2N7002DW

60V N-Channel Enhancement Mode MOSFET

FEATURES

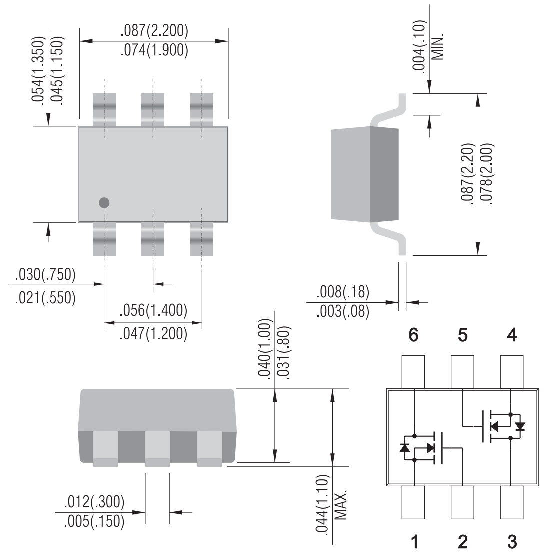
- $R_{DS(ON)}$, V_{GS}@10V,I_{DS}@500mA=3Ω
- $R_{DS(ON)}$, V_{GS}@4.5V,I_{DS}@75mA=4Ω

- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for Battery Operated Systems, Solid-State Relays Drivers : Relays, Displays, Lamps, Solenoids, Memories, etc.
- Component are in compliance with EU RoHS 2002/95/EC directives

MECHANICALDATA

- Case: SOT-363 Package
- Terminals : Solderable per MIL-STD-750,Method 2026
- Marking : 702

SOT-363 Unit: inch (mm)



Maximum RATINGS and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current		I_D	115	mA
Pulsed Drain Current 1)		I_{DM}	800	mA
Maximum Power Dissipation	T_A=25°C T_A=75°C	P_D	200 120	mW
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 to + 150	°C
Junction-to Ambient Thermal Resistance(PCB mounted)2		$R_{\theta JA}$	625	°C/W

Note: 1. Maximum DC current limited by the package
2. Surface mounted on FR4 board, t ≤ 10 sec

PAN JIT RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN,FUNCTIONS AND RELIABILITY WITHOUT NOTICE

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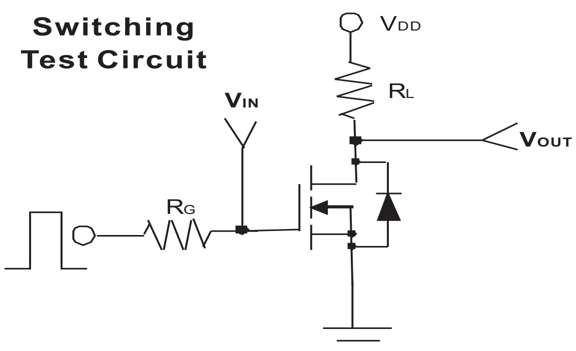
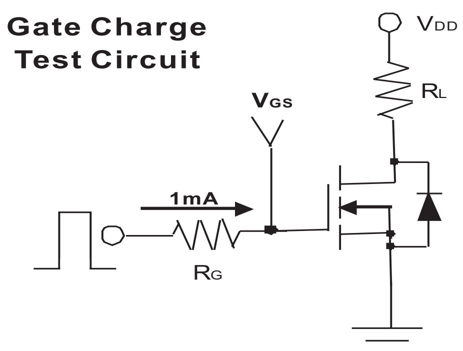
ELECTRICALCHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=10uA	60	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250uA	1	-	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=4.5V, I_D=75mA	-	2.2	4.0	Ω
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS}=10V, I_D=500mA	-	1.8	3.0	
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=60V, V_{GS}=0V	-	-	1	uA
Gate Body Leakage	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Forward Transconductance	g_{fs}	V_{DS}=15V, I_D=250mA	200	-	-	mS
Dynamic						
Total Gate Charge	Q_g	V_{DS}=15V, I_D=500mA V_{GS}=4.5V	-	0.6	0.7	nC
Gate-Source Charge	Q_{gs}		-	0.1	-	
Gate-Drain Charge	Q_{gd}		-	0.08	-	
Turn-On Delay Time	t_{on}	V_{DD}=10V , R_L=20Ω I_D=500mA , V_{GEN}=10V R_G=10Ω	-	9	15	ns
Turn-Off Delay Time	t_{off}		-	21	26	
Input Capacitance	C_{iss}	V_{DS}=25V, V_{GS}=0V f=1.0MH$_Z$	-	-	50	pF
Output Capacitance	C_{oss}		-	-	25	
Reverse Transfer Capacitance	C_{rss}		-	-	5	
Source-Drain Diode						
Max. Diode Forward Current	I_s	-	-	-	300	mA
Diode Forward Voltage	V_{SD}	I_s=300mA , V_{GS}=0V	-	0.93	1.2	V





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Typical Characteristics Curves (T_J=25°C, unless otherwise noted)

