

**2N7002ZW**

Preliminary

Power MOSFET**300m Amps, 60 Volts DUAL
N-CHANNEL ENHANCEMENT
MODE MOSFET**

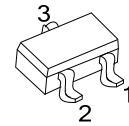
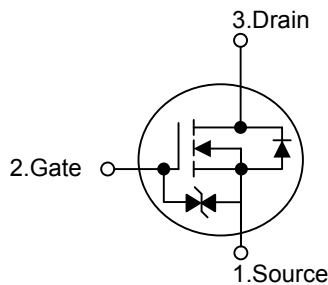
■ DESCRIPTION

The UTC **2N7002ZW** uses advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and low gate voltages during operation. This device is suitable for use as a load switch or in PWM applications.

■ FEATURES

- * Low Reverse Transfer Capacitance (C_{RSS} = typical 3.0 pF)
- * ESD Protected
- * Fast Switching Capability
- * Avalanche Energy Specified
- * Improved dv/dt Capability, High Ruggedness

■ SYMBOL



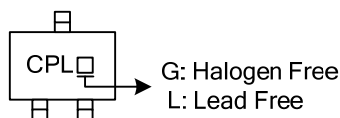
SOT-323

■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment			Packing
Lead Free	Halogen Free		1	2	3	
2N7002ZWL-AL3-R	2N7002ZWG-AL3-R	SOT-323	S	G	D	Tape Reel

2N7002ZWG-AL3-R	(1)Packing Type	(1) R: Tape Reel
	(2)Package Type	(2) AL3: SOT-323
	(3)Halogen Free	(3) G: Halogen Free, L: Lead Free

■ MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	Continuous Pulse(Note 2) I_D	300	mA
		800	
Power Dissipation	P_D	200	mW
Derating above $T_A=25^\circ\text{C}$		1.6	mW/ $^\circ\text{C}$
Junction Temperature	T_J	+150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^\circ\text{C}$

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged.
Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =10μA	60			V
Drain-Source Leakage Current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1.0	μA
Gate-Source Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} =±20V			±10	μA
ON CHARACTERISTICS						
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =10V, I _D =1mA	1.0	1.85	2.5	V
Static Drain-Source On-Resistance (Note)	R _{DS(ON)}	V _{GS} =10V, I _D =0.5A, T _J =125°C			13.5	Ω
		V _{GS} =5V, I _D =0.05A			7.5	
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		25	50	pF
Output Capacitance	C _{OSS}			10	25	pF
Reverse Transfer Capacitance	C _{RSS}			3.0	5.0	pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	I _D =0.2 A, V _{DD} =30V, V _{GS} =10V, R _L =150Ω, R _G =10Ω		12	20	ns
Turn-OFF Delay Time	t _{D(OFF)}			20	30	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =115mA (Note)		0.88	1.5	V
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				0.8	A
Maximum Continuous Drain-Source Diode Forward Current	I _S				115	mA

Note: 1. Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch. Minimum land pad size.

2. Pulse width $\leq 300\mu\text{s}$, Duty cycle $\leq 1\%$

■ TEST CIRCUITS AND WAVEFORMS

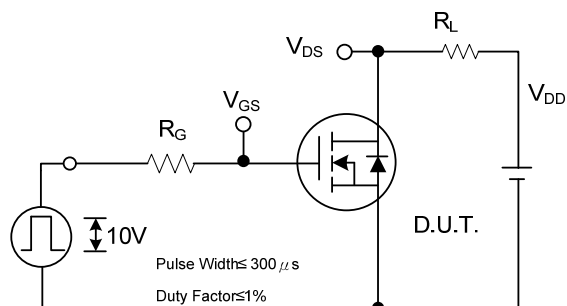


Fig. 2A Switching Test Circuit

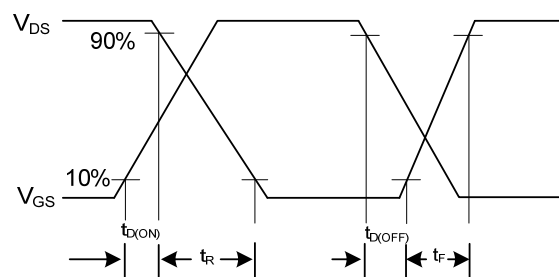


Fig. 2B Switching Waveforms

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