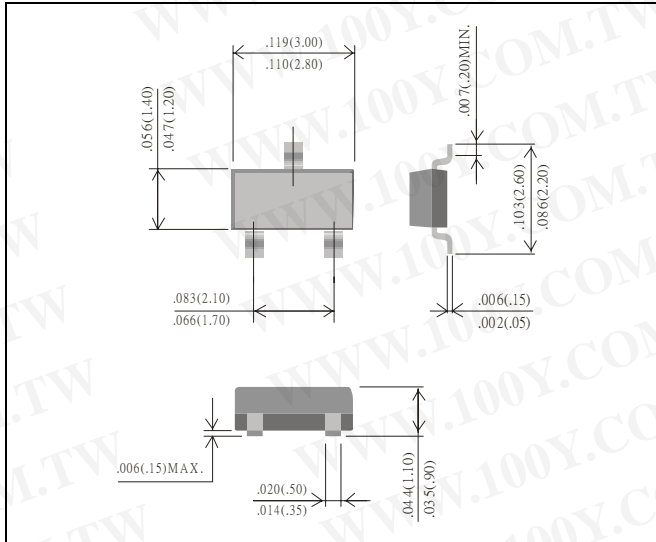


N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR



CASE : SOT-23

DIMENSIONS IN INCHES AND (MILLIMETERS)

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.
- ESD MIL-STD 883 , ± 2.5 KV CONTACT DISCHARGE COMPLIANT PROTECTION
- BOTH PB FREE AND HALOGEN FREE ARE AVAILABLE

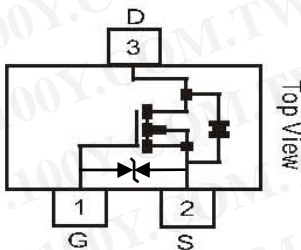
MECHANICAL DATA

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.

ABSOLUTE MAXIMUM RATINGS

R RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PATING	SYMBOL	2N7002HG	UNITS
DRAIN-SOURCE VOLTAGE	V_{DSS}	60	V
GATE-SOURCE VOLTAGE	V_{GSS}	± 20	V
MAXIMUM DRAIN CURRENT-CONTINUE	I_D	300	mA
DRAIN CURRENT (PEAK VALUE)	I_{DM}	800	mA
MAXIMUM POWER DISSIPATION DERATING @ $T_A = 25^\circ\text{C}$	P_D	350	mW
THERMAL RESISTANCE-JUNCTION TO AMBIENT	$R_{\theta JA}$	357	$^\circ\text{C}/\text{W}$
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	$T_J; T_{STG}$	- 55 TO +150	$^\circ\text{C}$



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ELECTRICAL CHARACTERISTICS

ELECTRICAL CHARACTERISTICS (AT $T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
CHARACTERISTIC		SYMBOL	MIN	TYP	MAX	UNITS
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{GS} = 0\text{V}, I_D = 10\mu\text{A}$	$V_{(BR)DSS}$	60	–	–	V
Zero Gate Voltage Drain	$V_{DS} = 60\text{V}, V_{GS} = 0\text{V}, T_J = 25^\circ\text{C}$	I_{DSS}	–	–	1.0	μA
Gate-Body Leakage, Forward	$V_{DS} = 0, V_{GS} = \pm 20\text{V}$	$\pm I_{GSS}$	–	–	± 10	μA
ON CHARACTERISTICS (NOTE 1)						
Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	$V_{GS(th)}$	1.0	1.7	2.5	V
Static Drain-Source On-Resistance	$V_{GS} = 10\text{V}, I_D = 500\text{mA}$	$R_{DS(on)}$	–	1.4	2.0	Ω
Transfer Admittance	$I_D = 200\text{mA}, V_{DS} = 15\text{V}$	$ Y_{fs} $	80	–	–	mS
Diode Forward Voltage	$I_S = 300\text{mA}, V_{GS} = 0\text{V}$	V_{SD}	–	0.85	1.5	V
DYNAMIC CHARACTERISTICS						
Input Capacitance		C_{iss}	–	–	50	pF
Output Capacitance	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, F = 1.0\text{MHz}$	C_{oss}	–	–	25	pF
Reverse Transfer Capacitance		C_{rss}	–	–	5.0	pF

