

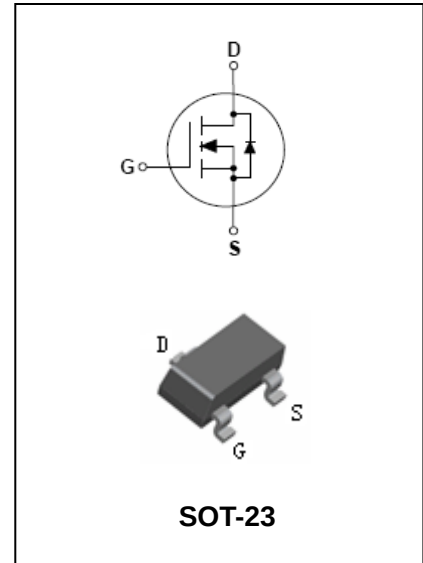
N-Channel Enhancement Mode Field Effect Transistor

TBL2304

FEATURES

- Electrostatic Sensitive Devices
- $V_{DS} (V) = 30V$
- $I_D = 2.6A$
- Halogen free
- Qualified to AEC-Q101 standards for high reliability
- $R_{DS(ON)} < 70m\Omega$ ($V_{GS} = 10V$)
 $R_{DS(ON)} < 105m\Omega$ ($V_{GS} = 4.5V$)

HF



APPLICATIONS

- N-channel enhancement mode effect transistor
- Switching application

ORDERING INFORMATION

Type No.	Marking	Package Code
TBL2304	2304	SOT-23

MAXIMUM RATING @ $T_a=25^\circ C$ unless otherwise specified

Symbol	Parameter	Value	Units
V_{DSS}	Drain-Source voltage	30	V
V_{GSS}	Gate -Source voltage	± 20	V
I_D	Continuous Drain Current ^A @ $T_A = 25^\circ C$ @ $T_A = 70^\circ C$	2.6 2.1	A
I_{DM}	Pulsed Drain Current ^a	10	A
P_D	Power Dissipation	0.75	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	166	$^\circ C/W$
T_J, T_{stg}	Junction and Storage Temperature	-55 to +150	$^\circ C$

