



YEA SHIN TECHNOLOGY CO., LTD

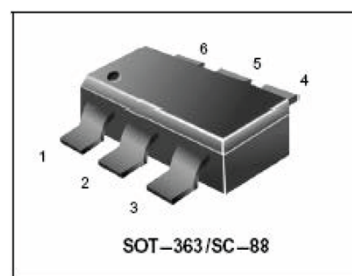
2N7002EDW

DUAL N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR



FEATURES

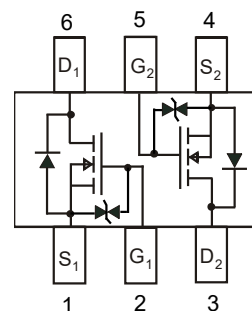
- ◆ Low On-Resistance
- ◆ Fast Switching Speed
- ◆ Low-Voltage Drive
- ◆ Easily Designed Drive Circuits
- ◆ Can Protect Against Static Electricity 2KV When The Product Is In Use.



Ordering Information(Pb-free)

Device	Marking	Shipping
2N7002EDW	RS - 701	3000 tape / reel

DUAL N - Channel - 2KV



MARKING DIAGRAM
& PIN ASSIGNMENT

Maximum Ratings @ TA=25°C unless otherwise specified

Characteristic	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	Continuous V_{GSS}	± 20	V
Drain Current	Continuous I_D	115	mA
	Pulsed I_{DP}^{*1}	800	mA
Reverse Drain Current	Continuous I_{DR}	115	mA
	Pulsed I_{DRP}^{*1}	800	mA
Total Power Dissipation	Pd^{*2}	225	mW
Channel Temperature	T_{ch}	150	°C
Storage Temperature Range	T_{stg}	-55 to +150	°C

*1 $PW \leq 10\mu s$, Duty cycle $\leq 1\%$.

*2 When mounted on a 1*0.75*0.062 inch glass epoxy board.

DEVICE CHARACTERISTICS

2N7002EDW

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

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	60			V	$V_{GS}=0V, I_D=10\mu A$
Zero Gate Voltage Drain Current	I_{DSS}			1.0	μA	$V_{DS}=60V, V_{GS}=0V$
Gate-source Leakage	I_{GSS}			± 10	μA	$V_{GS}=\pm 20V, V_{DS}=0V$
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(th)}$	1	1.85	2.5	V	$V_{DS}=10V, I_D=1mA$
Static Drain-Source On-Resistance	$R_{DS(ON)}$			7.5	Ω	$V_{GS}=10V, I_D=0.5A$
				8.5		$V_{GS}=4.5V, I_D=0.2A$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{iss}		25	50	pF	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$
Output Capacitance	C_{oss}		10	25	pF	
Reverse Transfer Capacitance	C_{rss}		3.0	5.0	pF	
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$T_{D(ON)}^*$		12		nS	$I_D=0.2A, V_{DD}=30V$ $V_{GS}=10V, R_L=103\Omega, R_G=6\Omega$
Turn-On Rise T ime	$T_{r(ON)}^*$		14		nS	
Turn-Off Delay Time	$T_{D(OFF)}^*$		20		nS	
Turn-Off Fall Time	$T_{r(OFF)}^*$		22		nS	

* $P_w \leq 300 \mu s$, Duty cycle $\leq 1\%$.

DEVICE CHARACTERISTICS

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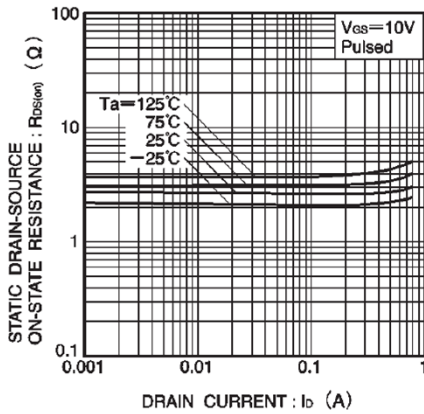


Fig.4 Static drain-source on-state resistance vs. drain current (I)

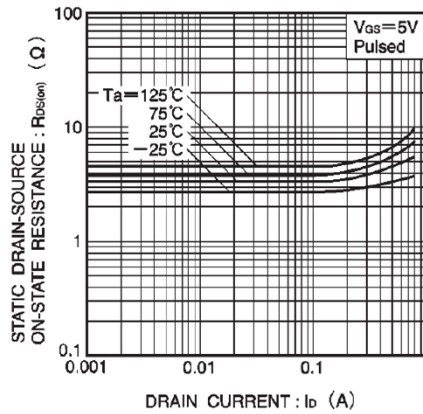


Fig.5 Static drain-source on-state resistance vs. drain current (II)

