

PRIMARY CHARACTERISTICS

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	7.5Ω@10V	115mA
	7.5Ω@5V	

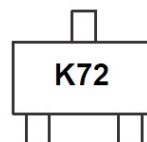
FEATURES

- Low On-resistance
- Low Gate Threshold Voltage
- Low Input capacitance
- RoHS Compliant
- Green EMC
- Matte Tin(Sn) Lead Finish

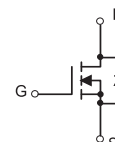
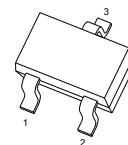
SOT-523

PACKAGE

MARKING



1. GATE
2. SOURCE
3. DRAIN



MECHANICAL DATA

- Case : Molded plastic, SOT-523
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

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

Symbol	Parameter	Value	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Continuous Gate-Source Voltage	±20V	V
I_D	Continuous Drain Current	115	mA
P_D	Power Dissipation	150	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	833	°C /W
T_{STG}	Storage Temperature Range	-55 to +150	°C
T_J	Operating Junction Temperature	+150	°C

These ratings are limiting values above which the serviceability of the device may be impaired.



Electrical Characteristics (T_A = 25°C unless otherwise noted)

Off Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =10uA	60			Volts
I _{GSS}	Gate-Body Leakage	V _{DS} =0V, V _{GS} =±20V			±1	uA
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V			100	nA

On Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
V _{th(GS)}	Gate-Threshold Voltage	V _{DS} = V _{GS} , I _D =250uA	1		2.5	Volts
I _{D(ON)}	On-state Drain Current	V _{GS} =10V, V _{DS} =7V	500			mA
R _{DS(on)}	Drain-Source On-Resistance	V _{GS} =10V, I _D =500mA			7.5	Ω
		V _{GS} =5V, I _D =50mA			7.5	Ω
g _{fs}	Forward Trans Conductance	V _{DS} =10V, I _D =200mA	80		500	ms
V _{DS(on)}	Drain-Source On-Voltage	V _{GS} =10V, I _D =500mA			3.75	V
		V _{GS} =5V, I _D =50mA			0.375	V
V _{SD}	Diode Forward Voltage	I _S =250mA, V _{GS} =0V			1	V

Dynamic Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
Ciss	Input Capacitance	V _{DS} = 25V, V _{GS} = 0V, f = 1.0MHz	--	--	50	pF
Coss	Output Capacitance		--	--	25	pF
Crss	Reverse Transfer Capacitance		--	--	5.0	pF

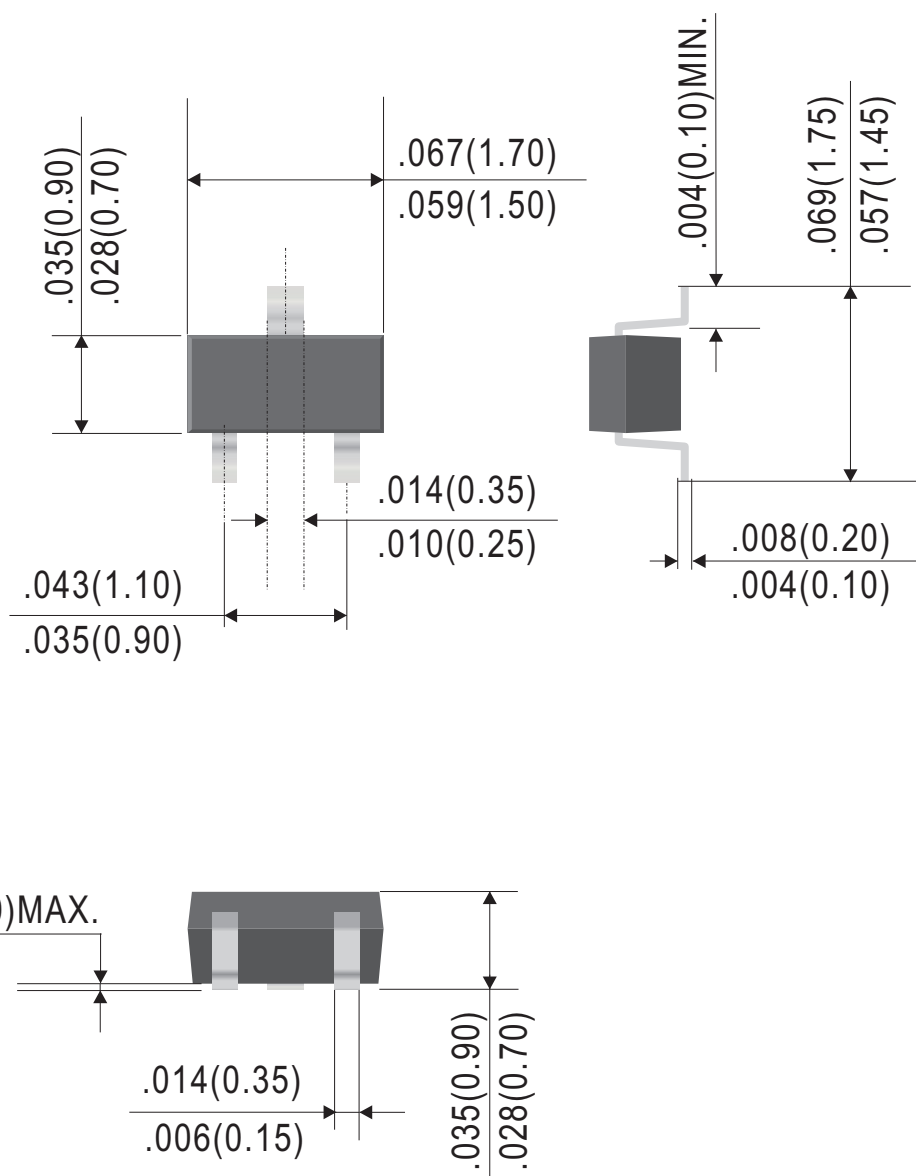
Switching Characteristics

Symbol	Parameter	Test Condition	Limits			Unit
			Min	Typ	Max	
t _{D(on)}	Turn-on Time	V _{DD} =10V, R _L =20Ω, I _D =500mA, V _{GEN} =10V, R _G = 10Ω	--	5.6	--	nS
t _{D(off)}	Turn-off Time		--	25	--	nS



Outline Drawing

SOT-523



Dimensions in inches and (millimeters)

Rev.D

Ordering Information:

Device PN	Packing
2N7002TA -T ⁽¹⁾ H ⁽²⁾ - WS ⁽³⁾	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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