

Dual N-Channel MOSFET

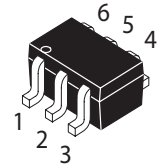
 Lead(Pb)-Free

Features:

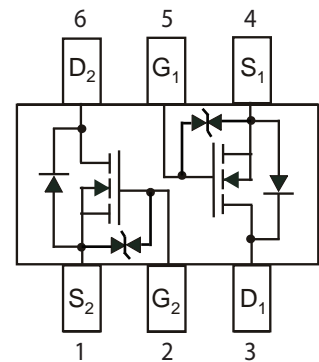
- * Low On-Resistance
- * Fast Switching Speed
- * Low-voltage drive
- * Easily designed drive circuits
- * ESD Protected:2000V

Mechanical Data:

- *Case: SOT-363, Molded Plastic
- *Case Material-UL Flammability Rating 94V-0
- *Terminals: Solderable per MIL-STD-202, Method 208
- *Weight: 0.006 grams(approx.)



SOT-363(SC-88)



Maximum Ratings (TA=25°C Unless Otherwise Specified)

Rating	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Drain Current	Continuous	I_D	115
	Pulsed	I_{DP}^{*1}	800
Reverse Drain Current	Continuous	I_D	115
	Pulsed	I_{DRP}^{*1}	800
Power Dissipation (TA=25°C)	P_D	225	mW
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	°C

Device Marking

2N7002KDW=RK

Note

- *1 $P_w \leq 10 \mu s$, Duty cycle $\leq 1\%$
- *2 When mounted on a 1*0.75*0.062 inch glass epoxy board

Electrical Characteristics @ TA=25 unless otherwise specified, per element

Characteristic	Symbol	Min	Typ	MAX	Unit
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OFF CHARACTERISTICS

Drain-Source Breakdown Voltage	VGS=0V, ID=10μA	V(BR)DSS	60	-	-	V
Zero Gate Voltage Drain Current	VDS=60V, VGS=0V	IDSS		-	1:0	μA
Gate-source Leakage	VGS=±20V, VDS=0V	IGSS		-	±10	μA

ON CHARACTERISTICS

Gate Threshold Voltage	VDS= VGS, ID = 250μA	VGS(th)	1.0	1.85	2.5	V
Static Drain-Source On-Resistance	VGS=10V, ID =0.5A	RDS(ON)	-	-	7.5	Ω
	VGS=5V, ID=0.05A		-	-	7.5	
Forward transfer admittance	VDS=10V, ID=0.2A	gfs *	80	-	-	mS

DYNAMIC CHARACTERISTICS

Input Capacitance	VDS=25V	CiSS	-	25	50	pF
Output Capacitance	VGS=0V	COSS	-	10	25	pF
Reverse Transfer Capacitance	f=1.0MHz	CrSS	-	3.0	5.0	pF

SWITCHING CHARACTERISTICS

Turn-On Delay Time	ID=0.2A, VDD=30V,	TD(ON) *	-	12	20	nS
Turn-Off Delay Time	VGS=10V, RL=150Ω, RG=10Ω	TD(OFF)*	-	20	30	nS

