N-Channel Enhancement MOSFET

2N7002E

■ Features

● Low On-Resistance: $R_{DS(ON)}$

● Low Gate Threshold Voltage

● Low Input Capacitance

● Fast Switching Speed

● Low Input/Output Leakage
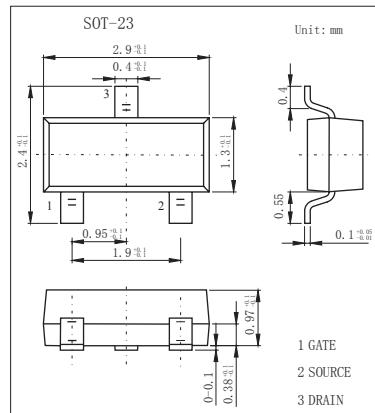
■ Absolute Maximum Ratings Ta=25℃

| Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Drain-Gate Voltage RGS≤1.0MΩ	V_{DGR}	60	
Gate-Source Voltage -Continuous	V_{GS}	±20	
-Pulsed		±40	
Continuous Drain Current	I_D	240	mA
Power Dissipation	P_D	300	mW
Thermal Resistance.Junction- to-Ambient	R_{thJA}	417	℃/W
Junction Temperature	T_J	150	℃
Junction and Storage Temperature Range	T_{stg}	-55 to 150	

■ Electrical Characteristics Ta = 25 ℃

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	V_{GS} = 0V, I_D = 100u A	60	70		V
Zero Gate Voltage Drain Current @ T_C = 25℃	I_{DSS}	V_{DS} = 60V, V_{GS} = 0V			1.0	μ A
@ T_C = 125℃					500	
Gate-Body Leakage	I_{GSS}	V_{GS} = ±15V, V_{DS} = 0V			±10	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA	1.0		2.5	V
Static Drain-Source On-Resistance @ Tj = 25℃	$R_{DS(ON)}$	V_{GS} = 10V, I_D = 250mA		1.6	3	Ω
		V_{GS} = 4.5V, I_D = 200mA		2.0	4	
On-State Drain Current	$I_{D(ON)}$	V_{GS} = 10V, V_{DS} = 7.5V	0.8	1.0		A
Forward Transconductance	g_{FS}	V_{DS} =10V, I_D = 0.2A	80			mS
Input Capacitance	C_{iss}			22	50	pF
Output Capacitance	C_{oss}	V_{DS} = 25V, V_{GS} = 0V,f = 1.0MHz		11	25	pF
Reverse Transfer Capacitance	C_{rss}			2.0	5.0	pF
Turn-On Delay Time	$t_{D(ON)}$	V_{DD} = 30V, I_D = 0.2A,R_L = 150 Ω ,V_{GEN} = 10V,R_{GEN} = 25 Ω		7.0	20	ns
Turn-Off Delay Time	$t_{D(OFF)}$			11	20	ns