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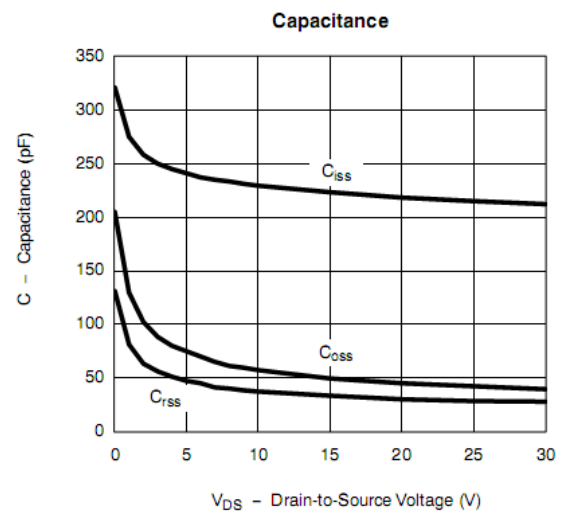
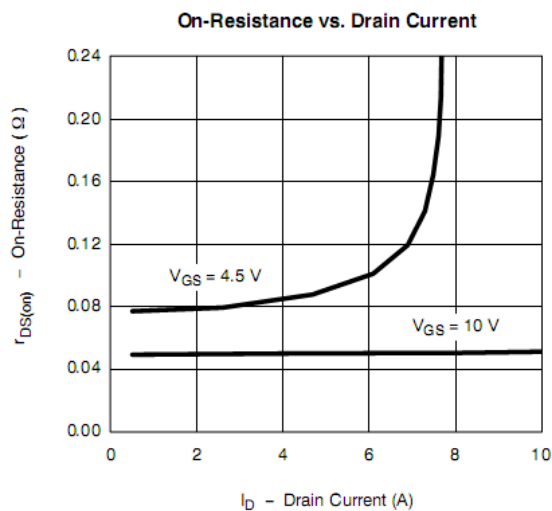
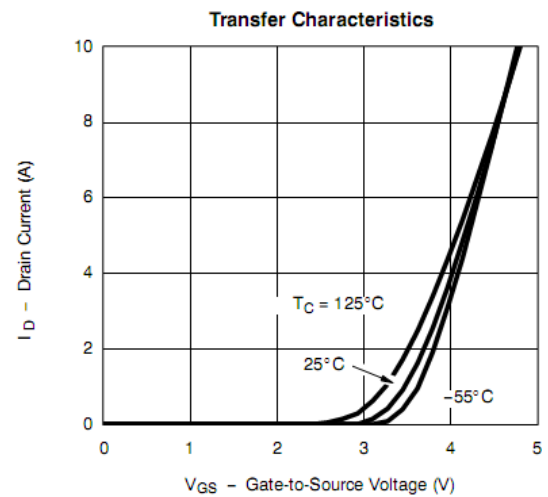
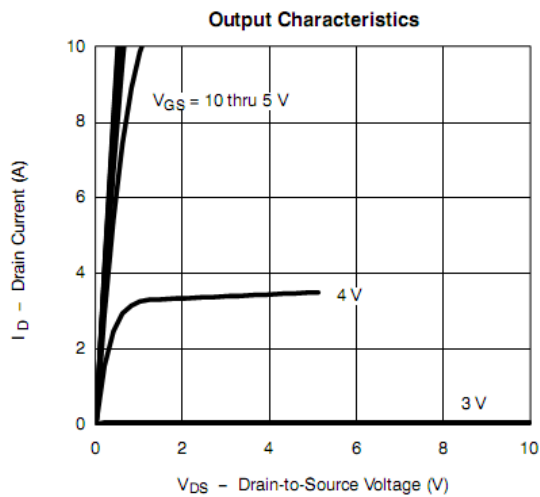
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
STATIC PARAMETERS						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$	-	-	1	μA
Gate-body Leakage	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.3		3.0	V
On state drain current	$I_{D(ON)}$	$V_{DS}=4.5V, V_{GS}=10V$	6	-	-	A
Static drain-Source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=2.5A$ $V_{GS}=4.5V, I_D=2A$	- -	55 80	70 105	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=4.5V, I_D=2.5A$	-	6	-	S
Drain-Source diode forward voltage	V_{SD}	$V_{GS}=0V, I_S=1.25A$	-	0.8	1.2	V
Maximum Body-Diode Continuous Current	I_S		-	-	0.9	A
DYNAMIC CHARACTERISTICS^①						
Input capacitance	C_{ISS}	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	225	-	pF
Output capacitance	C_{OSS}		-	50	-	
Reverse transfer capacitance	C_{RSS}		-	28	-	
Gate resistance	R_g	$V_{DS}=0V, V_{GS}=0V, f=1.0MHz$		3		Ω
SWITCHING CHARACTERISTICS^②						
Turn-On Delay Time	$t_{D(ON)}$	$V_{DS}=15V, R_L=15\Omega,$ $V_{GEN}=10V, R_{GEN}=6\Omega$ $I_D=1A$	-	7.5	12	ns
Rise Time	t_r		-	12.5	20	ns
Turn-Off Delay Time	$t_{D(OFF)}$		-	19	30	ns
Fall Time	t_f		-	15	25	ns
Gate Charge	Q_g	$V_{DS}=15V, I_D=2.5A, V_{GS}=5V$	-	2.6	4	nC
Total Gate Charge	Q_{gt}	$V_{DS}=15V, I_D=2.5A,$ $V_{GS}=10V$		4.6	7	nC
Gate-Source Charge	Q_{gs}		-	0.8	-	nC
Gate-Drain Charge	Q_{gd}		-	1.15	-	nC

