



2N7002ADW

Power MOSFET

N-CHANNEL SILICON MOSFET GENERAL-PURPOSE SWITCHING DEVICE APPLICATIONS

DESCRIPTION

The **2N7002ADW** uses UTC advanced technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with low gate voltages. This device's general purpose is for switching device applications.

FEATURES

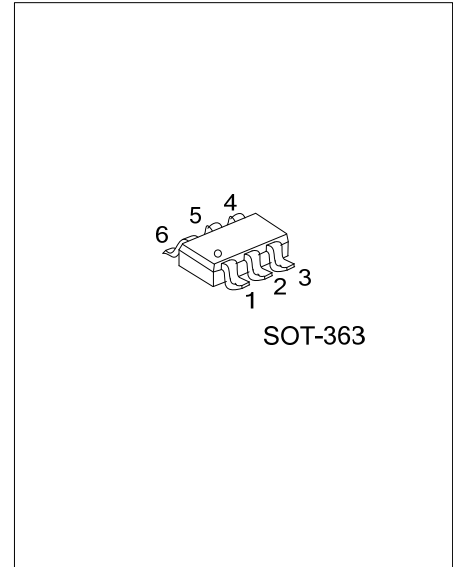
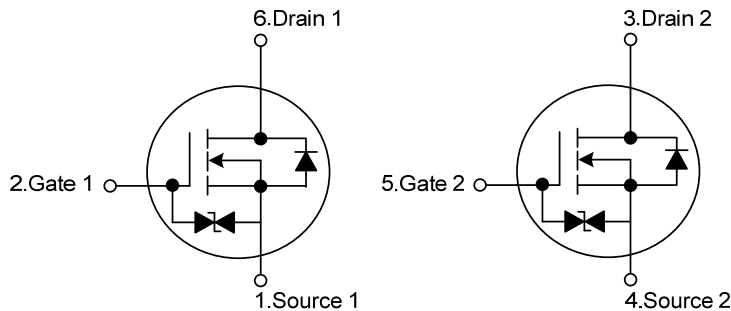
* $R_{DS(ON)} \leq 5.0 \Omega$ @ $V_{GS}=10V$, $I_D=300mA$

$R_{DS(ON)} \leq 8.0 \Omega$ @ $V_{GS}=4.5V$, $I_D=50mA$

* Fast switching capability

* Enhanced ESD capability

SYMBOL



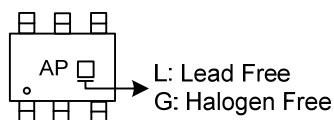
ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
2N7002ADWL-AL6-R	2N7002ADWG-AL6-R	SOT-363	S1	G1	D2	S2	G2	D1	Tape Reel

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

2N7002ADWG-AL6-R		(1)Packing Type	(1) R: Tape Reel
		(2)Package Type	(2) AL6: SOT-363
		(3)Green Package	(3) G: Halogen Free and Lead Free

MARKING



■ ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current	Continuous	300	mA
	Pulse(Note 2)	800	mA
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.

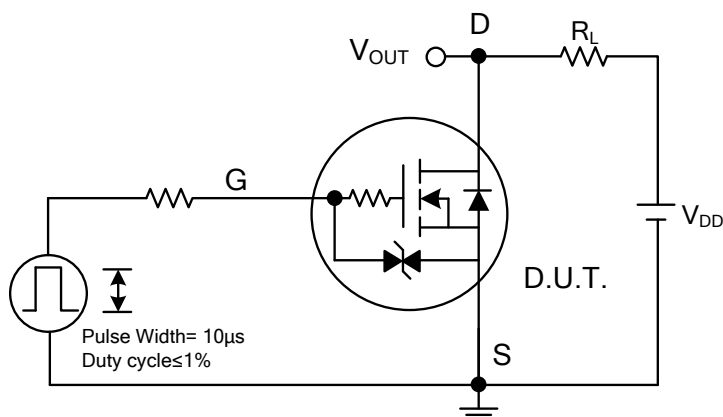
■ ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$, unless otherwise specified)

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} =V _{GS} , I _D =250μA	1.0		2.0	V
Static Drain-Source On-Resistance (Note)	R _{DS(ON)}	V _{GS} =10V, I _D =300mA			5.0	Ω
		V _{GS} =4.5V, I _D =50mA			8.0	Ω
DYNAMIC PARAMETERS						
Input Capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1.0MHz		15	50	pF
Output Capacitance	C _{OSS}			9	25	pF
Reverse Transfer Capacitance	C _{RSS}			4	5	pF
SWITCHING PARAMETERS						
Turn-ON Delay Time	t _{D(ON)}	I _D =0.2A, V _{DD} =30V, V _{GS} =10V, R _L =150Ω, R _G =10Ω		2.4	20	ns
Turn-OFF Delay Time	t _{D(OFF)}			5.6	30	ns
DRAIN-SOURCE DIODE CHARACTERISTICS AND MAXIMUM RATINGS						
Maximum Continuous Drain-Source Diode Forward Current	I _S				300	mA
Maximum Pulsed Drain-Source Diode Forward Current	I _{SM}				0.8	A
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =300mA (Note)		0.88	1.5	V

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

■ SWITCHING TIME TEST CIRCUIT



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