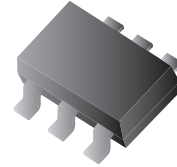


2N7002KDW-G

N-Channel

RoHS Device

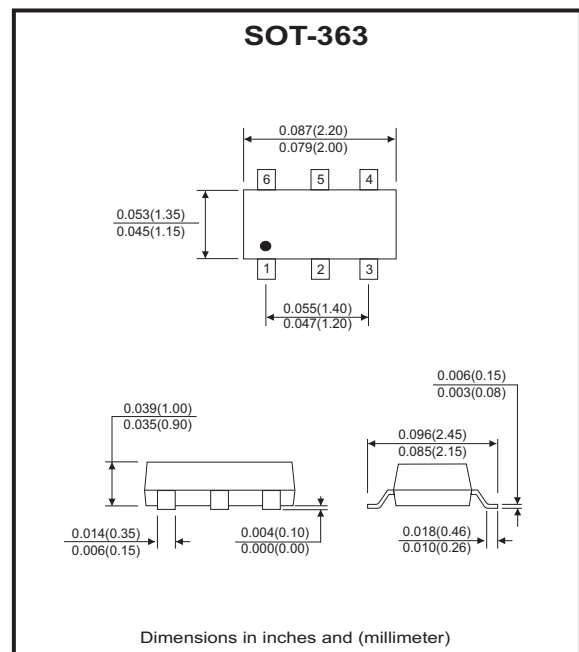
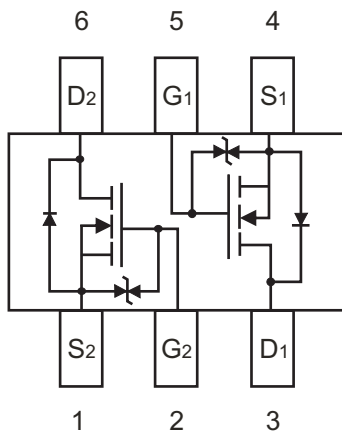
$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
60V	5Ω@10V	340mA
	5.3Ω@4.5V	



Features

- High density cell design for low $R_{DS(on)}$.
- Voltage control small signal switch.
- Rugged and reliable.
- High saturation current capability.
- ESD protected up to 2KV

Equivalent Circuit



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

Parameter	Symbol	Value	Unit
Drain-Source voltage	V_{DS}	60	V
Gate-Source voltage	V_{GS}	20	V
Drain current	I_D	340	mA
Power dissipation	P_D	0.15	W
Thermal resistance form junction to ambient	$R_{\theta JA}$	833	$^{\circ}\text{C/W}$
Junction temperature range	T_J	-40 to +150	$^{\circ}\text{C}$
Storage temperature range	T_{STG}	-55 to +150	$^{\circ}\text{C}$

Electrical Characteristics (at TA=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source breakdown voltage	$V_{GS} = 0V, I_D = 250\mu A$	V_{DS}	60			V
Gate-Threshold voltage*	$V_{DS} = V_{GS}, I_D = 1mA$	$V_{GS(th)}$	1		2.5	V
Zero gate voltage drain current	$V_{DS} = 48V, V_{GS} = 0V$	I_{DSS}			1	μA
Gate-Source leakage current	$V_{GS} = \pm 20V, V_{DS} = 0V$	I_{GSS1}			± 10	μA
Drain-Source on-resistance*	$V_{GS} = 4.5V, I_D = 200mA$	$R_{DS(ON)}$			5.3	Ω
	$V_{GS} = 10V, I_D = 500mA$				5	
Diode forward voltage	$V_{GS} = 0V, I_S = 300mA$	V_{SD}			1.5	V
Recovered charge	$V_{GS} = 0V, I_S = 300mA, V_R = 25V$ $dI_S/dt = -100A/\mu s$	Q_r		30		nC
Dynamic Characteristics**						
Input capacitance	$V_{DS} = 10V, V_{GS} = 0V, f = 1MHz$	C_{iss}			40	pF
Output capacitance		C_{oss}			30	pF
Reverse transfer capacitance		C_{rss}			10	pF
Switching Characteristics**						
Turn-on delay time	$V_{GS} = 10V, V_{DD} = 50V, R_G=50\Omega,$ $R_{GS} = 50\Omega, R_L = 250\Omega$	$t_{d(on)}$			10	ns
Turn-off delay time		$t_{d(off)}$			15	ns
Reverse recovery time	$V_{GS} = 0V, I_S = 300mA, V_R = 25V$ $dI_S/dt = -100A/\mu s$	t_{rr}		30		ns
Gate-Source Zener Diode						
Gate-Source breakdown voltage	$I_{gs} = \pm 1mA$ (Open Drain)	BV_{GSO}	± 21.5		± 30	V

