UTC UNISONIC TECHNOLOGIES CO., LTD

2N7002KW **Power MOSFET**

300mA, 60V N-CHANNEL **ENHANCEMENT MODE MOSFET**

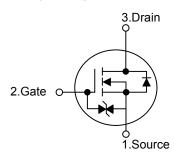
DESCRIPTION

The UTC 2N7002KW 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

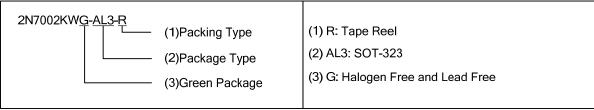
SYMBOL



ORDERING INFORMATION

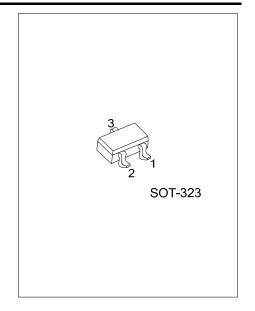
Ordering Number	Package	Pin Assignment			Dooking	
		1	2	3	Packing	
2N7002KWG-AL3-R	SOT-323	S	G	D	Tape Reel	

Note: Pin Assignment: G: Gate D: Drain S: Source



MARKING





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■ **ABSOLUTE MAXIMUM RATINGS** (T_A = 25°C, unless otherwise specified.)

PARAMETER		SYMBOL	RATINGS	UNIT	
Drain-Source Voltage		V_{DSS}	60	V	
Gate-Source Voltage		V_{GSS}	±20	٧	
Drain Current	Continuous	- I _D -	300	mA	
	Pulse(Note 2)		800		
Power Dissipation		Б	200	mW	
Derating above T _A =25°C		P _D	1.6	mW/°C	
Junction Temperature		TJ	+150	°C	
Storage Temperature		T _{STG}	-55 ~ +150	°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°C, unless otherwise specified.)

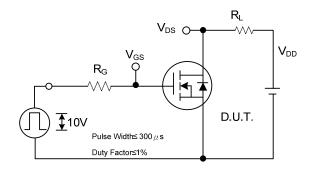
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT		
OFF CHARACTERISTICS								
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0V, I_D =10 μ A	60			V		
Drain-Source Leakage Current	I_{DSS}	V _{DS} =60V, V _{GS} =0V			1.0	μΑ		
Gate-Source Leakage Current	I_{GSS}	V_{DS} =0V, V_{GS} =±20V			±10	μΑ		
ON 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 =300m A			2	Ω		
		V_{GS} =4.5V, I_D =200mA			4			
DYNAMIC PARAMETERS								
Input Capacitance	C _{ISS}			25	50	pF		
Output Capacitance	Coss	V_{DS} =25V, V_{GS} =0V, f=1.0MHz		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,		12	20	ns		
Turn-OFF Delay Time	t _{D(OFF)}	R_L =150 Ω , R_G =10 Ω		20	30	ns		
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS								
Drain-Source Diode Forward Voltage	V_{SD}	V _{GS} =0V, Is=300mA (Note)		0.88	1.5	V		
Maximum Pulsed Drain-Source Diode	I _{SM}				0.8	Α		
Forward Current	ISM				0.0	Α		
Maximum Continuous Drain-Source Diode	Is				300	mA		
Forward Current	18				300	111/		

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

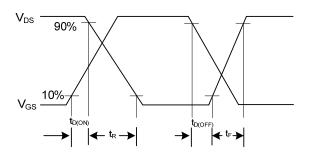
2. Pulse width ≤ 300 µs, Duty cycle ≤ 1%

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■ TEST CIRCUITS AND WAVEFORMS

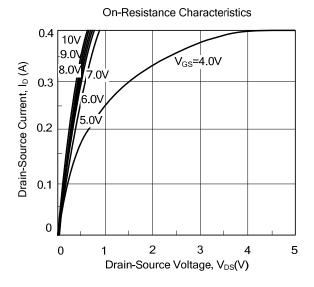


Switching Test Circuit



Switching Waveforms

■ TYPICAL CHARACTERISTICS



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