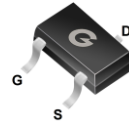
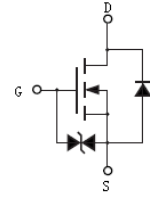


Features

- N-Channel switch with low $R_{DS(on)}$
- Operated at low logic level gate drive
- Halogen free
- Qualified to AEC-Q101 standards for high reliability

HF



SOT-323

Mechanical Data

- Case: SOT-323
- Molding Compound: UL Flammability Classification Rating 94V-0
- Terminals: Matte tin-plated leads; solderability-per MIL-STD-202, Method 208

Ordering Information

Part Number	Package	Shipping Quantity	Marking Code
TBL1014W	SOT-323	3000 pcs / Tape & Reel	KM

Maximum Ratings (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Drain-to-Source Voltage	V_{DS}	30	V
Gate-to-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	I_D	0.6	A
Pulsed Drain Current ^{*1}	I_{DM}	1.8	A

Thermal Characteristics

Parameter	Symbol	Value	Unit
Power Dissipation ^{*2}	P_D	0.2	W
Thermal Resistance Junction-to-Air ^{*1}	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating Junction Temperature Range	T_J	-55 ~ +150	$^\circ\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Electrical Characteristics (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
V _{DSS}	Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	30	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} = 30V, V _{GS} = 0V	-	-	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} = ±10V, V _{DS} = 0V	-	-	±3	μA
On Characteristics						
R _{DS(ON)}	Static Drain-Source On-resistance *3	V _{GS} = 4.5V, I _D = 0.6A	-	-	420	mΩ
		V _{GS} = 2.5V, I _D = 0.3A	-	-	540	mΩ
V _{GS(th)}	Gate Threshold Voltage *3	V _{DS} = V _{GS} , I _D = 250μA	0.5	-	1.5	V
g _{FS}	Forward Tranconductance	V _{DS} = 5V, I _D = 0.5A	0.1	-	-	S
Dynamic Characteristics *4						
C _{ISS}	Input Capacitance	V _{GS} = 0V V _{DS} = 10V f = 1.0MHz	-	44	-	pF
C _{OSS}	Output Capacitance		-	15	-	
C _{RSS}	Reverse Transfer Capacitance		-	8	-	
Q _G	Total Gate-Charge	V _{DS} = 15V V _{GS} = 4.5V I _D = 0.8A	-	1.2	-	nC
Q _{GS}	Gate to Source Charge		-	0.28	-	
Q _{GD}	Gate to Drain (Miller) Charge		-	0.3	-	
Switching Characteristics *4						
t _{d(ON)}	Turn-on Delay Time	V _{DS} = 15V V _{GS} = 4.5V R _G = 51Ω I _D = 0.7A	-	5	-	ns
t _r	Turn-on Rise Time		-	8.2	-	
t _{d(OFF)}	Turn-Off Delay Time		-	23	-	
t _f	Turn-Off Fall Time		-	41	-	
Source-Drain Diode Characteristics						
V _{SD}	Diode Forward Voltage *3	I _{SD} = 0.6A, V _{GS} = 0V	-	-	1.2	V

Notes:

1. Repetitive rating: Pulse width limited by maximum junction temperature
2. This test is performed with no heat sink at $T_A = 25^\circ\text{C}$
3. The data tested by pulsed, pulse width $\leq 300\mu s$, duty cycle $\leq 0.5\%$
4. These parameters have no way to verify

Ratings and Characteristic Curves (@ $T_A = 25^\circ\text{C}$ unless otherwise specified)