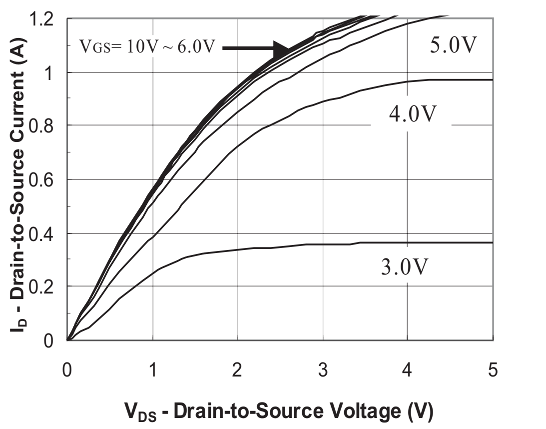

FIG.1- Output Characteristic

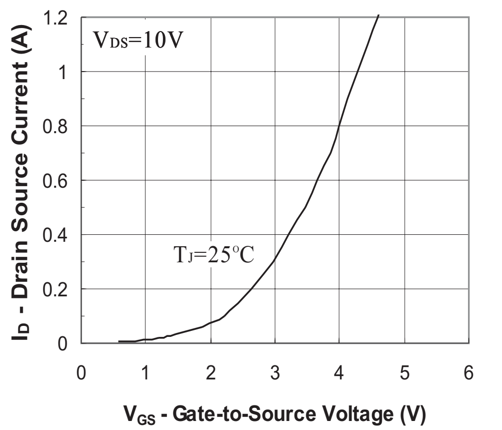

FIG.2- Transfer Characteristic

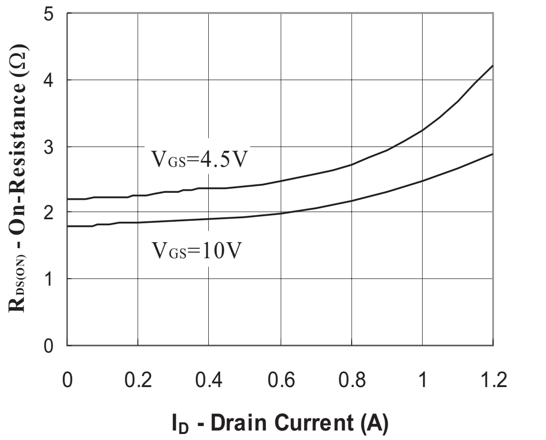

FIG.3- On Resistance vs Drain Current

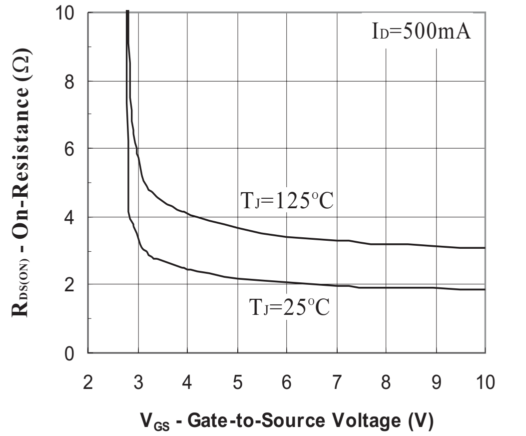

FIG.4- On Resistance vs Gate to Source Voltage

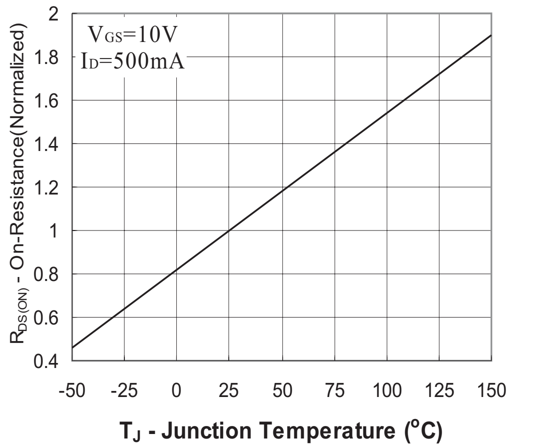

FIG.5- On Resistance vs Junction Temperature

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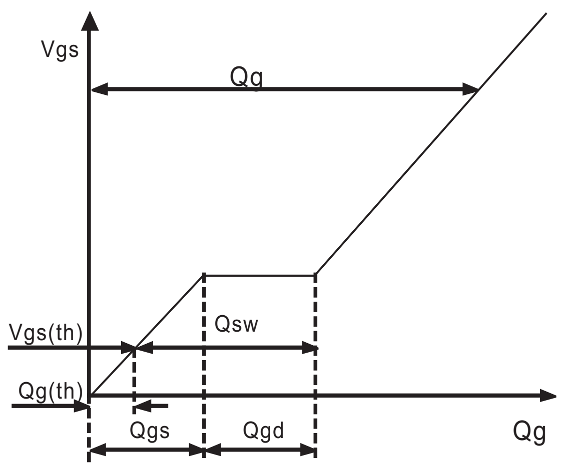

