

Kingtronics®

2N7002DW

Dual N-Channel Enhancement Mode Field Effect Transistor

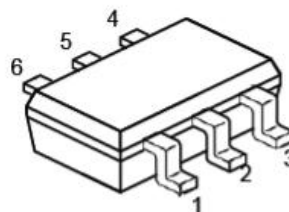
FEATURES

Low on-resistance: $V_{DS}=60V, I_D=115mA, R_{DS(ON)} \leq 5 \Omega @ V_{GS}=10V$
 High density cell design for low $R_{DS(ON)}$
 Voltage controlled small signal switch
 High saturation current capability
 Rugged and reliable

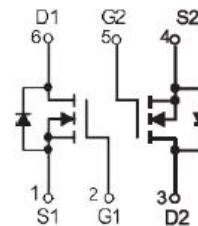
MECHANICAL DATA

Case: SOT-363
 Case Material: Molded Plastic. UL flammability
 Classification Rating: 94V-0
 Moisture Sensitivity: Level 1 per J-STD-020
 Weight: 0.3 grams (approximate)

SOT-363



MOSFET1: 1,2,6
 MOSFET2: 3,4,5



MAXIMUM RATINGS ($T_A = 25^\circ \text{C}$ 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	115	mA
Power Dissipation	P_D	150	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	833	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 ~ +150	$^\circ\text{C}$

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

PARAMETER	SYMBOL	MIN.	TYP	MAX.	UNIT	CONDITION
Drain-source breakdown voltage	$V_{(BR)DSS}$	60			V	$V_{GS}=0 \text{ V}, I_D=250 \mu\text{A}$
Gate-threshold voltage *	$V_{th(GS)}$	1	1.6	2.5	V	$V_{DS}=V_{GS}, I_D=250 \mu\text{A}$
Gate-body leakage	I_{GSS}			± 80	nA	$V_{DS}=0 \text{ V}, V_{GS}=\pm 20 \text{ V}$
Zero gate voltage drain current	I_{DSS}			80	nA	$V_{DS}=60 \text{ V}, V_{GS}=0 \text{ V}$
Drain-source on-resistance *	$R_{DS(on)}$		1.1 1.2	5 7	Ω	$V_{GS}=10 \text{ V}, I_D=500\text{mA}$ $V_{GS}=5 \text{ V}, I_D=50\text{mA}$
Forward transconductance *	g_{fs}	80			ms	$V_{DS}=10 \text{ V}, I_D=200\text{mA}$
Drain-source on-voltage *	$V_{DS(on)}$			3.75 0.375	V	$V_{GS}=10\text{V}, I_D=500\text{mA}$ $V_{GS}=5\text{V}, I_D=50\text{mA}$
Diode forward voltage	V_{SD}	0.55		1.2	V	$I_S=115\text{mA}, V_{GS}=0 \text{ V}$
Input capacitance **	C_{iss}			50	pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Output capacitance **	C_{oss}			25	pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$
Reverse transfer capacitance **	C_{rss}			5	pF	$V_{DS}=25\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$

SWITCHING TIME

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

* Pulse Test: Pulse width $\leq 300\mu\text{s}$, duty cycle $\leq 2\%$.

