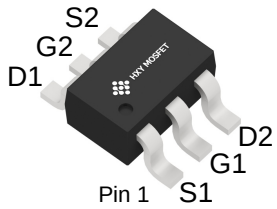
2N7002DWS-7

Dual N-Channel Enhancement Mode MOSFET

Description

The 2N7002DWS-7 uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 4.5V. This device is suitable for use as a Battery protection or in other Switching application.

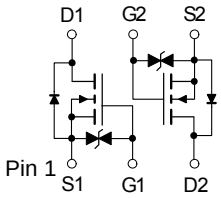


SOT-363
(SC-70-6)

General Features

V_{DS} = 60V I_D =0.115 A

$R_{DS(ON)}$ < 3Ω@ V_{GS}=10V



Dual N-Channel MOSFET

Application

Wireless charging

Boost driver

Brushless motor

Ordering Information

Product ID	Pack	Marking	Qty(PCS)
2N7002DWS-7	SOT-363(SC-70-6)	72K	3000

Absolute Maximum Ratings (T_C=25℃unless otherwise noted)

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D	CDrain Current-Continuous	0.115	A
P_D	Maximum Power Dissipation	0.15	W
T_J,T_{STG}	Operating Junction and Storage Temperature Range	-55 To 150	℃
$R_{\theta JA}$	Thermal Resistance,Junction-to-Ambient (Note 2)	833	℃/W

Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS}=0 V, I_D=250 μA	60			V
Gate-threshold voltage *	$V_{th(GS)}$	V_{DS}=V_{GS}, I_D=250 μA	1	1.6	2.5	
Gate-body leakage	I_{GSS}	V_{DS}=0 V, V_{GS}=±20 V			±80	nA
Zero gate voltage drain current	I_{DSS}	V_{DS}=60 V, V_{GS}=0 V			80	nA
Drain-source on-resistance *	$R_{DS(on)}$	V_{GS}=10 V, I_D=115mA		1.3	3	Ω
		V_{GS}=4.5V, I_D=50mA		2	5	
Forward transconductance *	g_{fs}	V_{DS}=10 V, I_D=200mA	80			ms
Drain-source on-voltage *	$V_{DS(on)}$	V_{GS}=10V, I_D=500mA			3.75	V
		V_{GS}=5V, I_D=50mA			0.375	V
Diode forward voltage	V_{SD}	I_S=115mA, V_{GS}=0 V	0.55		1.2	V
Input capacitance **	C_{iss}	V_{DS}=25V, V_{GS}=0V, f=1MHz			50	pF
Output capacitance **	C_{oss}				25	
Reverse transfer capacitance **	C_{rss}				5	
Gate-Source Breakdown Voltage	V_{GSO}	IGS=±1mA(Open Drain)	±21.5		±30	V

Swithing Time

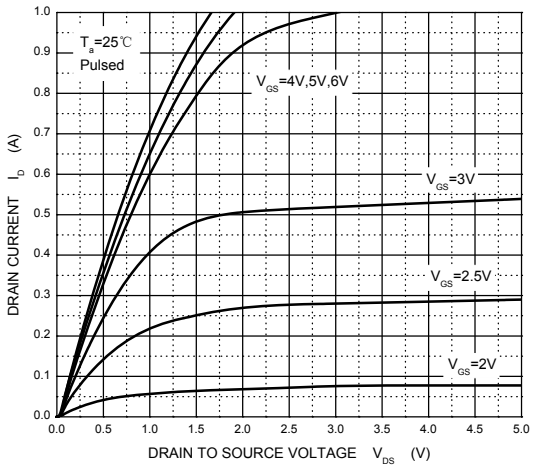
Turn-on time **	$t_{d(on)}$	V_{DD}=25 V, R_L=50Ω			20	ns
Turn-off time **	$t_{d(off)}$	I_D=500mA,V_{GEN}=10V,$_G$=25 Ω			40	

* Pulse Test: Pulse width ≤300μs,duty cycle≤2%.

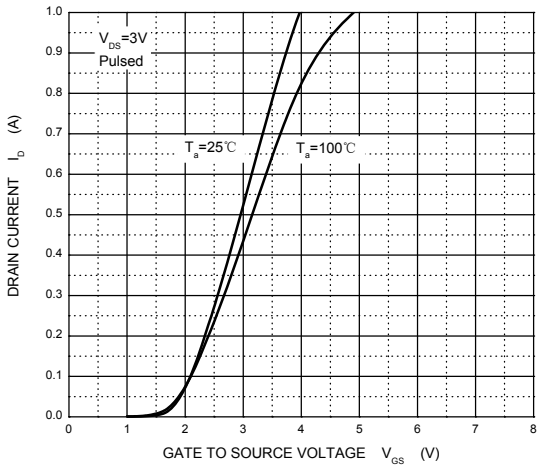
** These parameters have no way to verify.

