

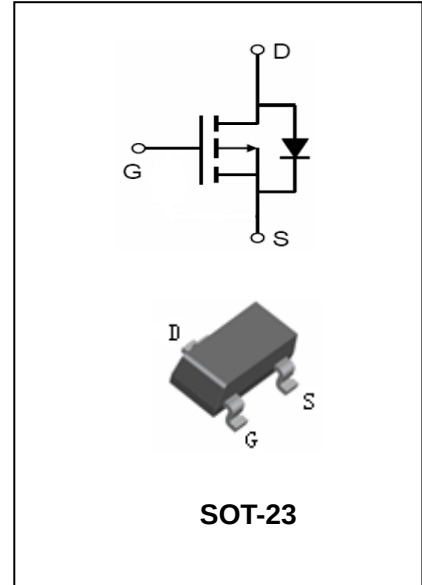
P-Channel Enhancement Mode Field Effect Transistor

TBL2303

FEATURES

- Electrostatic Sensitive Devices
- $V_{DS} (V) = -30V$
- $I_D = -2.7A (V_{GS} = -10V)$
- Halogen free
- Qualified to AEC-Q101 standards for high reliability
- $R_{DS(ON)} < 190m\Omega (V_{GS} = -10V)$
 $R_{DS(ON)} < 330m\Omega (V_{GS} = -4.5V)$

HF



APPLICATIONS

- P-channel enhancement mode effect transistor.
- Switching application.

ORDERING INFORMATION

Type No.	Marking	Package Code
TBL2303	2303	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 @ $T_C=25^\circ C$ @ $T_C=70^\circ C$	-2.7 -2.2	A
I_{DM}	Pulsed Drain Current	-10	A
P_D	Power Dissipation @ $T_C=25^\circ C$ @ $T_C=70^\circ C$ @ $T_A=25^\circ C$ @ $T_A=70^\circ C$	2.3 1.5 1.0 0.7	W
$R_{\theta JA}$	Thermal resistance,Junction-to-Ambient	120	$^\circ C/W$
T_J, T_{STG}	Junction and Storage Temperature	-55 to +150	$^\circ C$

