

Product Summary

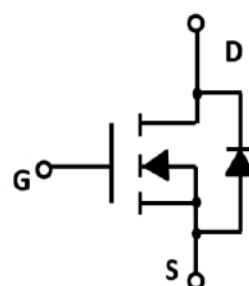
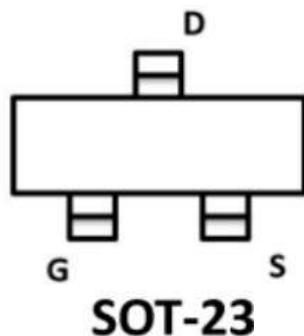
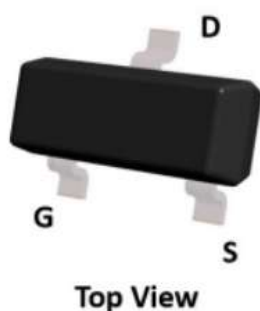
- V_{DS} 20V
- I_D 3.0A
- $R_{DS(ON)}$ (at $V_{GS}=4.5V$) = 36 mohm
- $R_{DS(ON)}$ (at $V_{GS}=2.5V$) = 52 mohm

General Description

- Trench Power LV MOSFET technology
- High Power and current handling capability

Applications

- PWM application
- Load switch



Package and order information

Device	Device Marking	Device Package	Reel Size	Tape width	Quantity
WTM2300	A2sHB	SOT-23	Ø180mm	8 mm	3000 pcs

Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-source Voltage		V_{DS}	20	V
Gate-source Voltage		V_{GS}	± 10	V
Drain Current	$T_A=25^{\circ}C$ @ Steady State	I_D	3.0	A
	$T_A=70^{\circ}C$ @ Steady State		2.4	
Pulsed Drain Current ^A		I_{DM}	12	A
Total Power Dissipation @ $T_A=25^{\circ}C$		P_D	0.7	W
Thermal Resistance Junction-to-Ambient @ Steady State ^B		$R_{\theta JA}$	178	$^{\circ}C/W$
Junction and Storage Temperature Range		T_J, T_{STG}	-55~+150	$^{\circ}C$

Electrical Characteristics ($T_J=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V, T_C=25^{\circ}C$			1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}= \pm 10V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}= V_{GS}, I_D=250\mu A$	0.55	0.65	1.25	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}= 4.5V, I_D=3.0A$		36	41	m Ω
		$V_{GS}= 2.5V, I_D=2.0A$		52	58	
Diode Forward Voltage	V_{SD}	$I_S=3.0A, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				2.8	A
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		280		pF
Output Capacitance	C_{oss}			46		
Reverse Transfer Capacitance	C_{rss}			29		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=4.5V, V_{DS}=10V, I_D=3.0A$		2.9		nC
Gate Source Charge	Q_{gs}			0.4		
Gate Drain Charge	Q_{gd}			0.6		
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=4.5V, V_{DD}=10V, R_L=1.5\Omega, R_{GEN}=3\Omega$		13		ns
Turn-on Rise Time	t_r			54		
Turn-off Delay Time	$t_{D(off)}$			18		
Turn-off Fall Time	t_f			11		

A. Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Performance Characteristics