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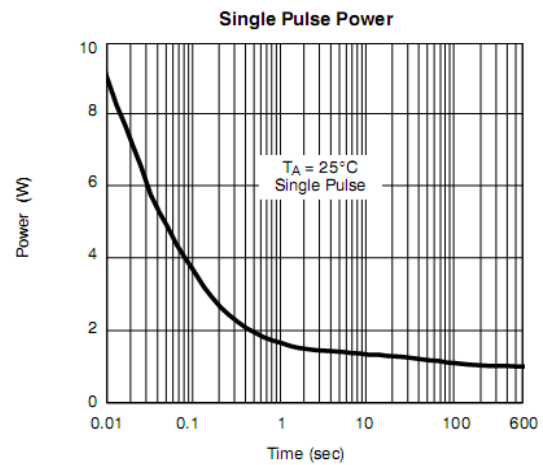
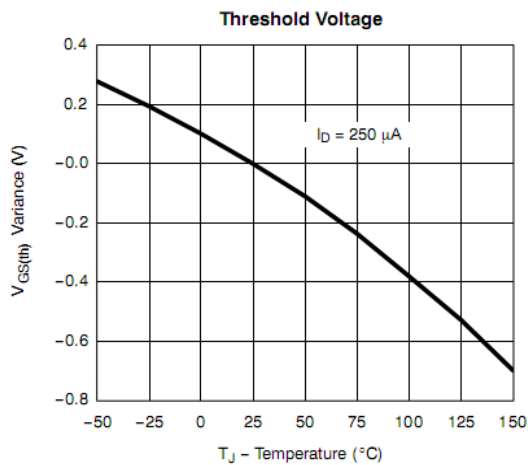
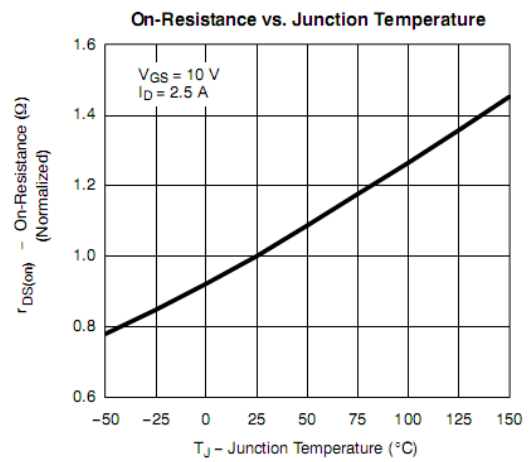
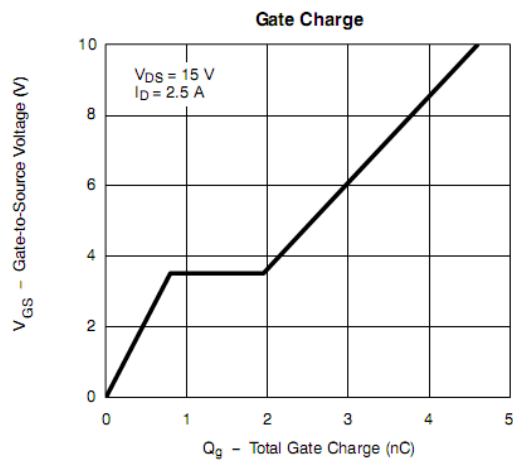
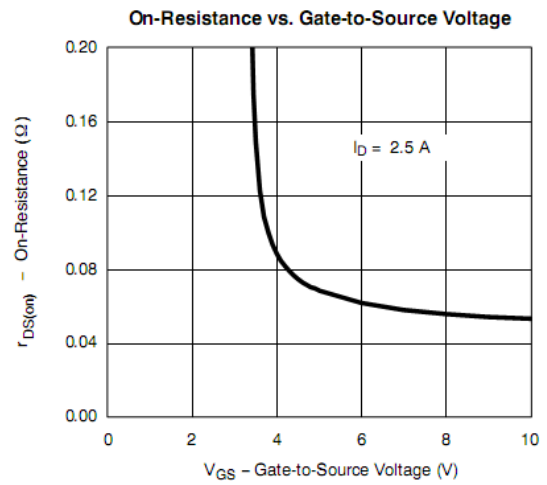
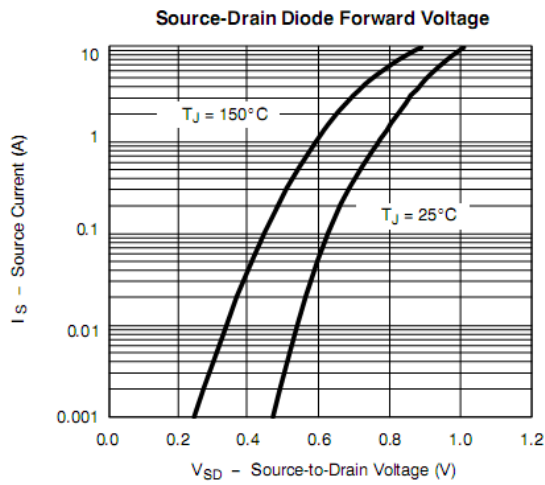
TBL2304