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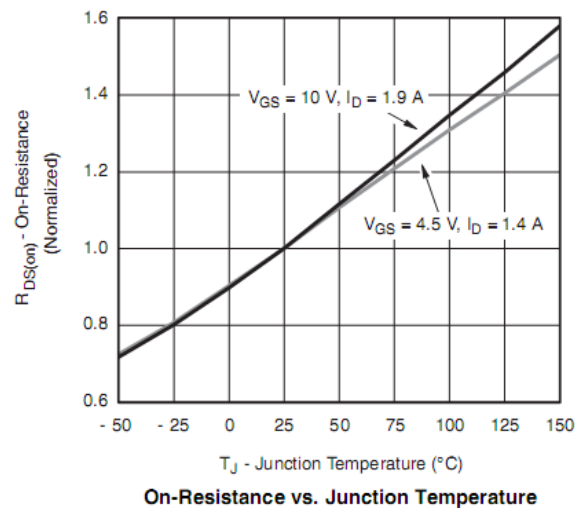
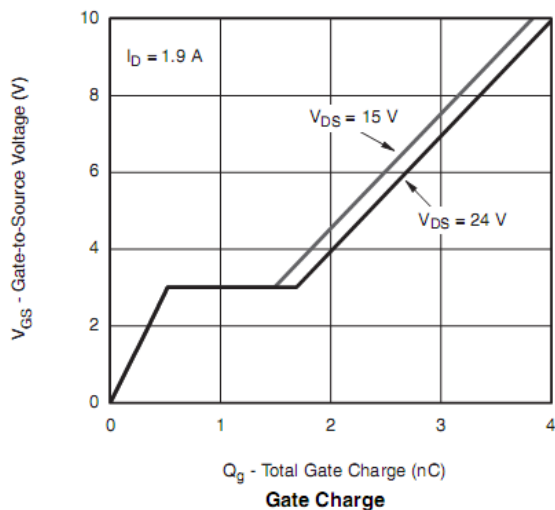
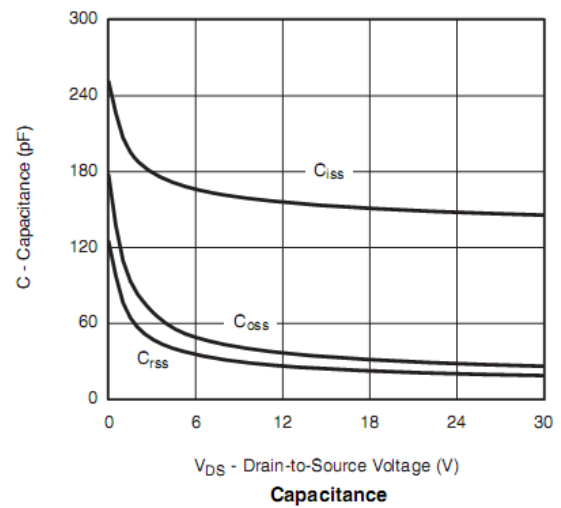
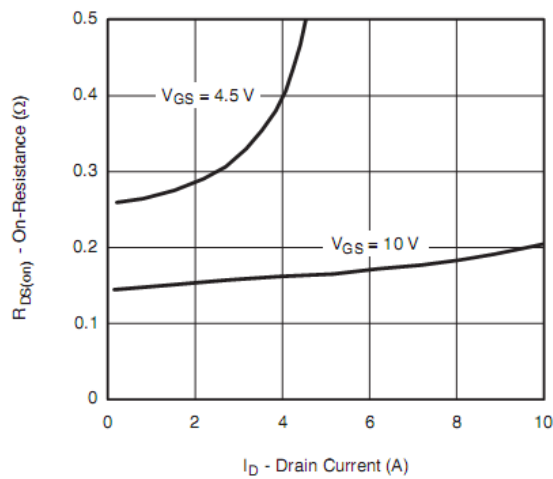
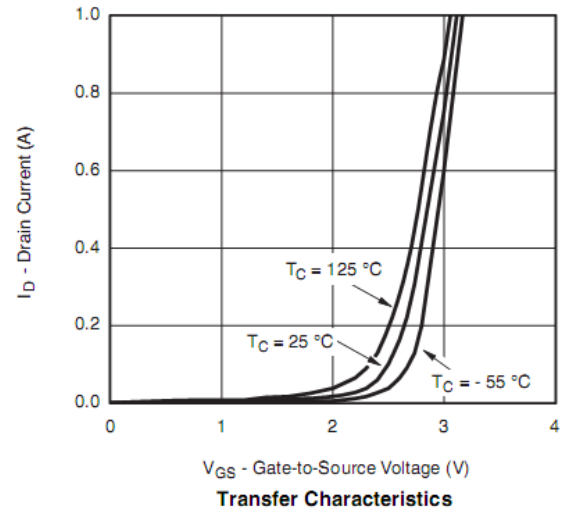
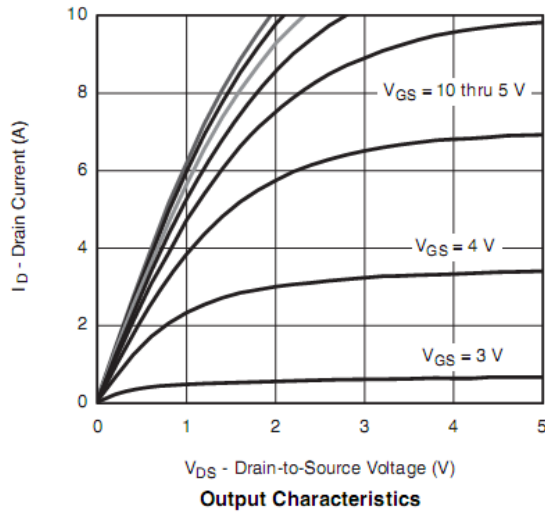
ELECTRICAL CHARACTERISTICS @ Ta=25°C unless otherwise specified