* Pw ≤ 300μs, Duty cycle ≤ 1%

●Electrical characteristic curves

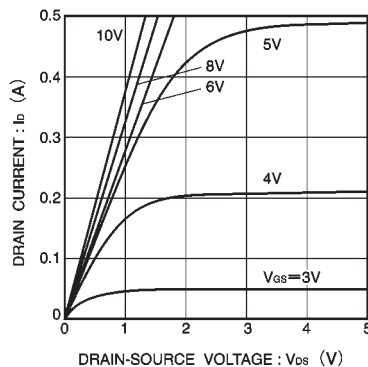


Fig.1 Typical output characteristics

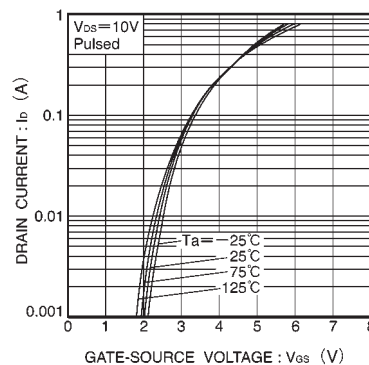


Fig.2 Typical transfer characteristics

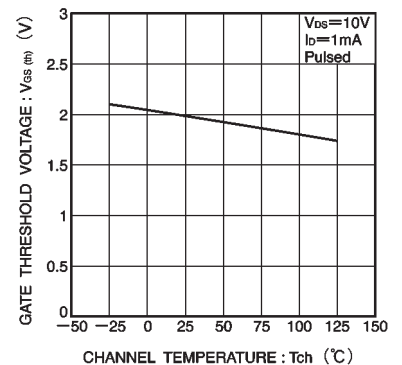


Fig.3 Gate threshold voltage vs. channel temperature

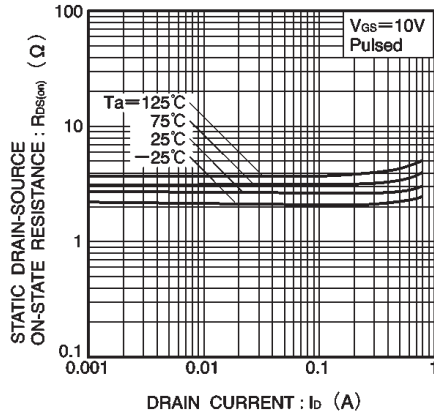


Fig.4 Static drain-source on-state resistance vs. drain current (I)

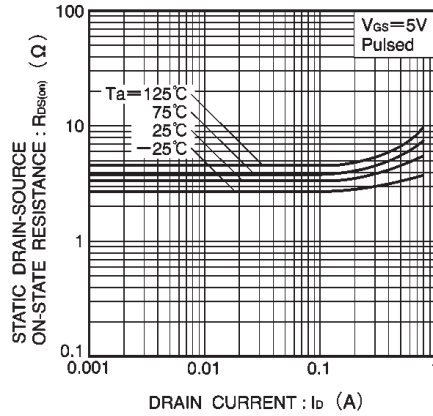


Fig.5 Static drain-source on-state resistance vs. drain current (II)

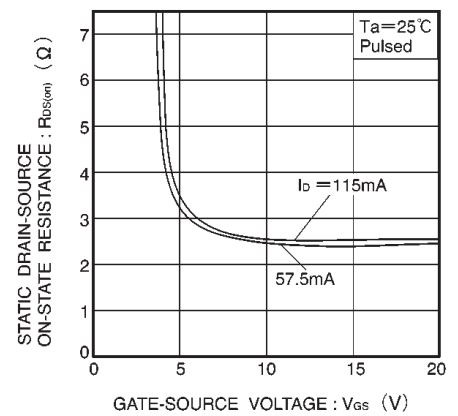


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

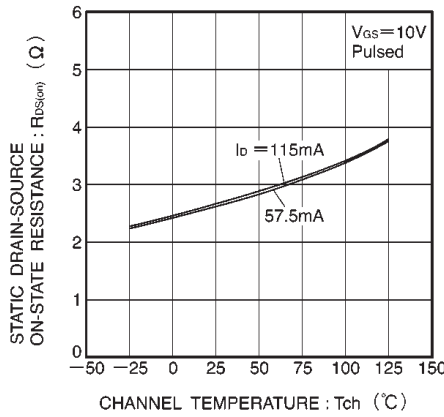


Fig.7 Static drain-source on-state resistance vs. channel temperature

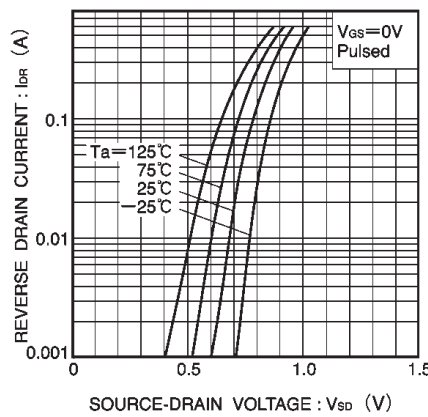


Fig.8 Reverse drain current vs. source-drain voltage (I)