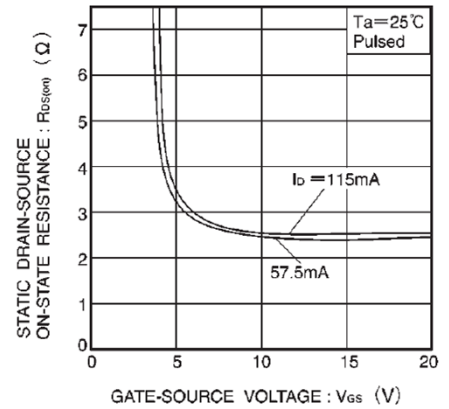


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

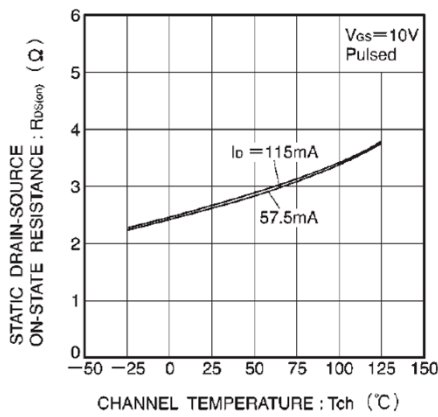


Fig.7 Static drain-source on-state resistance vs. channel temperature

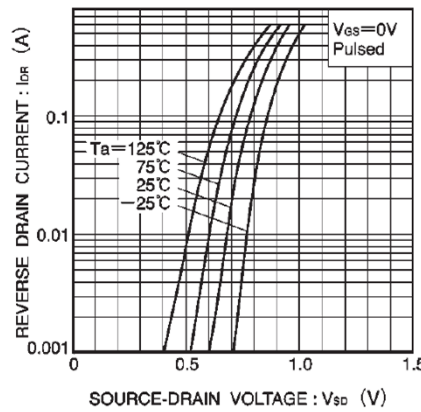


Fig.8 Reverse drain current vs. source-drain voltage (I)

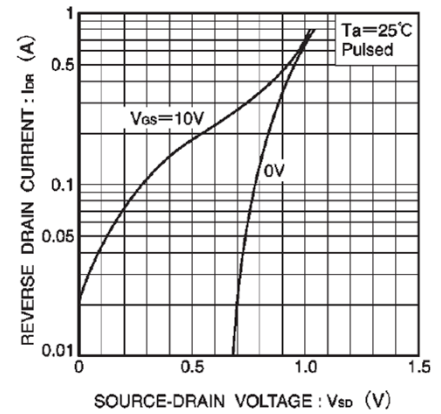


Fig.9 Reverse drain current vs. source-drain voltage (II)

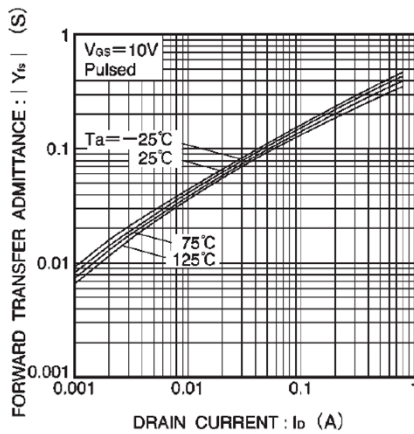


Fig.10 Forward transfer admittance vs. drain current

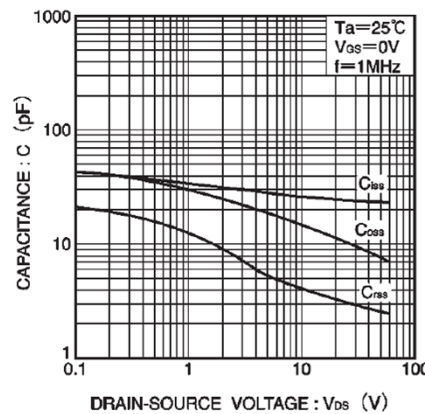


Fig.11 Typical capacitance vs. drain-source voltage

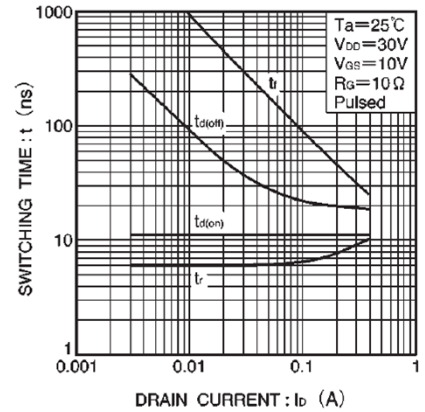
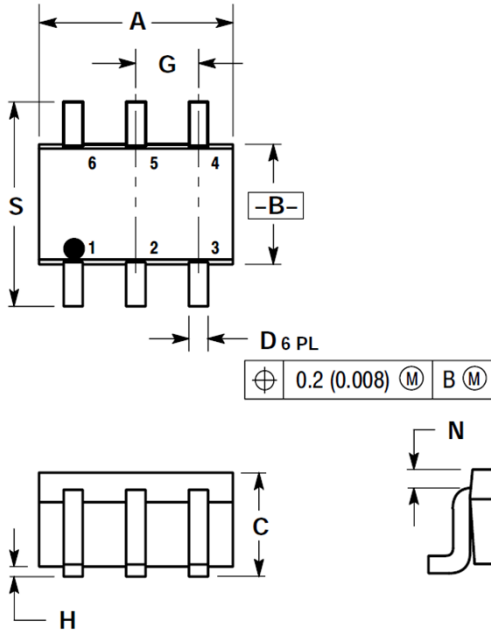


Fig.12 Switching characteristics
(See Figures 13 and 14 for the measurement circuit and resultant waveforms)

PACKAGE OUTLINE & DIMENSIONS

2N7002EDW

SOT-363 (SC-88)



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 419B-01 OBSOLETE, NEW STANDARD 419B-02.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.071	0.087	1.80	2.20
B	0.045	0.053	1.15	1.35
C	0.031	0.043	0.80	1.10
D	0.004	0.012	0.10	0.30
G	0.026 BSC		0.65 BSC	
H	---	0.004	---	0.10
J	0.004	0.010	0.10	0.25
K	0.004	0.012	0.10	0.30
N	0.008 REF		0.20 REF	
S	0.079	0.087	2.00	2.20

SOLDERING FOOTPRINT

