

2N7002W

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

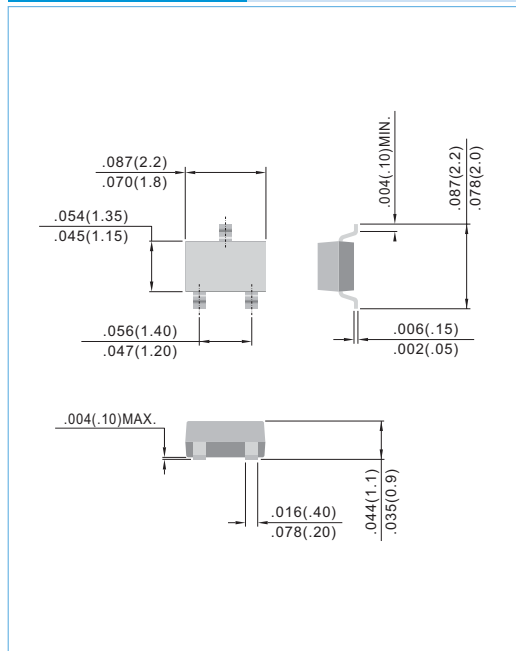
VOLTAGE 60 Volts **POWER** 200 mWatts **SOT-323** Unit: inch (mm)

FEATURES

- N-channel enhancement mode field effect transistor, designed for high speed pulse amplifier and drive application, which is manufactured by the N-channel DMOS process.
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switching.
- Rugged and reliable.
- High saturation current capability.
- High-speed switching. CMOS logic compatible.
- CMOS logic compatible input.
- Not thermal runaway.
- No secondary breakdown.
- Pb free product : 99% Sn above can meet RoHS environment substance directive request

MECHANICAL DATA

- Case: SOT-323, Plastic
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.0048 gram
- Marking: 72W

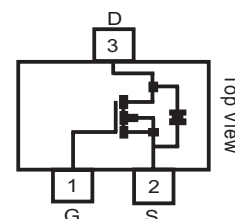


ABSOLUTE RATINGS

PARAMETER	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	60	V
Drain-gate Voltage	V_{DG}	60	V
Gate-Source Voltage	V_{GS}	20	V
Drain Current	I_D	115	mA
Total Power Dissipation	P_D	200	mW
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	625	°C/W

Note 1: $R_{GS} < 20K \Omega$

2: FR-5 board 1.0x0.75x0.062 inch with minimum recommended pad layout





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ELECTRICAL CHARACTERISTICS TA=25°C Unless otherwise noted

PARAMETER	Symbol	Test Condition	MIN.	TYP.	MAX.	Units
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V, I _D =10uA	60	80	--	V
Zero Gate Voltage Drain Current	I _{DSS}	V _D =60V, V _{GS} =0V, T _J =25°C V _D =60V, V _{GS} =0V, T _J =125°C	--	--	1.0 0.5	uA mA
Gate-Body Leakage, Forward	I _{GSSF}	V _D =0, V _{GS} =20V	--	--	100	nA
Gate-Body Leakage, Reverse	I _{GSSR}	V _D =0, V _{GS} =20V	--	--	-100	nA
ON CHARACTERISTIC(note1)						
Gate Threshold Voltage	V _{GS(th)}	V _D =V _{GS} , I _D =250uA	1.0	2.1	2.5	V
Static Drain-Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =500mA, T _J =25°C	--	3.7	2.5	Ω
Drain-Source On-Voltage	V _{DS(ON)}	V _{GS} =10V, I _D =500mA V _{GS} =5V, I _D =50mA	--	--	3.75 1.5	V
On-State Drain Current	I _{D(ON)}	V _{GS} =10V, V _D ≥2V _{DS(ON)}	500	--	--	mA
Forward Transconductance	G _{FS}	V _D ≥2V _{DS(ON)} , I _D =200mA	80	--	--	mS
DYNAMIC CHARACTERISTICS						
Input Capacitance	G _{ISS}	V _D =25V, V _{GS} =0V, f=1.0MHz	--	--	50	pF
Output Capacitance	G _{OSS}		--	--	25	pF
Reverse Transfer Capacitance	G _{RSS}		--	--	5	pF
Turn-On Time	T _{ON}	V _{DD} =30V, R _L =25Ω, I _D =500mA V _{GS} =10V, R _{GEN} =25Ω	--	--	20	ns
Turn-Off Time	T _{OFF}		--	--	20	ns

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ELECTRICAL CHARACTERISTICS CURVE