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	V
On-State Drain Current	$I_{D(on)}$	$V_{DS}=-5V, V_{GS}=-10V$	-10	-	-	A
Static drain-Source on-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1.9A$	-	158	190	m Ω
		$V_{GS}=-4.5V, I_D=-1.4A$	-	275	330	
Drain-Source diode forward voltage	V_{SD}	$I_S=-1.5A, V_{GS}=0V$	-	-0.8	-1.2	V
Forward Transconductance	g_{FS}	$V_{DS}=-5V, I_D=-1.9A$		2	-	S
Maximum Body-Diode Continuous Current	I_S		-	-	-1.75	A
DYNAMIC CHARACTERISTICS^C						
Input capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=-15V, f=1MHz$	-	155		pF
Output capacitance	C_{OSS}		-	35	-	
Reverse transfer capacitance	C_{RSS}		-	25	-	
Gate Resistance	R_G	$V_{GS}=0V, V_{DS}=0V, f=1MHz$	-	4	8	Ω
SWITCHING CHARACTERISTICS^C						
Turn-On Delay Time	$t_{D(on)}$	$V_{DD}=-15V, R_L=10\Omega, I_{DS}=-1.5A, V_{GEN}=-10V, R_G=1\Omega$	-	4	8	ns
Rise Time	t_r		-	11	18	ns
Turn-Off Delay Time	$t_{D(off)}$		-	11	18	ns
Fall Time	t_f		-	8	18	ns
Total Gate Charge	Q_g	$V_{GS}=-15V, V_{DS}=-10V, I_D=-1.9A$	-	15.5	22	nC
		$V_{GS}=-15V, V_{DS}=-4.5V, I_D=-1.9A$	-	2	4	
Gate-Source Charge	Q_{gs}	$V_{GS}=-15V, V_{DS}=-4.5V, I_D=-1.9A$	-	0.6	-	nC
Gate-Drain Charge	Q_{gd}		-	1	-	nC
Body Diode Reverse Recovery Time	t_{rr}	$I_F=-1.5A, dI/dt=100A/\mu s$	-	17	26	ns
Body Diode Reverse Recovery Charge	Q_{rr}		-	7	-	nC

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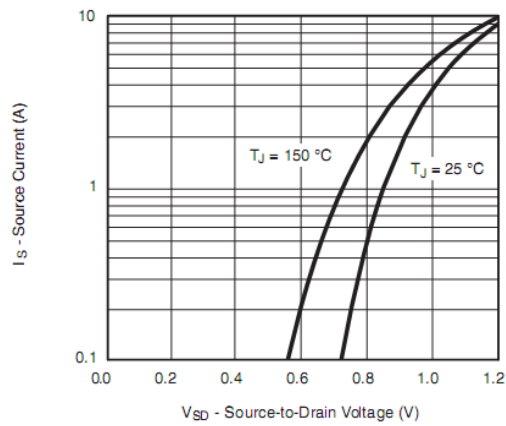
TBL2303

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

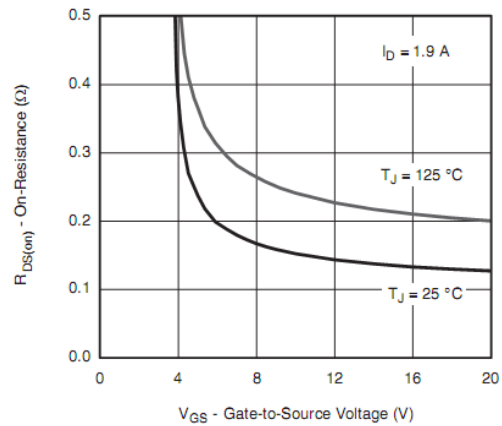


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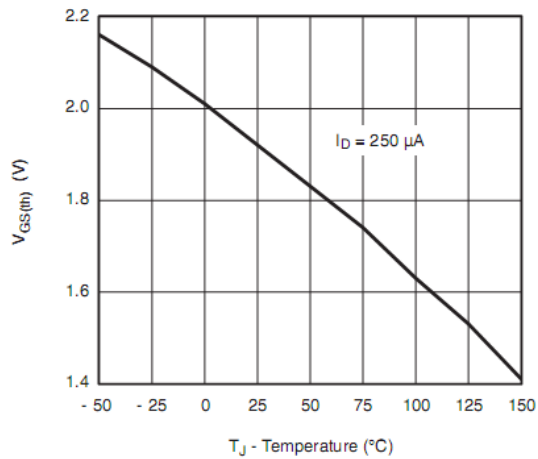
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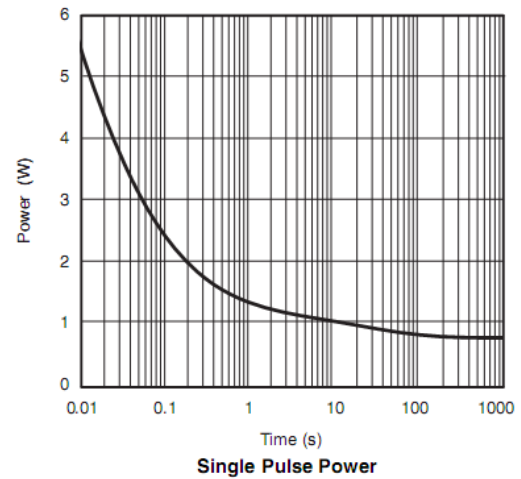
Source-Drain Diode Forward Voltage