NOTE: 1. Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

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TYPICAL CHARACTERISTICS

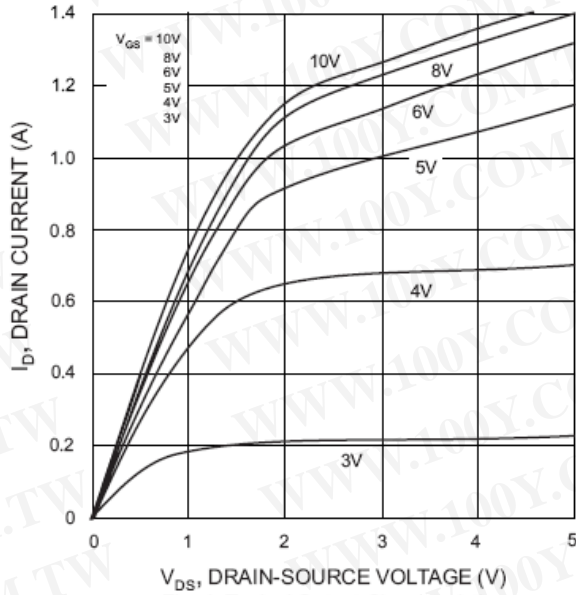


Fig. 1 Typical Output Characteristics

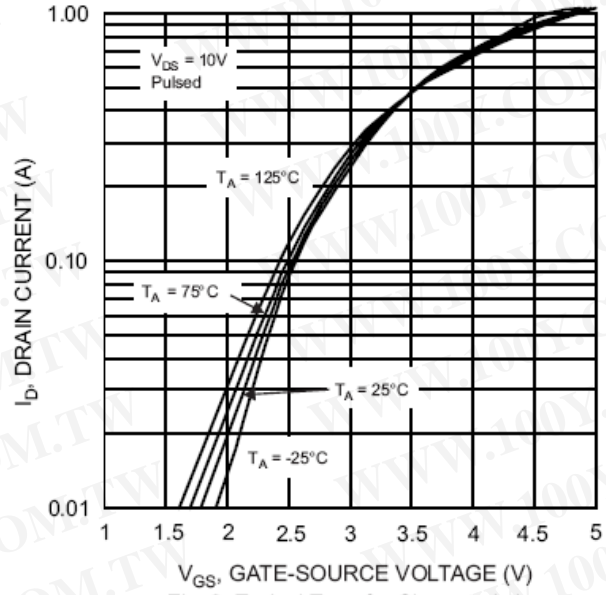


Fig. 2 Typical Transfer Characteristics

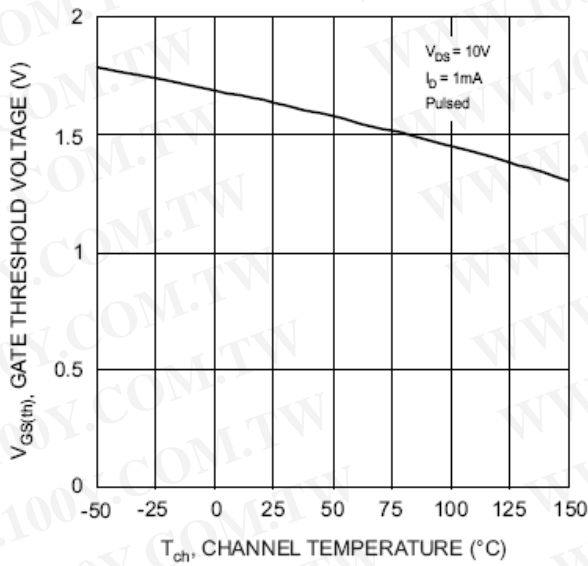


Fig. 3 Gate Threshold Voltage vs. Channel Temperature

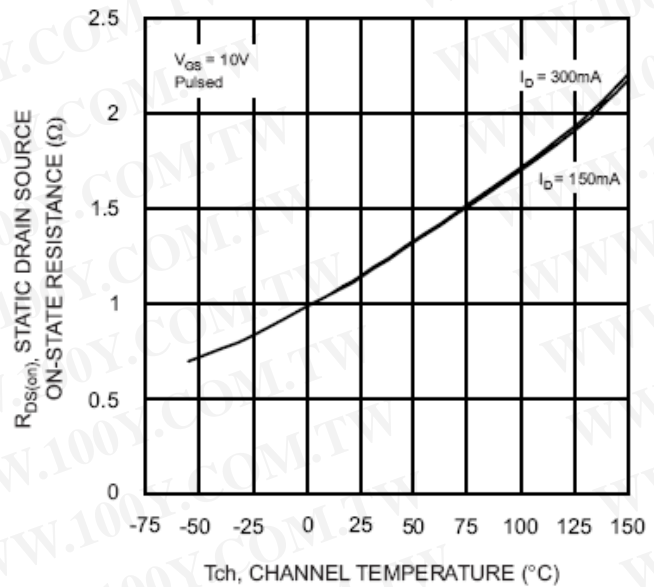


Fig. 4 Static Drain-Source On-State Resistance vs. Channel Temperature

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