Note:

* Pulse test; pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

** These parameters have no way to verify.

RATING AND CHARACTERISTIC CURVES (2N7002KDW-G)

Fig.1 - Output Characteristics

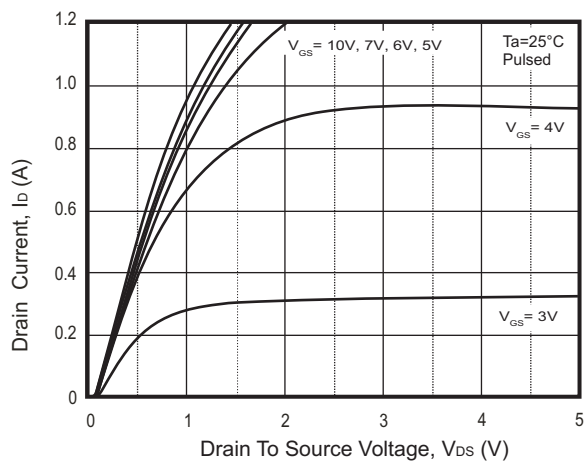


Fig.2 - Transfer Characteristics

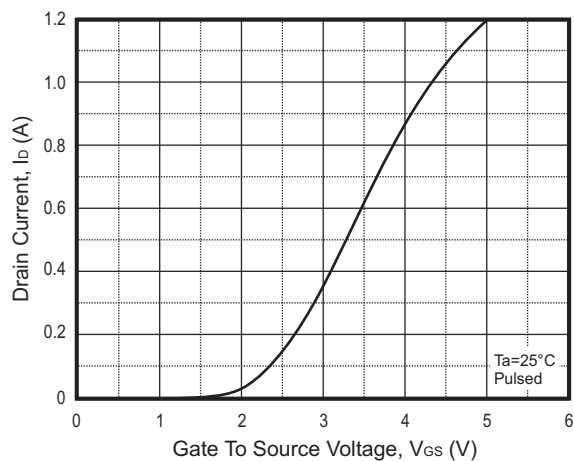


Fig.3 - On-Resistance VS. Drain Current