On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



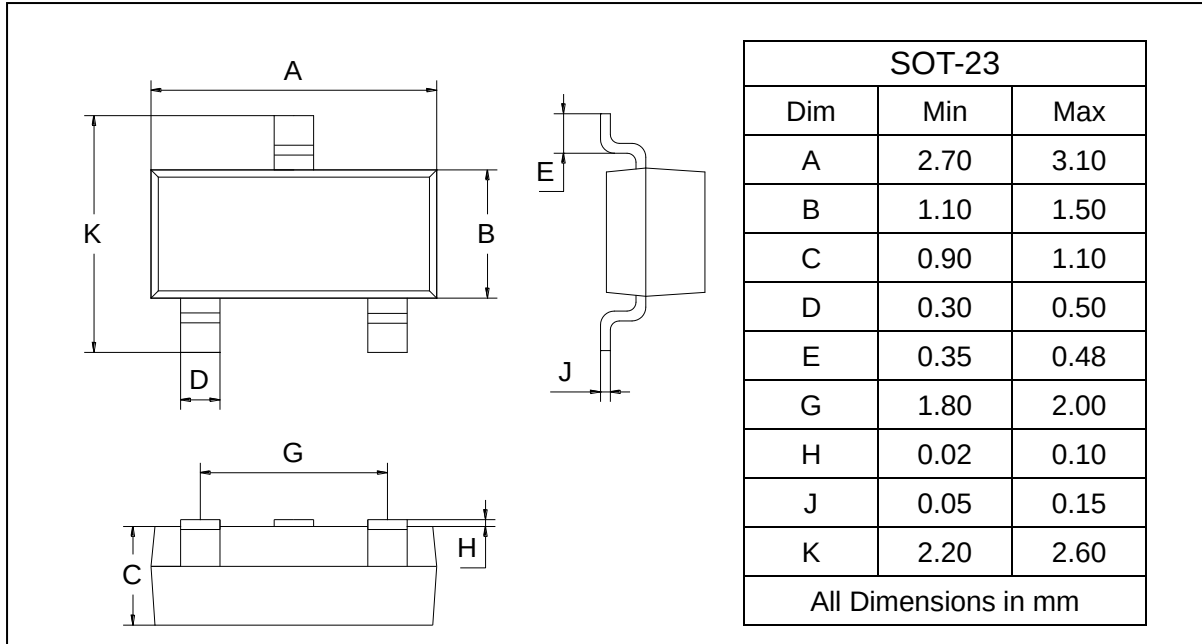
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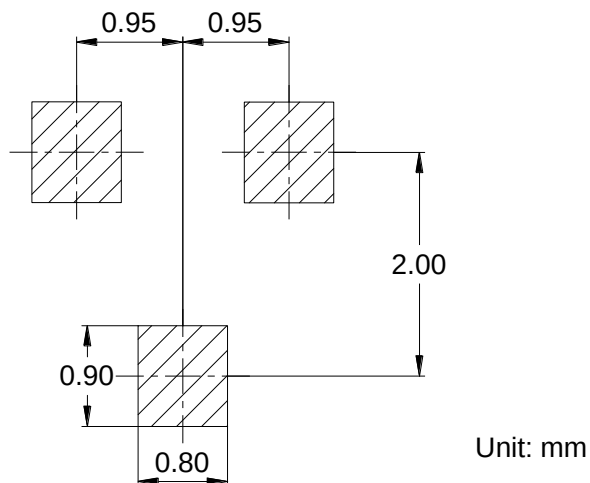
PACKAGE OUTLINE

Plastic surface mounted package

SOT-23



SOLDERING FOOTPRINT



PACKAGE INFORMATION

Device	Package	Shipping
TBL2303	SOT-23	3000pcs / Tape & Reel