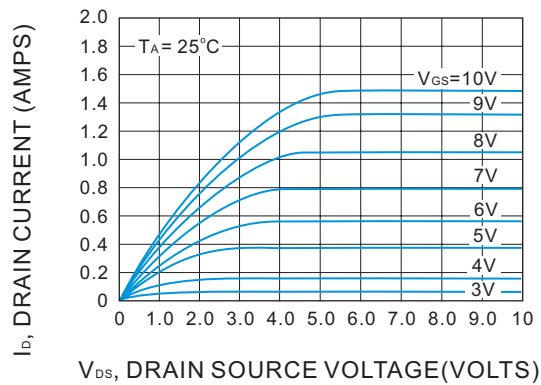


Figure 1. Ohmic Region

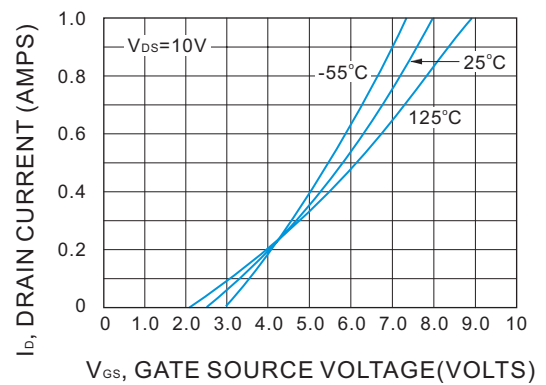


Fig. 9 Z-Current vs. Z-Voltage

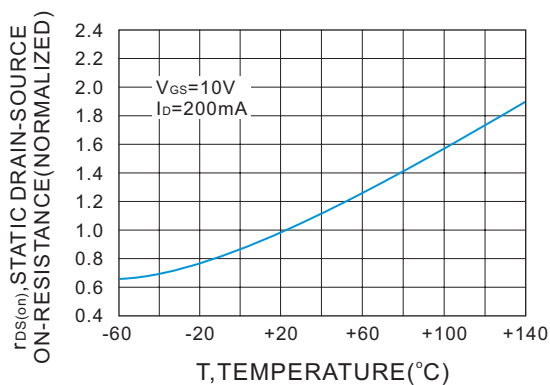


Figure 3. Temperature versus Static Drain-Source On-Resistance

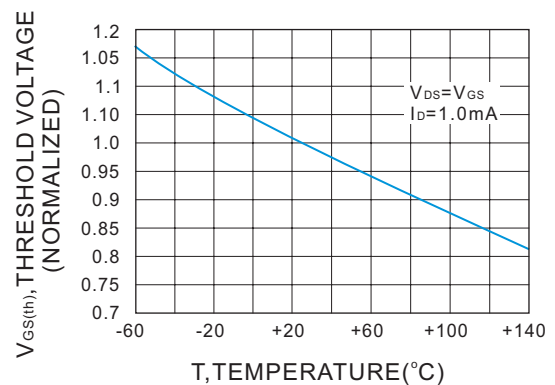
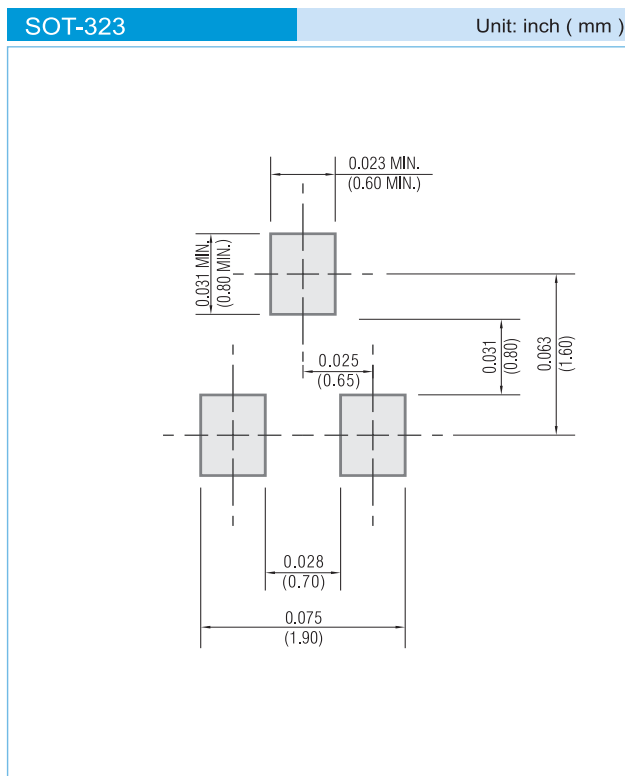


Figure 4. Temperature versus Gate Threshold Voltage

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MOUNTING PAD LAYOUT



ORDER INFORMATION

- Packing information

T/R - 12K per 13" plastic Reel

T/R - 3K per 7" plastic Reel

LEGAL STATEMENT

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