** These parameters have no way to verify.

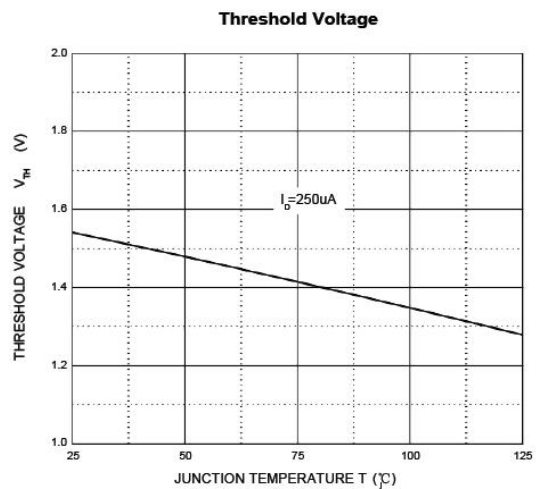
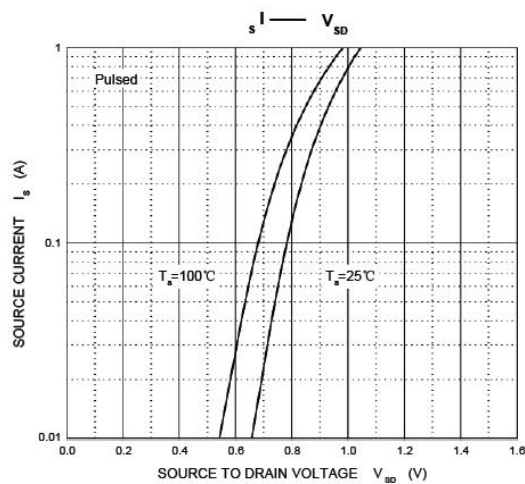
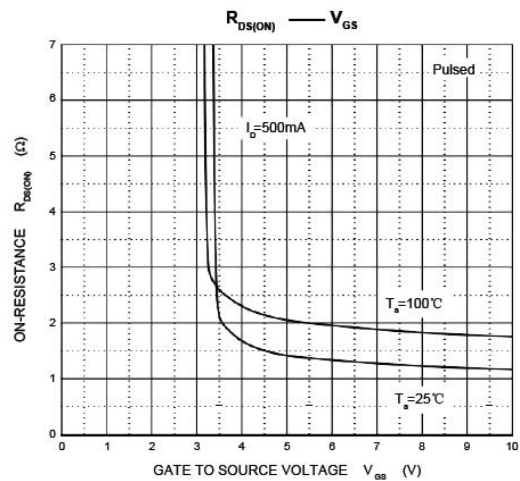
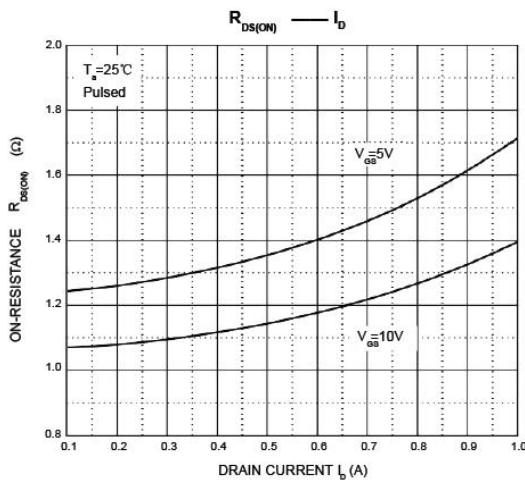
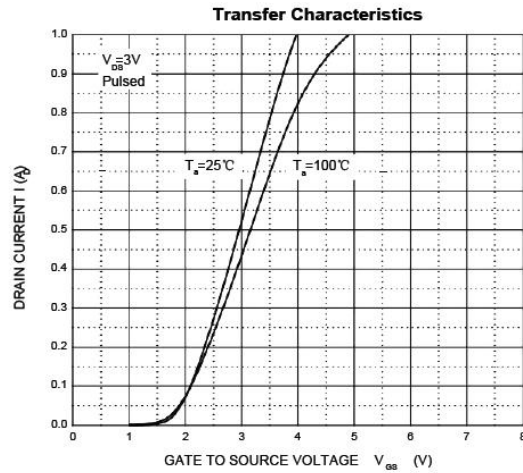
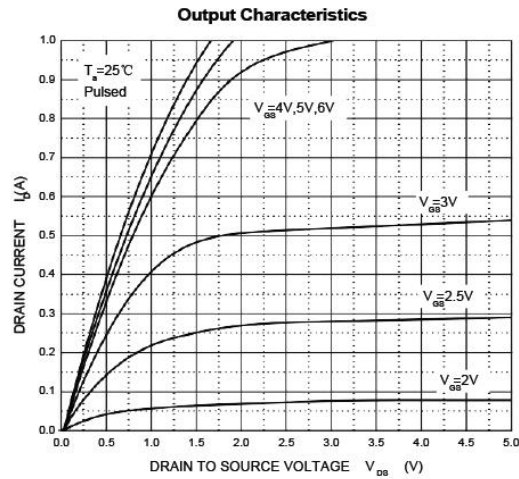
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Typical Characteristics



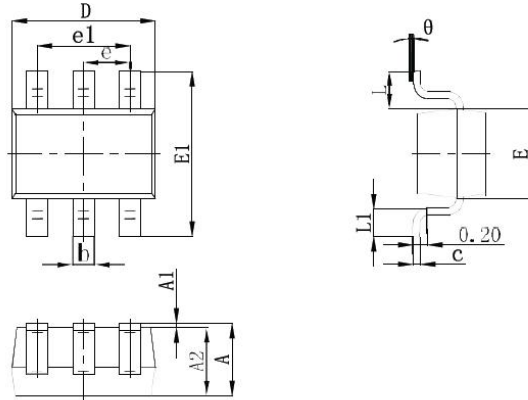
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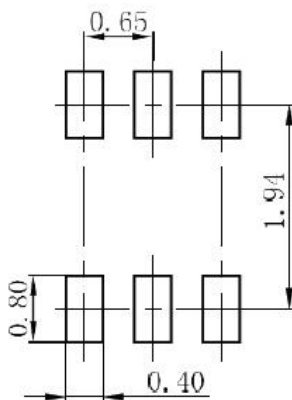
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SOT-363 Package Outline Dimensions



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
theta	0°	8°	0°	8°

SOT-363 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

Note: Specifications are subject to change without notice.

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