■ Marking

Marking	703

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■ Typical Characterisitics
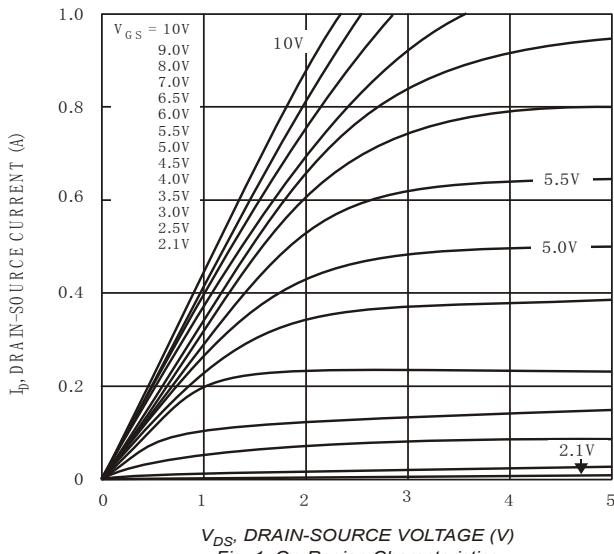
V_{DS}, DRAIN-SOURCE VOLTAGE (V)
Fig. 1 On-Region Characteristics
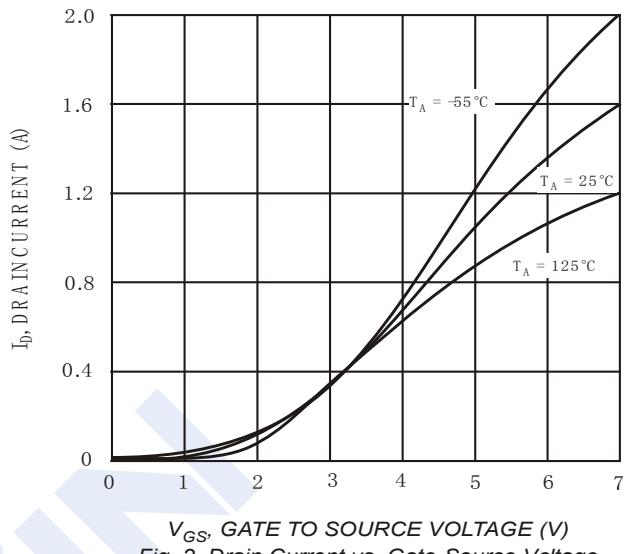
V_{GS}, GATE TO SOURCE VOLTAGE (V)
Fig. 2 Drain Current vs. Gate-Source Voltage
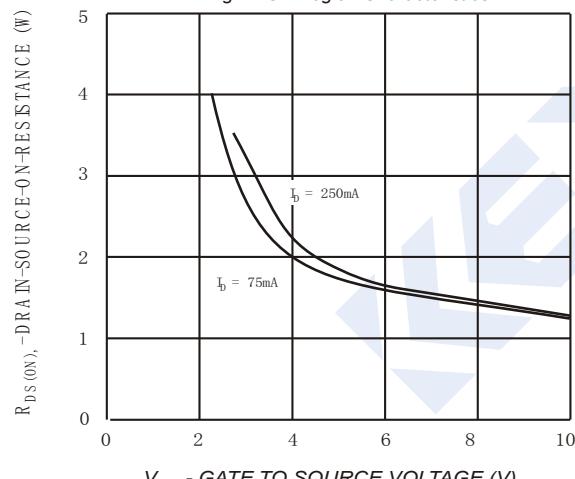
V_{GS} - GATE TO SOURCE VOLTAGE (V)
Fig. 3 On Resistance vs.
Gate to Source Voltage
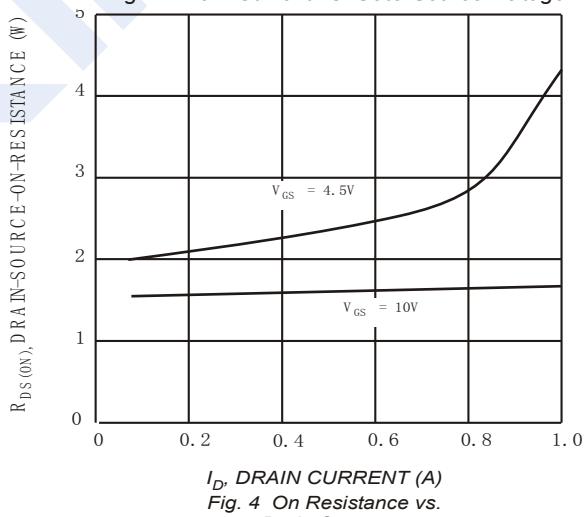
I_D, DRAIN CURRENT (A)
Fig. 4 On Resistance vs.
Drain Current
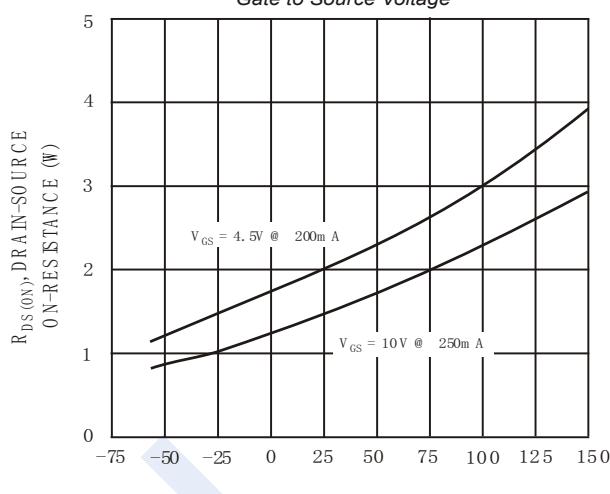
T_J, JUNCTION TEMPERATURE (°C)
Fig. 5 On-Resistance vs. Junction Temperature
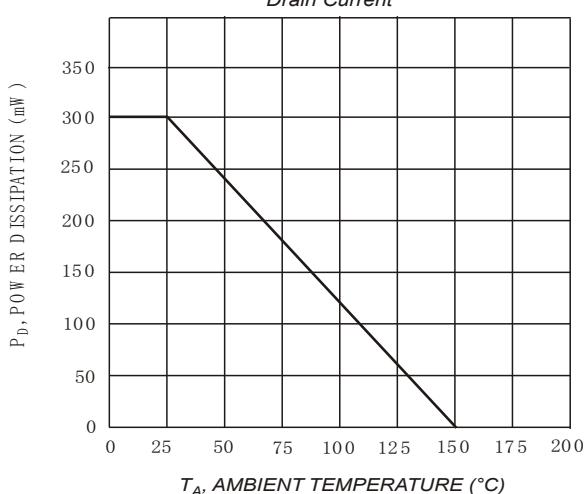
T_A, AMBIENT TEMPERATURE (°C)
Fig. 6, Max Power Dissipation vs
Ambient Temperature