Fig.6 - Gate Charge Waveform

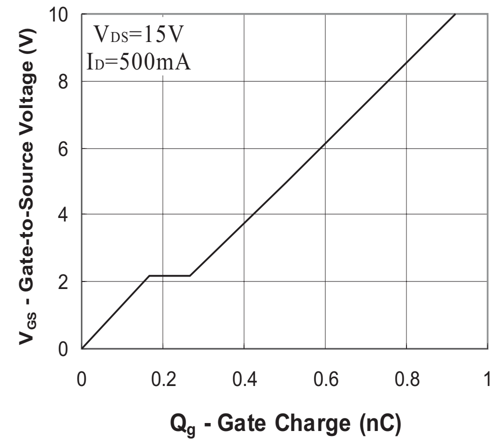

Fig.7 - Gate Charge

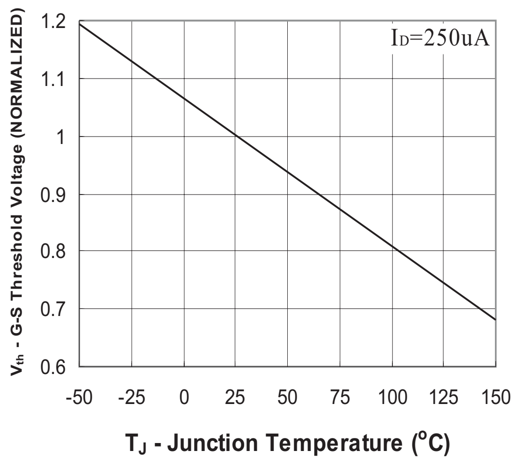

Fig.8 - Threshold Voltage vs Temperature

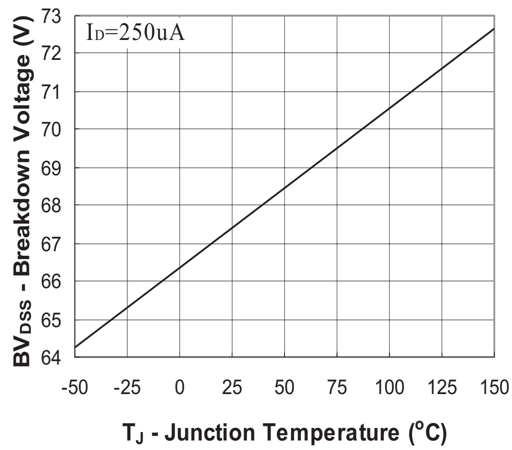

Fig.9 - Breakdown Voltage vs Junction Temperature

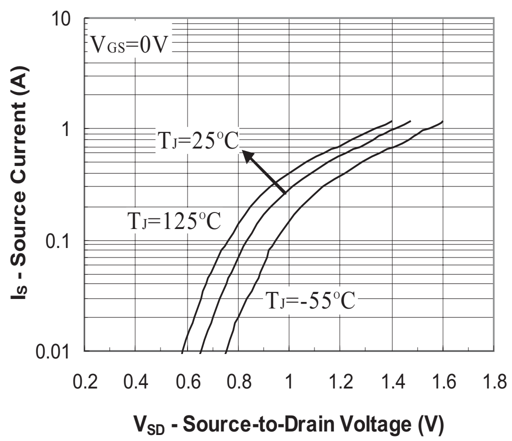

Fig.10 - Source-Drain Diode Forward Voltage

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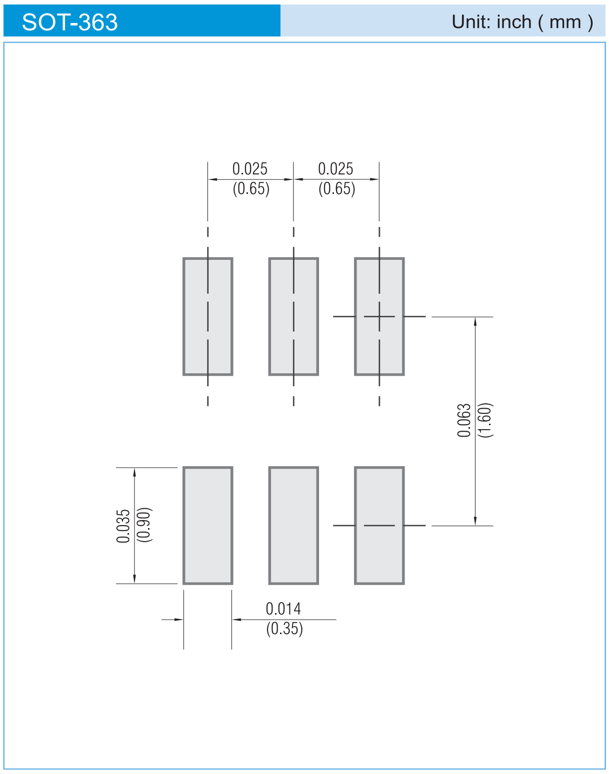
MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information

  T/R - 10K per 13" plastic Reel

  T/R - 3K per 7" plastic Reel

LEGAL STATEMENT