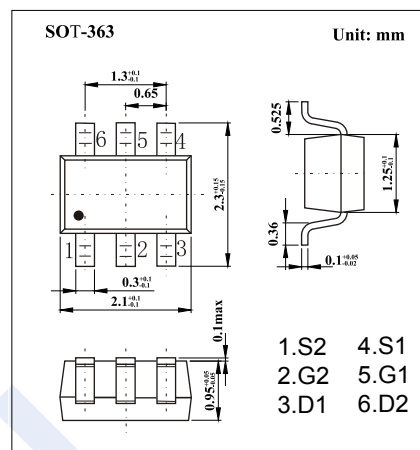
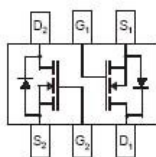


Dual N-Channel MOSFET

2N7002DW

■ Features

- $V_{DS} (V) = 60V$
- $I_D = 115 \text{ mA}$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 7.5 \Omega$ ($V_{GS} = 5V$)
- Low Input Capacitance
- Fast Switching Speed
- Low On-Resistance



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage @ $R_{GS} \leq 1M\Omega$	V_{DG}	60	
Gate-Source Voltage	Continuous	± 20	
	Pulsed	± 40	
Continuous Drain Current	Continuous	115	mA
	Continuous @ 100°C	73	
	Pulsed	800	
Power Dissipation	P_D	200	mW
Derating above $T_a = 25^\circ\text{C}$		1.6	mW/ $^\circ\text{C}$
Thermal Resistance, Junction- to-Ambient	R_{thJA}	625	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

Dual N-Channel MOSFET

2N7002DW

■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D=250\ \mu\text{A}$, $V_{GS}=0\text{V}$	60	78		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$			1	μA
		$V_{DS}=60\text{V}$, $V_{GS}=0\text{V}$, $T_J=125^\circ\text{C}$			500	
Gate-Body Leakage Current	I_{GSS}	$V_{DS}=0\text{V}$, $V_{GS}=\pm 20\text{V}$			± 10	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$, $I_D=250\ \mu\text{A}$	1	1.76	2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=5\text{V}$, $I_D=50\text{mA}$		1.6	7.5	Ω
		$V_{GS}=10\text{V}$, $I_D=500\text{mA}$, $T_J=125^\circ\text{C}$		2.53	13.5	
On State Drain Current	$I_{D(on)}$	$V_{GS}=10\text{V}$, $V_{DS}=7.5\text{V}$	0.5	1.43		A
Forward Transconductance	g_{FS}	$V_{DS}=10\text{V}$, $I_D=0.2\text{A}$	80	356.5		mS
Input Capacitance	C_{iss}	$V_{GS}=0\text{V}$, $V_{DS}=25\text{V}$, $f=1\text{MHz}$		37.8	50	pF
Output Capacitance	C_{oss}			12.4	25	
Reverse Transfer Capacitance	C_{rss}			6.5	7	
Turn-On DelayTime	$t_{d(on)}$	$V_{GS}=10\text{V}$, $V_{DS}=30\text{V}$, $R_L=150\ \Omega$, $R_G=25\ \Omega$, $I_D=0.2\text{A}$		5.85	20	ns
Turn-Off DelayTime	$t_{d(off)}$			12.5	20	

■ Marking

Marking	2N
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■ Typical Characteristics

Figure 1. On-Region Characteristics

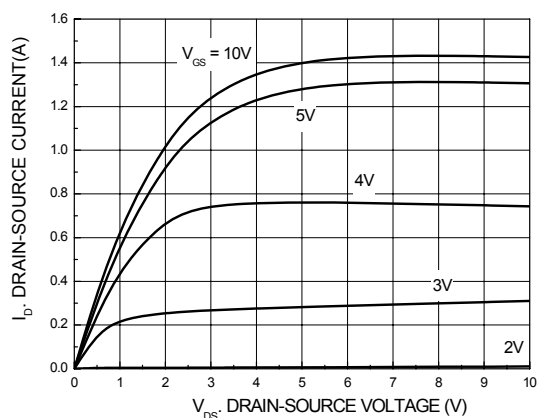
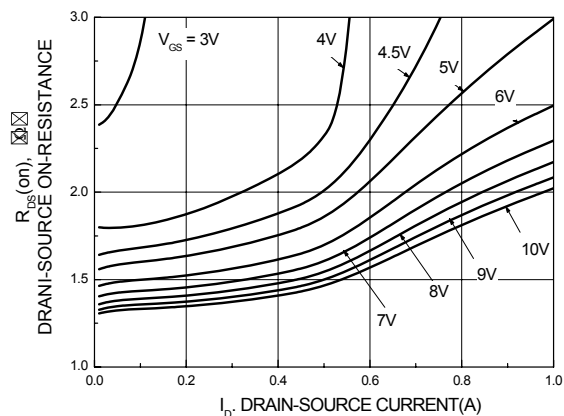