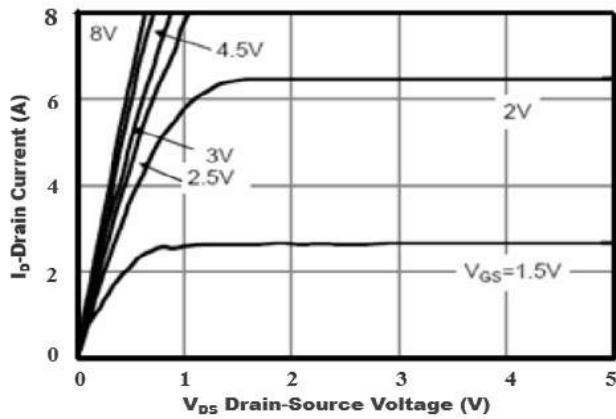


Figure1. Output Characteristics

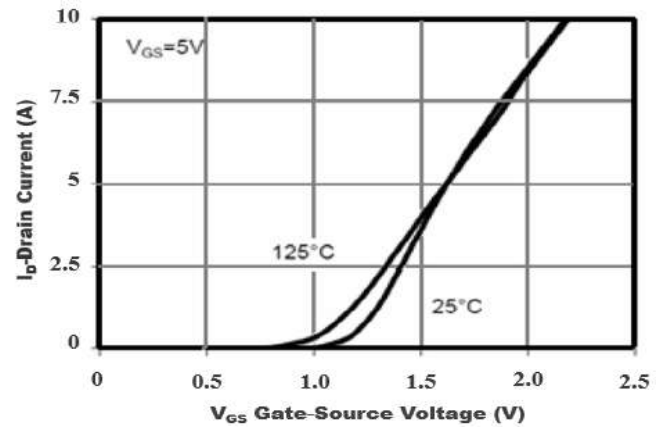


Figure2. Transfer Characteristics

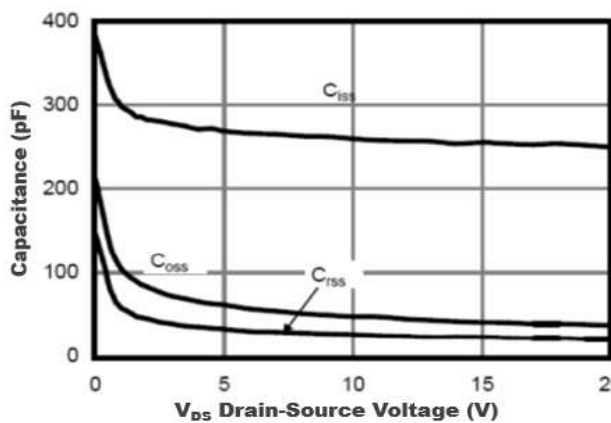


Figure3. Capacitance Characteristics

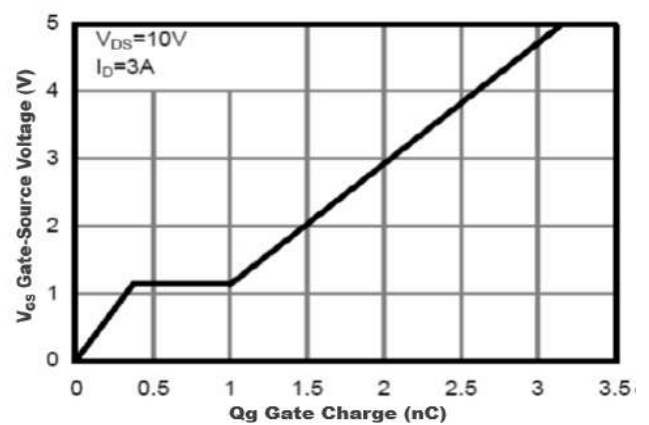


Figure4. Gate Charge

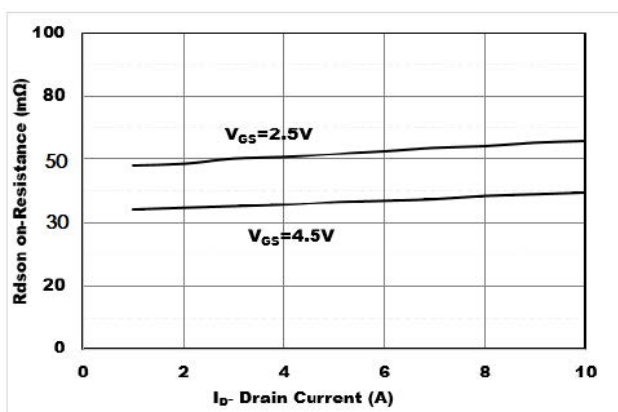


Figure5. Drain-Source on Resistance

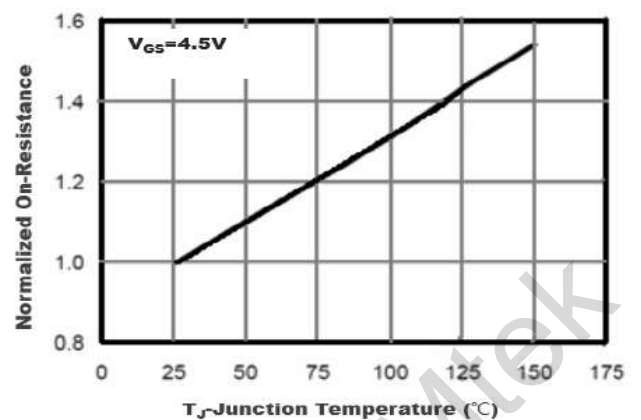


Figure6. Drain-Source on Resistance

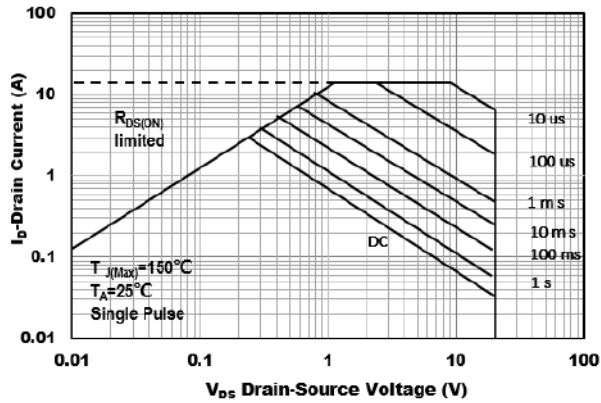


Figure7. Safe Operation Area

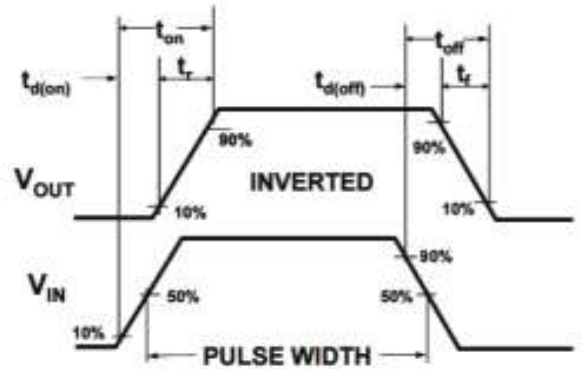
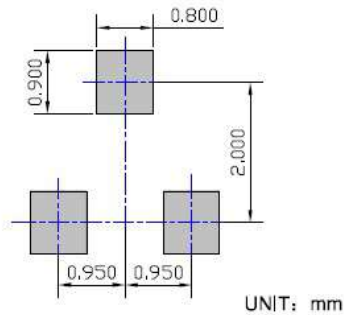
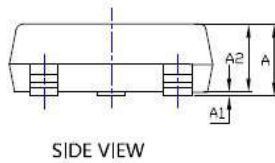
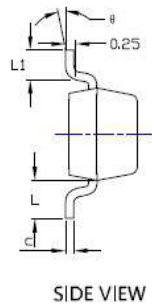
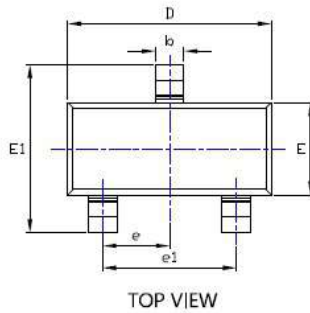


Figure8. Switching wave

SOT-23 Package information



SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NDM.	MAX.	MIN.	NDM.	MAX.
A	0.035	---	0.045	0.900	---	1.150
A1	0.000	---	0.004	0.000	---	0.100
A2	0.035	0.038	0.041	0.900	0.975	1.050
b	0.012	0.016	0.020	0.300	0.400	0.500
c	0.004	---	0.008	0.100	---	0.200
D	0.110	0.114	0.118	2.800	2.900	3.000
E	0.047	0.051	0.055	1.200	1.300	1.400
E1	0.089	0.094	0.100	2.250	2.400	2.550
e	0.037 TYP			0.950 TYP		
e1	0.071	0.075	0.079	1.800	1.900	2.000
L	0.022 REF			0.550 REF		
L1	0.012	0.016	0.200	0.300	0.400	0.500
ø	0*	---	8*	0*	---	8*

NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.