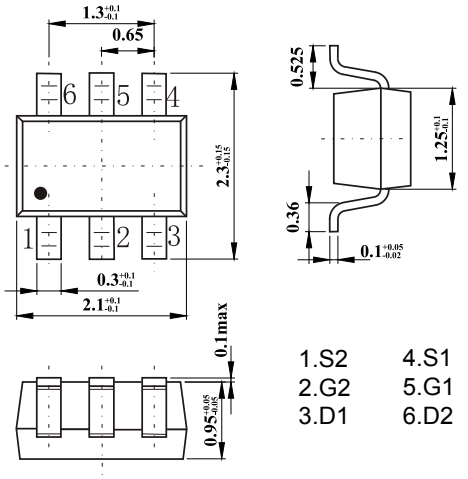
2N7002DW

Dual N-Channel MOSFET

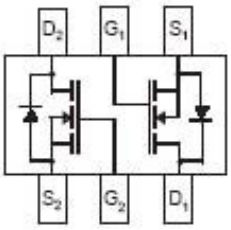
SOT-363 Unit: mm



1.S2 4.S1
2.G2 5.G1
3.D1 6.D2

■ Features

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



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	60	V
Drain-Gate Voltage @ R_{GS} ≤ 1MΩ		V_{DG}	60	
Gate-Source Voltage	Continuous	V_{GS}	±20	
	Pulsed		±40	
Continuous Drain Current	Continuous	I_D	115	mA
	Continuous @ 100°C		73	
	Pulsed		800	
Power Dissipation		P_D	200	mW
Derating above Ta = 25°C			1.6	mW/℃
Thermal Resistance.Junction- to-Ambient		R_{thJA}	625	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25℃

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

■ Typical Characterisitics

Figure 1. On-Region Characteristics

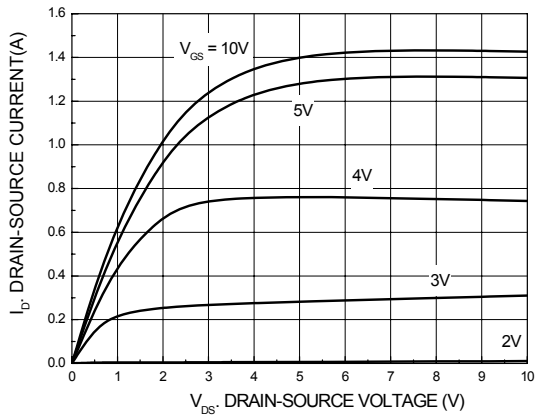
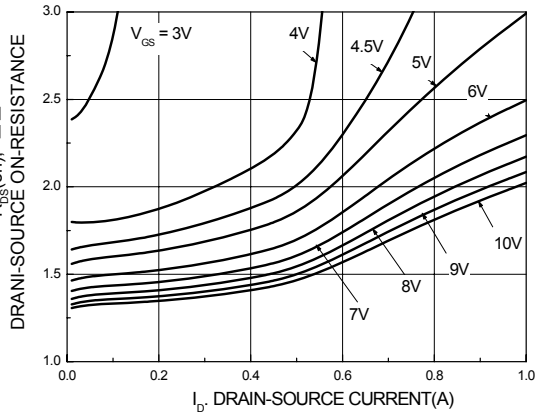


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current



■ Typical Characterisitics

Figure 3. On-Resistance Variation with Temperature

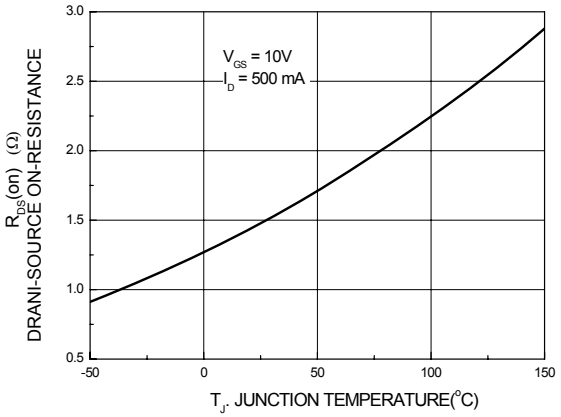


Figure 4. On-Resistance Variation with Gate-Source Voltage

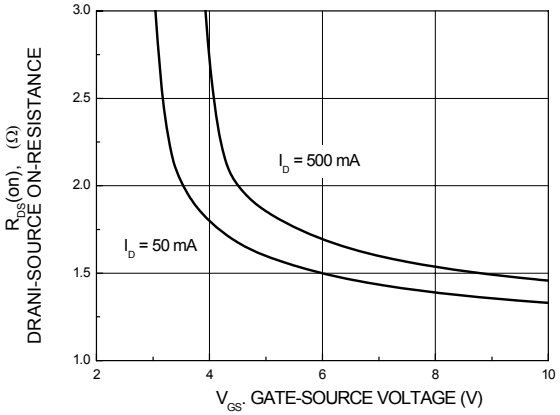


Figure 5. Transfer Characteristics

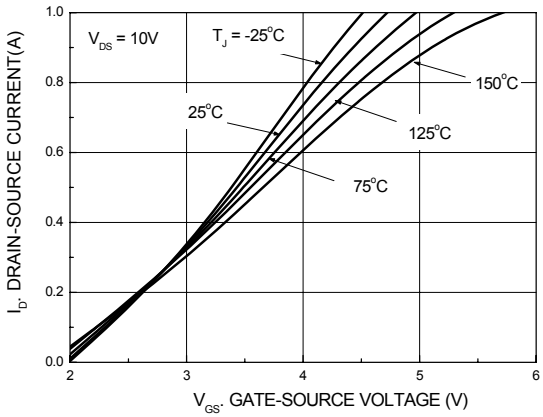


Figure 6. Gate Threshold Variation with Temperature

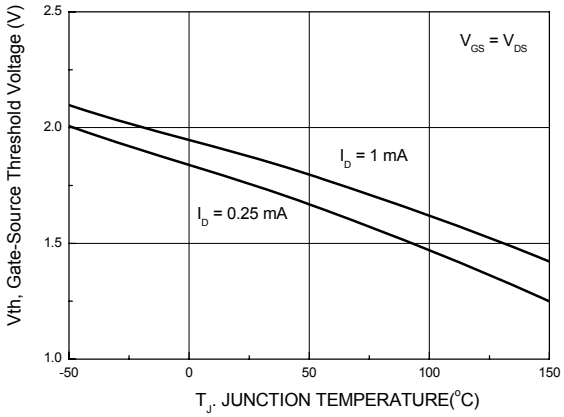


Figure 7. Reverse Drain Current Variation with Diode Forward Voltage and Temperature

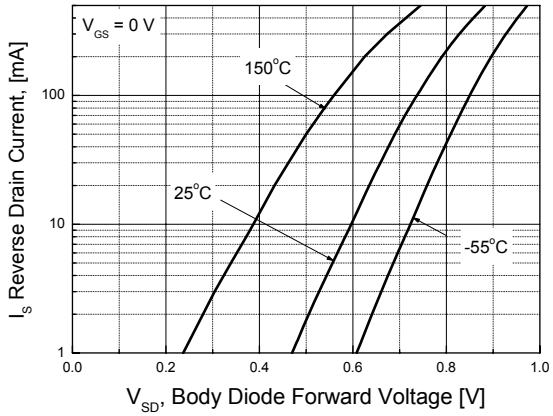


Figure 8. Power Derating