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current



Dual N-Channel MOSFET

2N7002DW

■ Typical Characteristics

Figure 3. On-Resistance Variation with Temperature

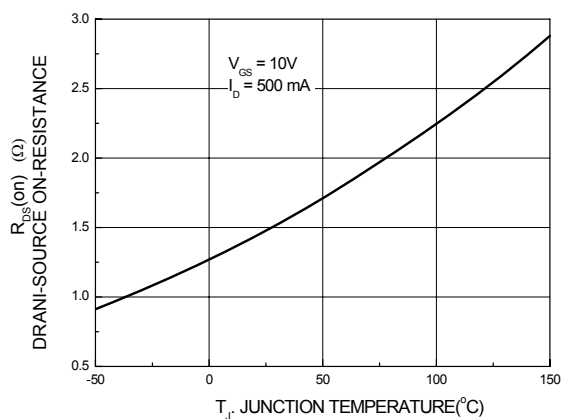


Figure 4. On-Resistance Variation with Gate-Source Voltage

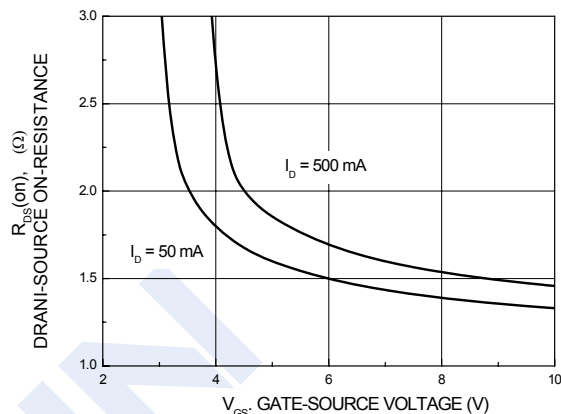


Figure 5. Transfer Characteristics

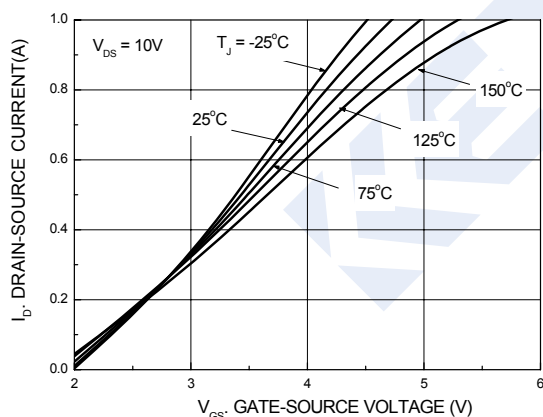


Figure 6. Gate Threshold Variation with Temperature

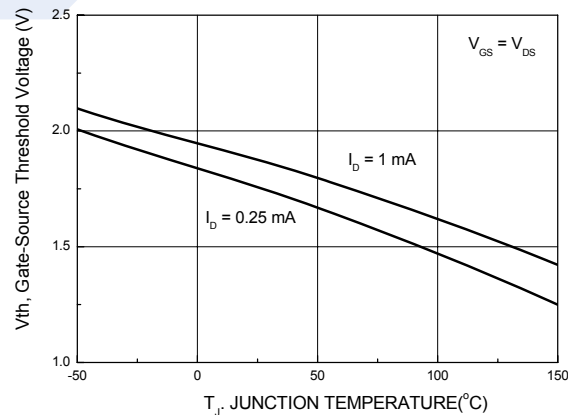


Figure 7. Reverse Drain Current Variation with Diode Forward Voltage and Temperature

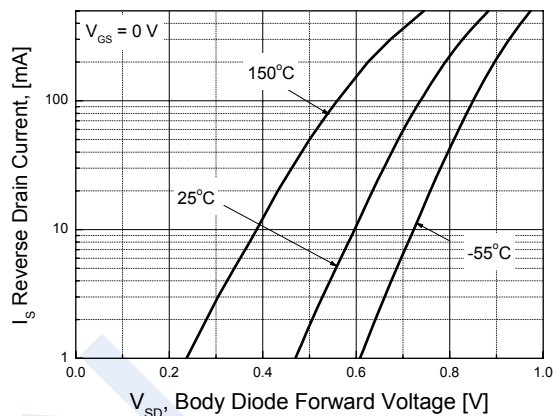


Figure 8. Power Derating

