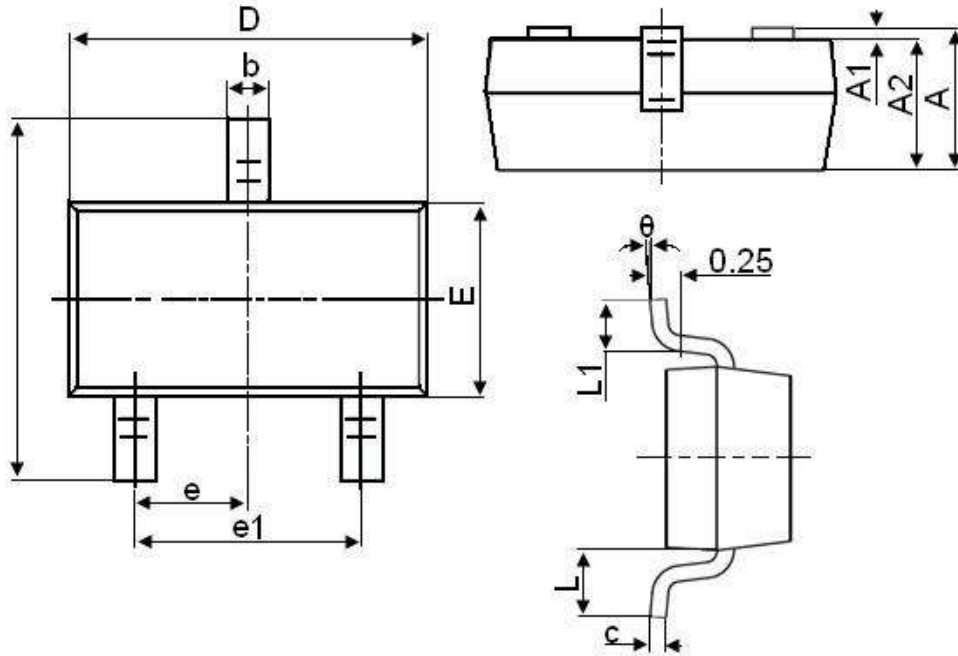


Figure9. Normalized Maximum Transient Thermal Impedance

SOT-23



Symbol	Dimensions in Millimeters	
	MIN.	MAX.
A	0.900	1.150
A1	0.000	0.100
A2	0.900	1.050
b	0.300	0.500
c	0.080	0.150
D	2.800	3.000
E	1.200	1.400
E1	2.250	2.550
e	0.950TYP	
e1	1.800	2.000
L	0.550REF	
L1	0.300	0.500
θ	0°	8°