

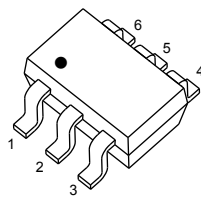
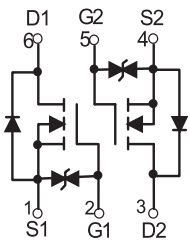
**APPLICATION**

Load Switch for Portable Devices  
DC/DC Converter

**FEATURE**

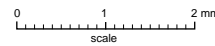
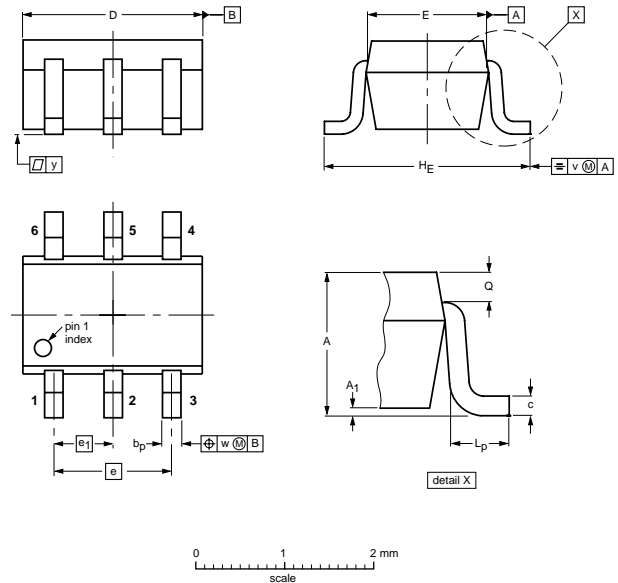
- High density cell design for Low  $R_{DS(on)}$
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

**MARKING 72K**



**SOT-363**

**SOT-363**



DIMENSIONS (mm are the original dimensions)

UNIT	A	A <sub>1</sub> max	b <sub>p</sub>	c	D	E	e	e <sub>1</sub>	H <sub>E</sub>	L <sub>p</sub>	Q	v	w	y
mm	1.1 0.8	0.1	0.30 0.20	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.25 0.15	0.2	0.2	0.1

**MOSFET MAXIMUM RATINGS (T<sub>a</sub> = 25°C unless otherwise noted)**

Symbol	Parameter	Value	Unit
V <sub>DS</sub>	Drain-Source voltage	60	V
V <sub>GS</sub>	Gate-Source voltage	±20	V
I <sub>D</sub>	Drain Current	300	mA
P <sub>D</sub>	Power Dissipation	0.15	W
T <sub>J</sub>	Junction Temperature	150	°C
T <sub>stg</sub>	Storage Temperature	-55-150	°C
R <sub>θJA</sub>	Thermal Resistance from Junction to Ambient	833	°C/W