TYPICAL CHARACTERISTICS @ $T_a=25^\circ\text{C}$ unless otherwise specified



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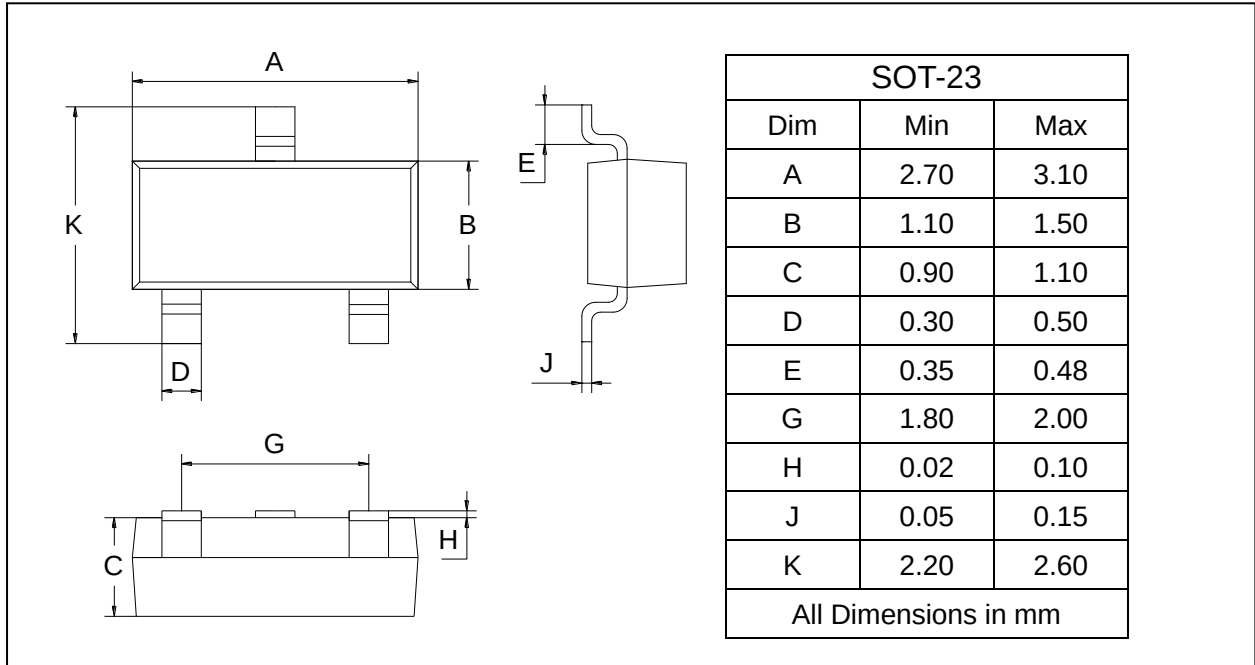
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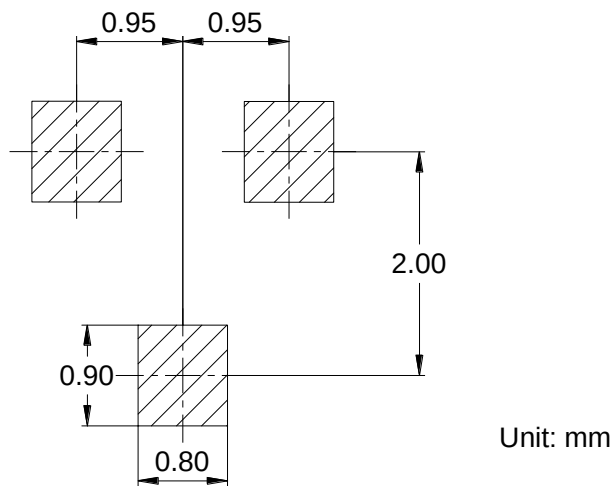
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
TBL2304	SOT-23	3000pcs / Tape & Reel