

2N7002KDW

Dual N-Channel MOSFET
SOT-363 Plastic-Encapsulate MOSFETS

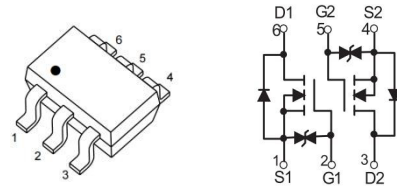
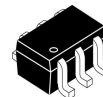
MOSFET Product Summary

V_{DS}	I_D	$R_{DS(on)}$
60V	0.2A	$<3.0\Omega@10V$
		$<4.0\Omega@4.5V$

Features and benefits

- Lead Free Product is Acquired
- Surface Mount Package
- N-Channel Switch with Low $R_{DS(on)}$
- Operated at Low Logic Level Gate Drive
- **Applications**
 - Load/Power Switching
 - Interfacing Switching
 - Battery Management for Ultra Small Portable Electronics
 - Logic Level Shift

Schematic & Pin configuration



Ordering information

Device	Package	Marking	Shipping	Reel Size
2N7002KDW	SOT-363	72K	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current <small>(note1)</small>	I_D	0.20	A
Power Dissipation <small>(note1)</small>	P_D	0.35	W
Thermal Resistance from Junction to Ambient <small>(note1)</small>	$R_{\theta JA}$	460	$^\circ\text{C/W}$
Junction temperature	T_j	125	$^\circ\text{C}$
Storage temperature	T_{stg}	-50 to +150	$^\circ\text{C}$
Lead Temperature for Soldering Purposes <small>(1/8" from case for 10 s)</small>	T_L	260	$^\circ\text{C}$

2N7002KDW

SOT-363 Plastic-Encapsulate MOSFETS

Electrical Characteristics (T_A = 25 °C, unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
STATIC CHARACTERISTICE						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60	--	--	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =48V,V _{GS} = 0V	--	--	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V	--	--	±10	μA
Gate threshold voltage <small>(note2)</small>	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	2.5	V
Drain-source on-resistance <small>(note2)</small>	R _{DS(on)}	V _{GS} =10V, I _D =0.2A	--	--	3.0	Ω
		V _{GS} =4.5V, I _D =0.2A	--	--	4.0	Ω
Diode forward voltage	V _{SD}	I _S =0.2A, V _{GS} =0V	--	--	1.1	V
DYNAMIC CHARACTERISTICS <small>(note4)</small>						
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
SWITCHING CHARACTERISTICS <small>(note4)</small>						
Turn-on delay time <small>(note3)</small>	t _{d(on)}	V _{GS} =10V,V _{DS} =30V, I _D =0.2A	--	--	10	nS
Turn-on rise time <small>(note3)</small>	t _r		--	--	20	nS
Turn-off delay time <small>(note3)</small>	t _{d(off)}		--	--	15	nS
Turn-off fall time <small>(note3)</small>	t _f		--	--	-10	nS

Notes:

1. Surface mounted on FR4 board using the minimum recommended pad size.
2. Pulse Test : Pulse Width=300μs, Duty Cycle=2%.
3. Switching characteristics are independent of operating junction temperatures.
4. Guaranteed by design, not subject to producing.

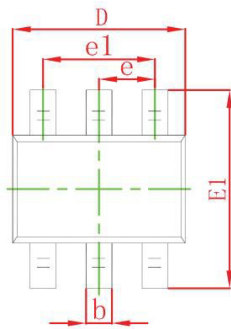
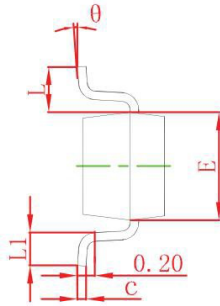
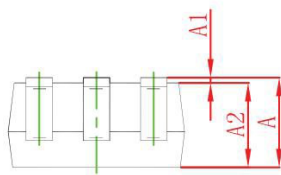
2N7002KDW

SOT-363 Plastic-Encapsulate MOSFETS

Dual N-Channel MOSFET

Package Outline Dimensions

SOT-363



Symbol	Dimensions (mm)	
	Min	Max
A	0.90	1.10
A1	0.00	0.10
A2	0.90	1.00
b	0.15	0.35
c	0.08	0.15
D	2.00	2.20
E	1.15	1.35
E1	2.15	2.41
e	0.650TYP	
e1	1.20	1.40
L	0.26	0.46
L1	0.525REF	
o	0°	8°