# 2N7002KDW

$T_a=25\text{ }^\circ\text{C}$  unless otherwise specified

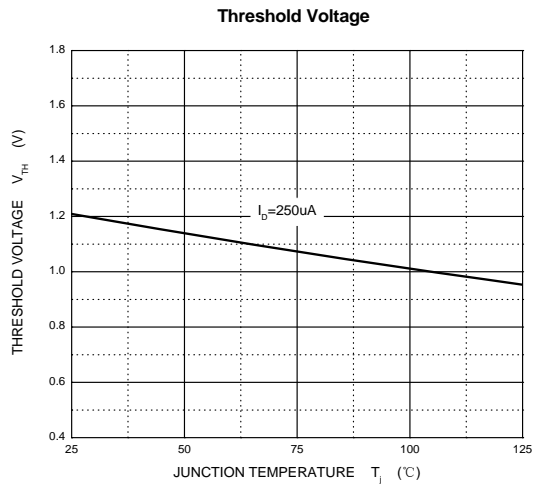
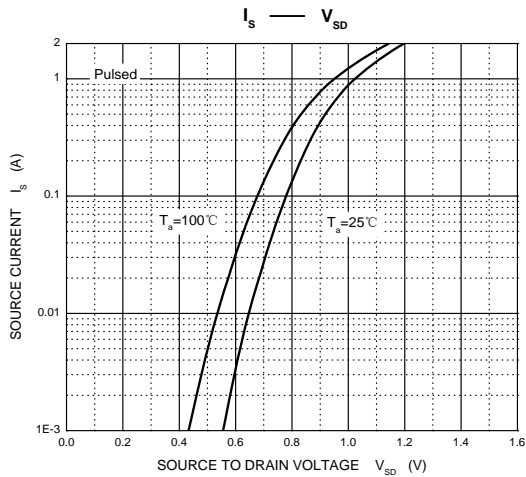
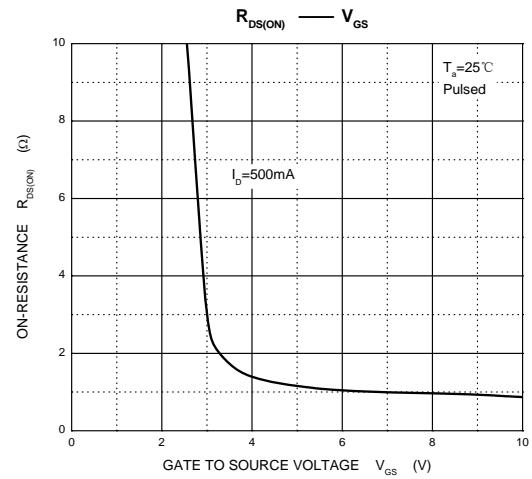
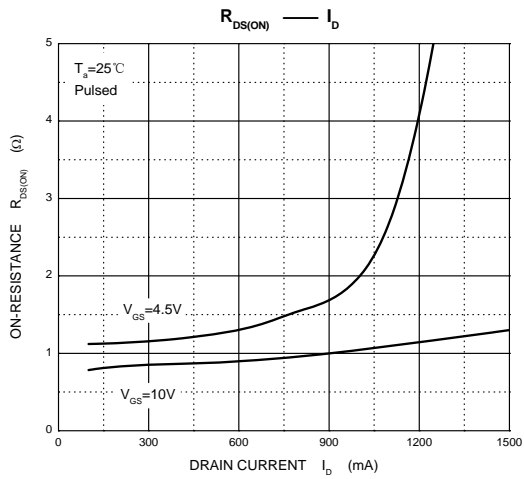
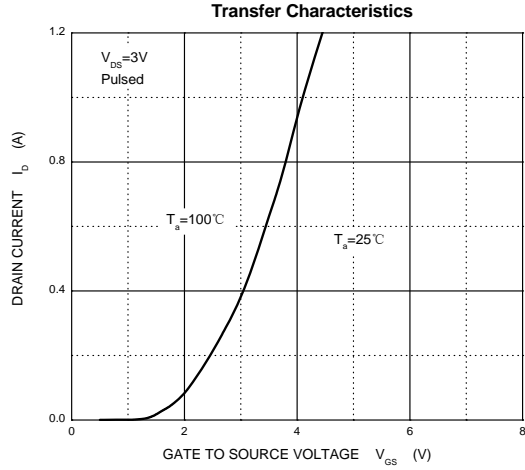
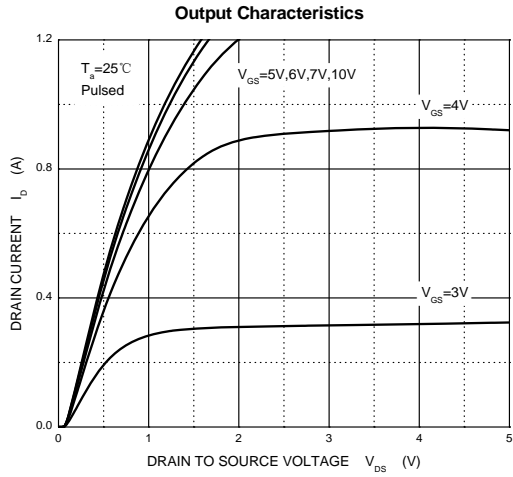
Parameter	Symbol	Test Condition	Min	Typ	Max	Units
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$V_{DS}$	$V_{GS} = 0V, I_D = 250\mu A$	60			V
Gate Threshold Voltage*	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1mA$	1	1.3	2.5	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 48V, V_{GS} = 0V$			1	$\mu A$
Gate –Source leakage current	$I_{GSS1}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 10$	$\mu A$
Drain-Source On-Resistance*	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 200mA$		1.1	5.3	$\Omega$
		$V_{GS} = 10V, I_D = 500mA$		0.9	5	$\Omega$
Diode Forward Voltage	$V_{SD}$	$V_{GS} = 0V, I_S = 300mA$			1.5	V
Recovered charge	$Q_r$	$V_{GS} = 0V, I_S = 300mA, V_R = 25V, di_S/dt = -100A/\mu s$		30		nC
<b>Dynamic Characteristics**</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$			40	pF
Output Capacitance	$C_{oss}$				30	pF
Reverse Transfer Capacitance	$C_{rss}$				10	pF
<b>Switching Characteristics**</b>						
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10V, V_{DD} = 50V, R_G = 50\Omega, R_{GS} = 50\Omega, R_L = 250\Omega$			10	ns
Turn-Off Delay Time	$t_{d(off)}$				15	ns
Reverse recovery Time	$t_{rr}$	$V_{GS} = 0V, I_S = 300mA, V_R = 25V, di_S/dt = -100A/\mu s$		30		ns
<b>GATE-SOURCE ZENER DIODE</b>						
Gate-Source Breakdown Voltage	$BV_{GSO}$	$I_{GS} = \pm 1mA$ (Open Drain)	$\pm 21.5$		$\pm 30$	V

**Notes :**

\*Pulse Test : Pulse Width  $\leq 300\mu s$ , Duty Cycle  $\leq 2\%$ .

\*\*These parameters have no way to verify.

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