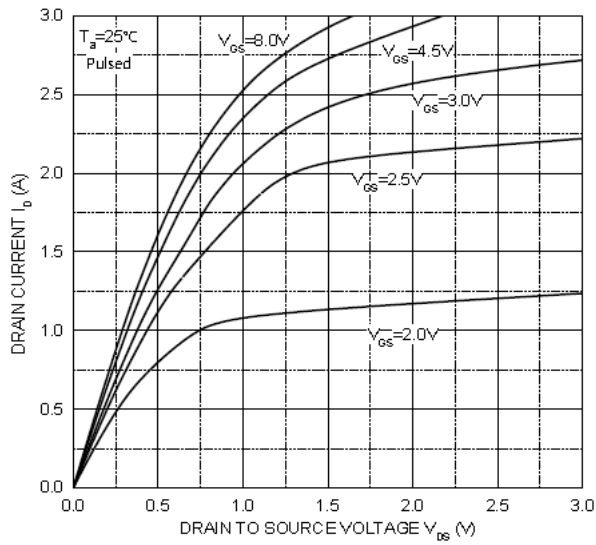


Fig 1 Output Characteristics

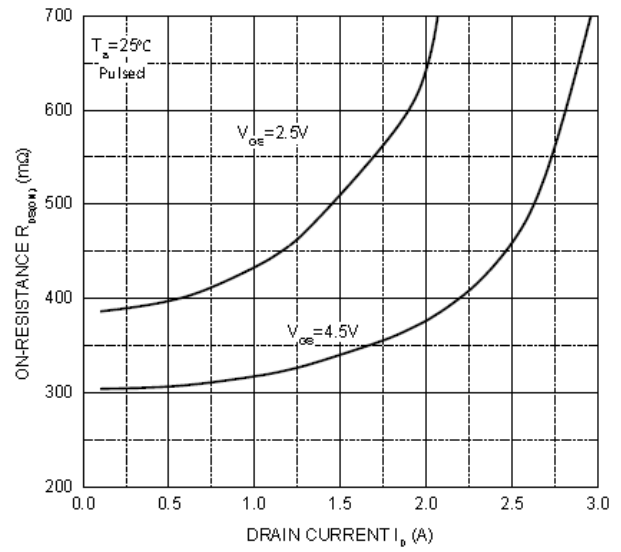


Fig 2 On-Resistance vs. Drain Current

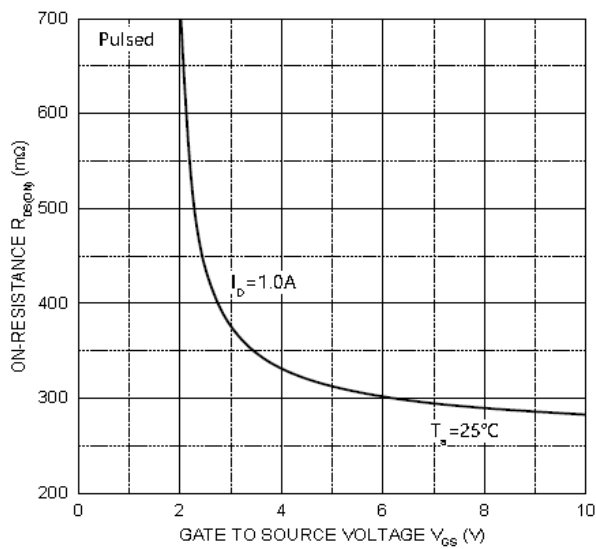


Fig 3 On-Resistance vs. Gate-Source Voltage