Typical Characteristics

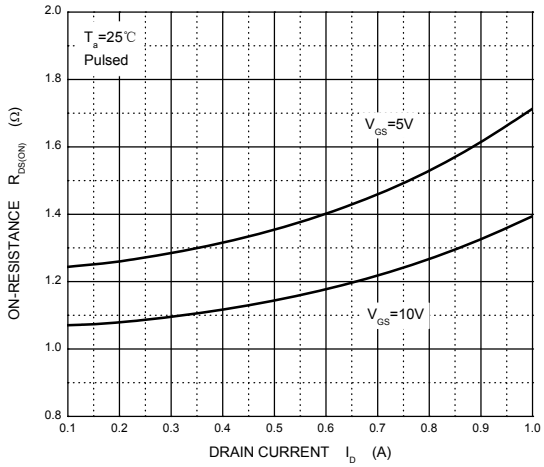
Output Characteristics



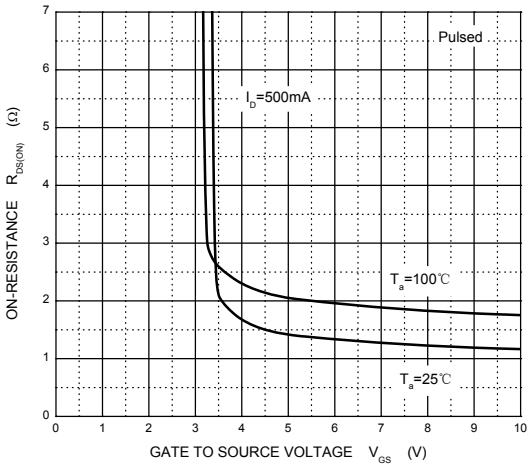
Transfer Characteristics



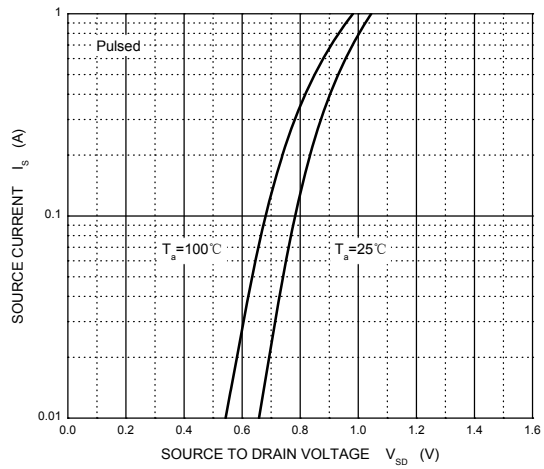
$R_{DS(ON)}$ — I_D



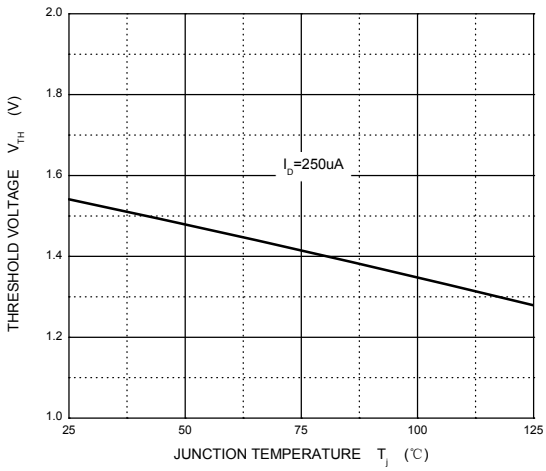
$R_{DS(ON)}$ — V_{GS}



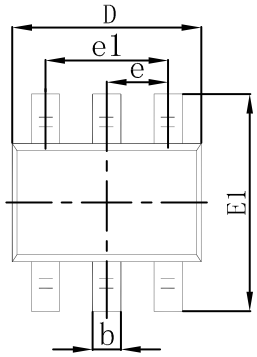
I_S — V_{SD}

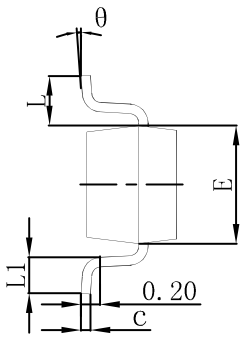


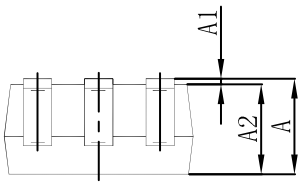
Threshold Voltage



SOT-363(SC-70-6) Package Outline Dimensions

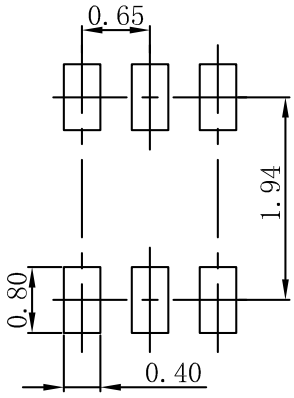






Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.400	0.085	0.094
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

SOT-363 (SC-70-6) Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

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