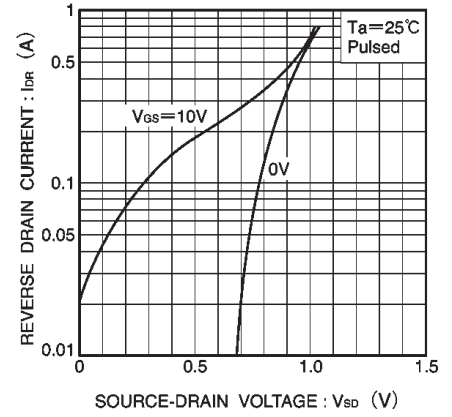


Fig.9 Reverse drain current vs. source-drain voltage (II)

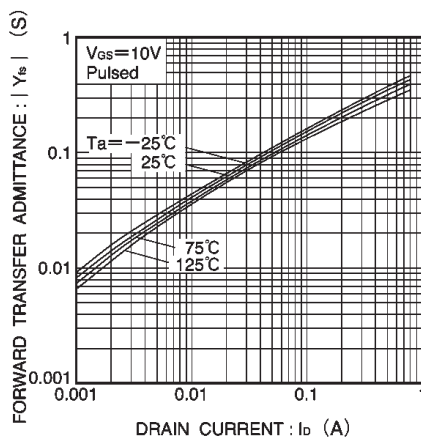


Fig.10 Forward transfer admittance vs. drain current

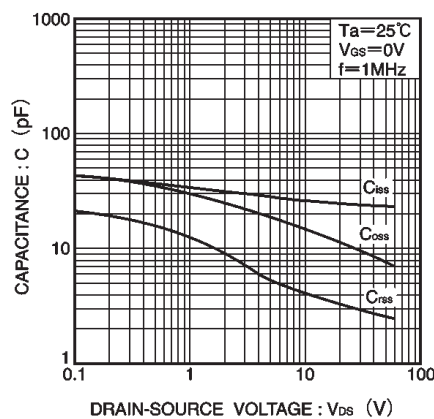


Fig.11 Typical capacitance vs. drain-source voltage

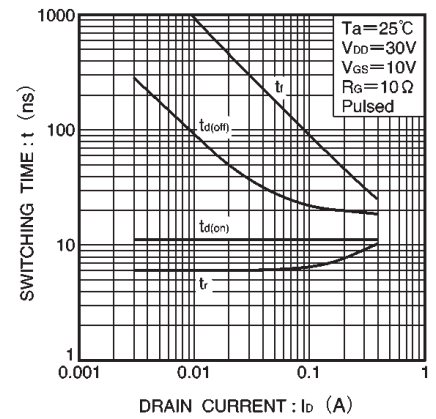
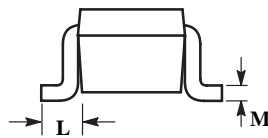
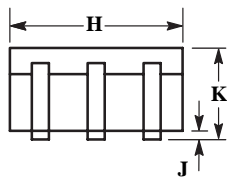
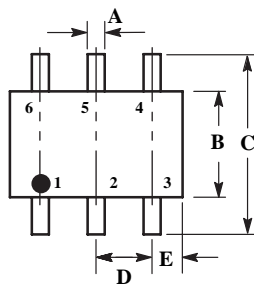


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

SOT-363 Outline Dimensions

Unit:mm



SOT-363		
Dim	Min	Max
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 REF	
E	0.30	0.40
H	1.80	2.20
J	-	0.10
K	0.80	1.10
L	0.25	0.40
M	0.10	0.25