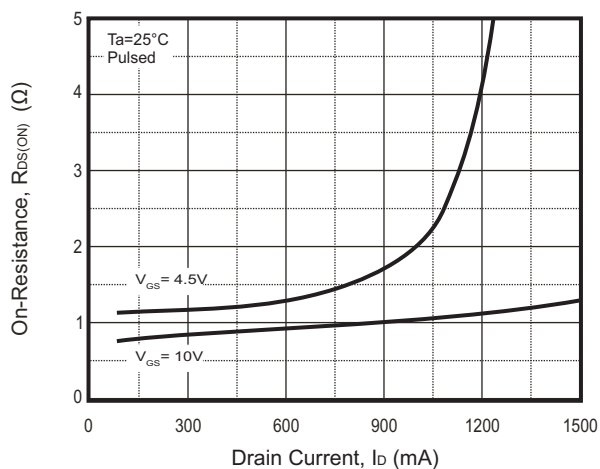


Fig.4 - On-Resistance VS. Gate-Source Voltage

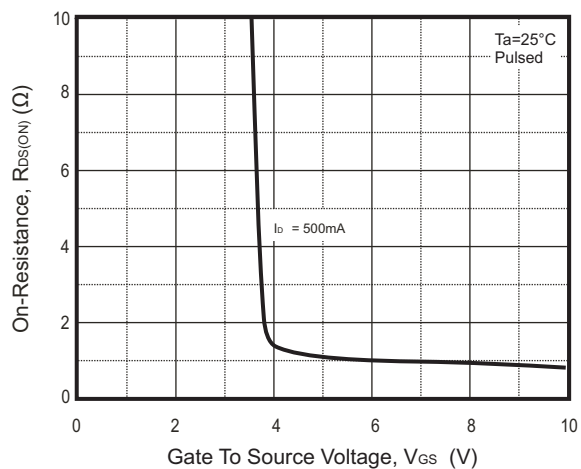
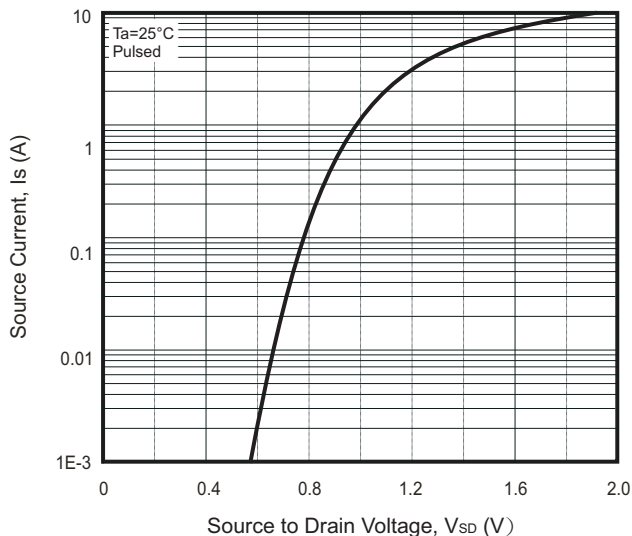
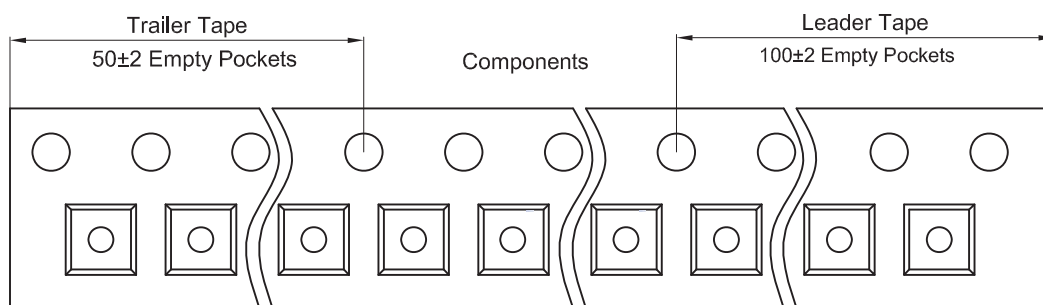
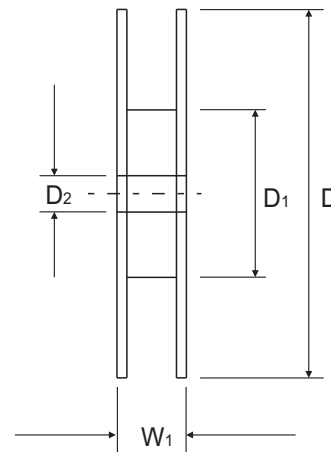
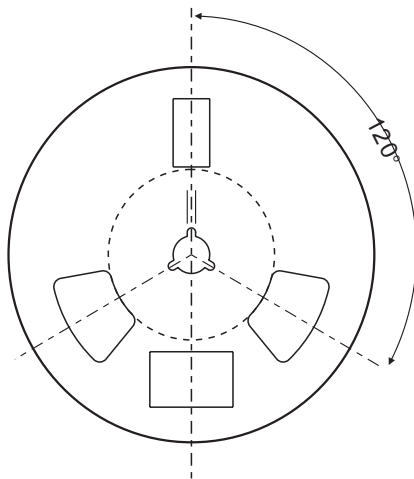
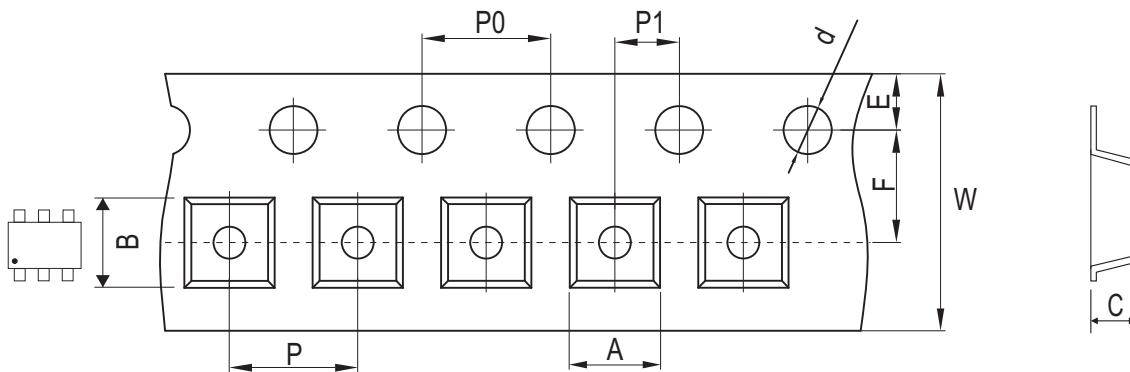