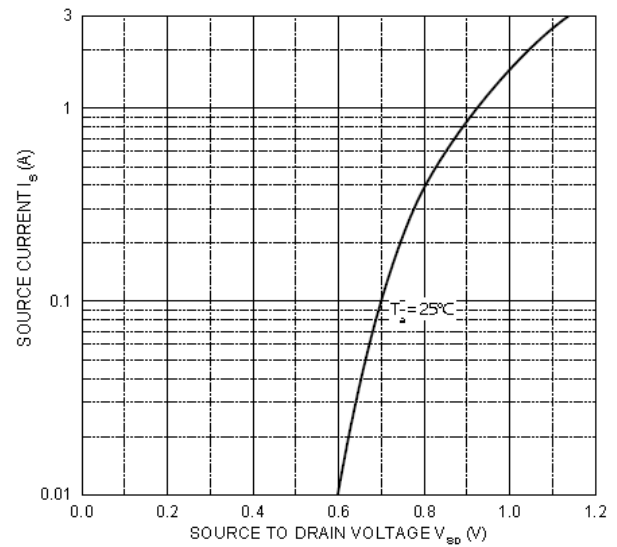


Fig 4 Body-Diode Characteristics

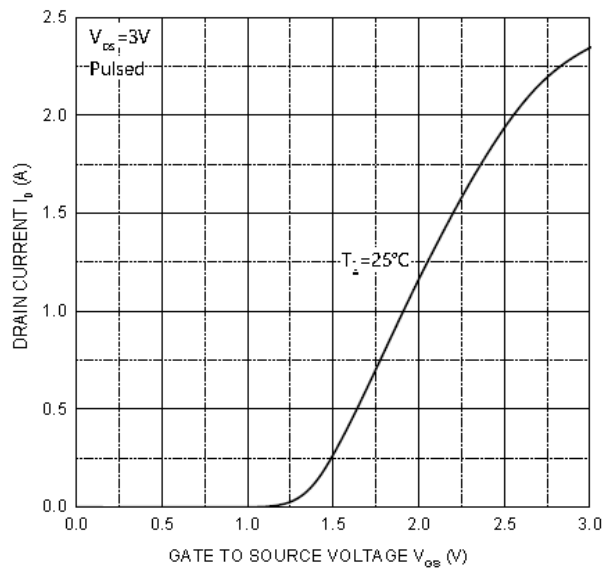


Fig 5 Transfer Characteristics

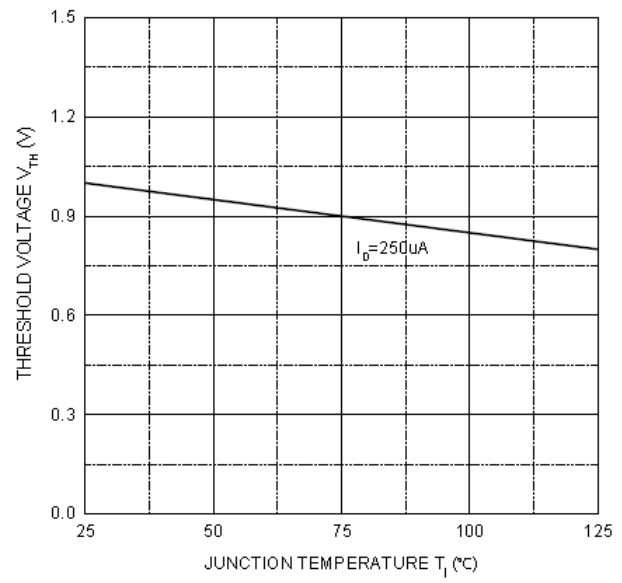
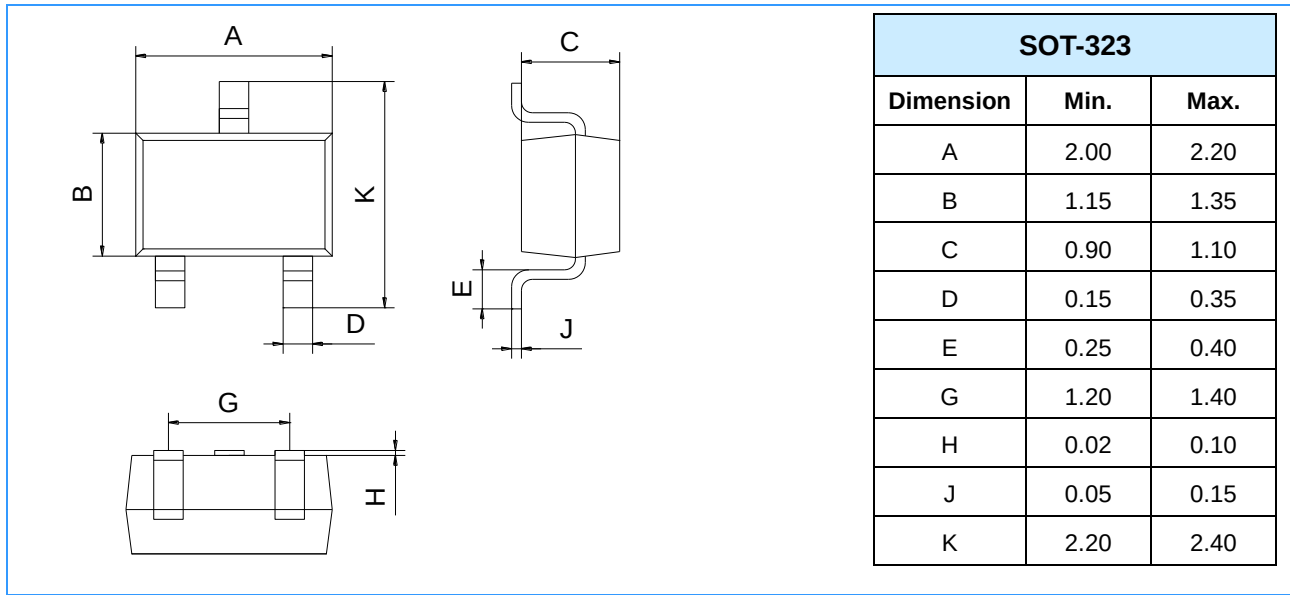