Fig.5 - I_S — V_{SD}



Reel Taping Specification

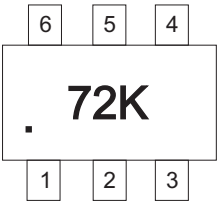


SOT-363	SYMBOL	A	B	C	d	D	D1	D2
	(mm)	2.25 ± 0.05	2.55 ± 0.05	1.20 ± 0.05	1.50 ± 0.10	178.00 ± 2.00	54.40 ± 1.00	13.00 ± 1.00
	(inch)	0.089 ± 0.002	0.100 ± 0.002	0.047 ± 0.002	0.059 ± 0.004	7.008 ± 0.079	2.142 ± 0.039	0.512 ± 0.039

SOT-363	SYMBOL	E	F	P	P0	P1	W	W1
	(mm)	1.75 ± 0.10	3.50 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.10	8.00 + 0.30 / - 0.10	12.30 ± 1.00
	(inch)	0.069 ± 0.004	0.138 ± 0.004	0.157 ± 0.004	0.157 ± 0.004	0.079 ± 0.004	0.315 + 0.012 / - 0.004	0.484 ± 0.039

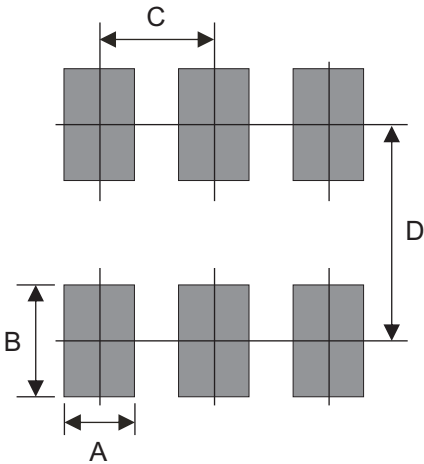
Marking Code

Part Number	Marking Code
2N7002KDW-G	. 72K



Suggested PAD Layout

SIZE	SOT-363	
	(mm)	(inch)
A	0.40	0.016
B	0.80	0.031
C	0.65	0.026
D	1.94	0.076



Standard Packaging

Case Type	REEL PACK	
	REEL (pcs)	Reel Size (inch)
SOT-363	3,000	7