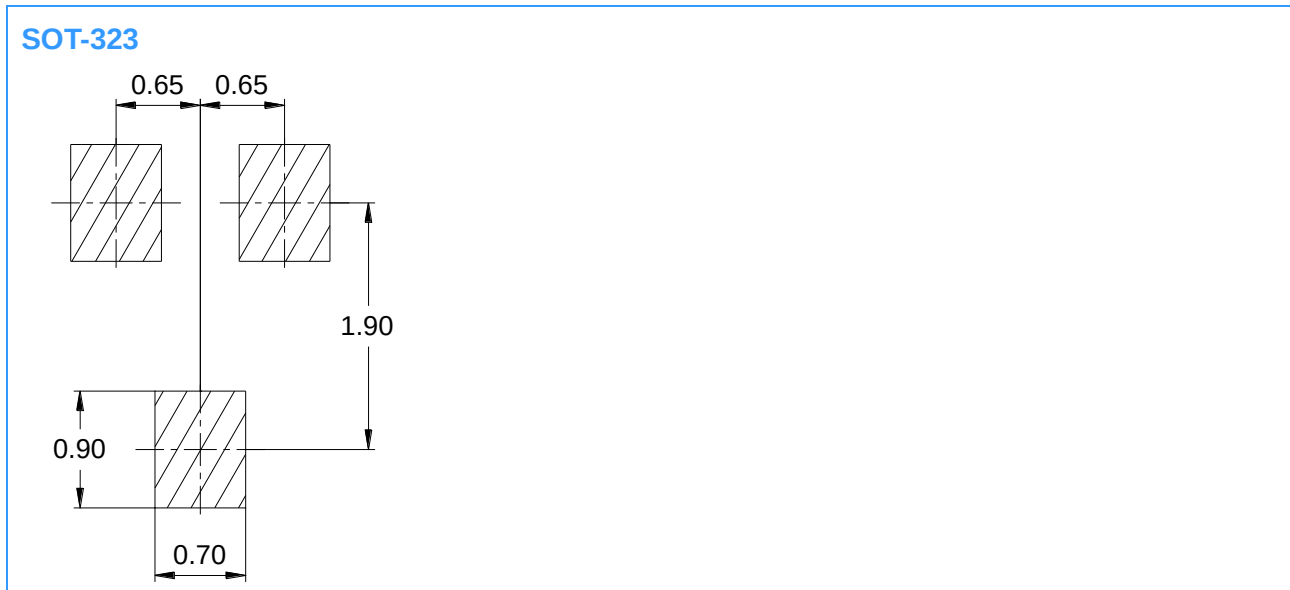


Fig 6 Gate Threshold Voltage vs.
Junction Temperature

Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



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