

2N7002WT1,S-2N7002WT1

ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS					
Drain–Source Breakdown Voltage ($V_{GS} = 0, I_D = 10 \mu\text{Adc}$)	$V_{(BR)DSS}$	60	–	–	Vdc
Zero Gate Voltage Drain Current ($V_{GS} = 0, V_{DS} = 60 \text{ Vdc}$)	I_{DSS}	–	–	1.0 500	μAdc
Gate–Body Leakage Current, Forward ($V_{GS} = 20 \text{ Vdc}$)	I_{GSSF}	–	–	1	μAdc
Gate–Body Leakage Current, Reverse ($V_{GS} = -20 \text{ Vdc}$)	I_{GSSR}	–	–	-1	μAdc

ON CHARACTERISTICS (Note 2.)

Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 250 \mu\text{Adc}$)	$V_{GS(th)}$	1.0	1.6	2.5	Vdc
On–State Drain Current ($V_{DS} \geq 2.0 V_{DS(on)}, V_{GS} = 10 \text{ Vdc}$)	$I_{D(on)}$	500	–	–	mA
Static Drain–Source On–State Voltage ($V_{GS} = 10 \text{ Vdc}, I_D = 500 \text{ mAdc}$) ($V_{GS} = 5.0 \text{ Vdc}, I_D = 50 \text{ mAdc}$)	$V_{DS(on)}$	– –	– –	3.75 0.375	Vdc
Static Drain–Source On–State Resistance ($V_{GS} = 10 \text{ V}, I_D = 500 \text{ mAdc}$) $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$ ($V_{GS} = 5.0 \text{ Vdc}, I_D = 50 \text{ mAdc}$) $T_C = 25^\circ\text{C}$ $T_C = 125^\circ\text{C}$	$r_{DS(on)}$	– – – –	1.4 – 1.8 –	7.5 13.5 7.5 13.5	Ohms
Forward Transconductance ($V_{DS} \geq 2.0 V_{DS(on)}, I_D = 200 \text{ mAdc}$)	g_{FS}	80	–	–	mmhos

DYNAMIC CHARACTERISTICS

Input Capacitance ($V_{DS} = 25 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$)	C_{iss}	–	17	50	pF
Output Capacitance ($V_{DS} = 25 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$)	C_{oss}	–	10	25	pF
Reverse Transfer Capacitance ($V_{DS} = 25 \text{ Vdc}, V_{GS} = 0, f = 1.0 \text{ MHz}$)	C_{rss}	–	2.5	5.0	pF

SWITCHING CHARACTERISTICS (Note 2.)

Turn–On Delay Time	($V_{DD} = 25 \text{ Vdc}, I_D = 500 \text{ mAdc}, R_G = 25 \Omega, R_L = 50 \Omega, V_{gen} = 10 \text{ V}$)	$t_d(on)$	–	7	20	ns
Turn–Off Delay Time		$t_d(off)$	–	11	40	ns

BODY–DRAIN DIODE RATINGS

Diode Forward On–Voltage ($I_S = 115 \text{ mAdc}, V_{GS} = 0 \text{ V}$)	V_{SD}	–	–	–1.5	Vdc
Source Current Continuous (Body Diode)	I_S	–	–	–115	mAdc
Source Current Pulsed	I_{SM}	–	–	–800	mAdc

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

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ELECTRICAL CHARACTERISTIC CURVES

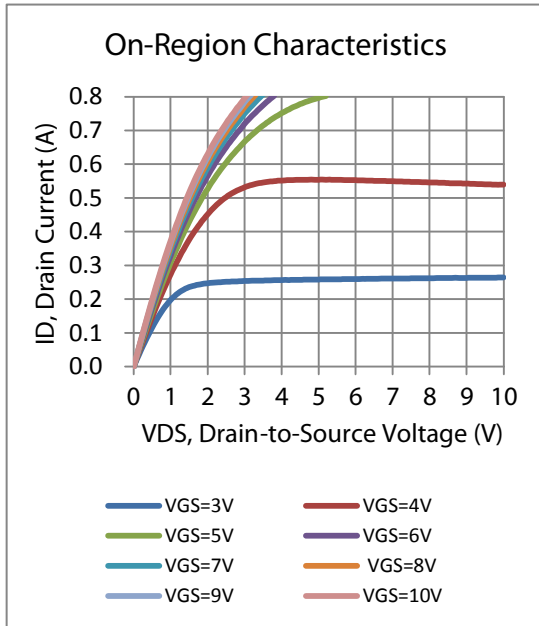


FIG1

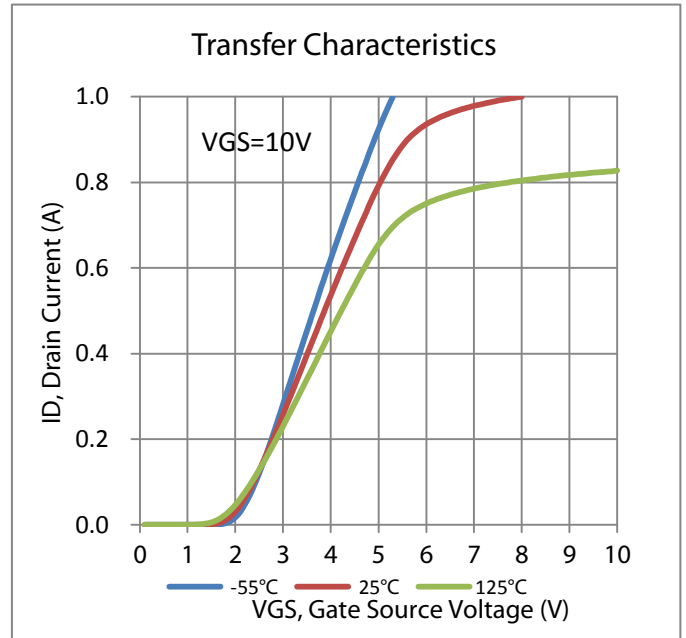


FIG2

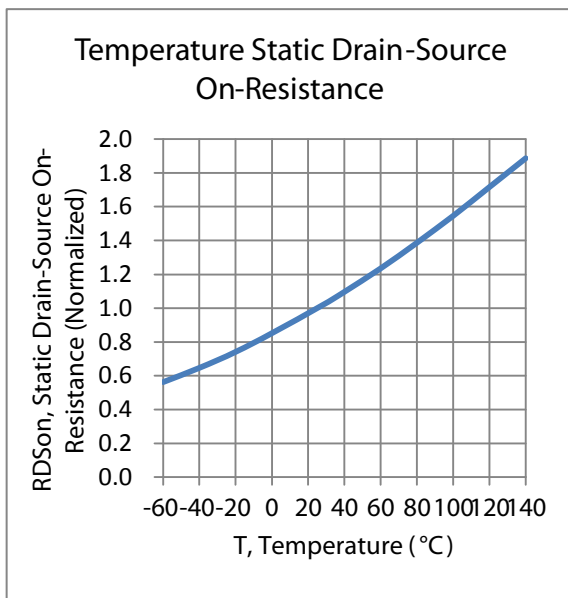


FIG3

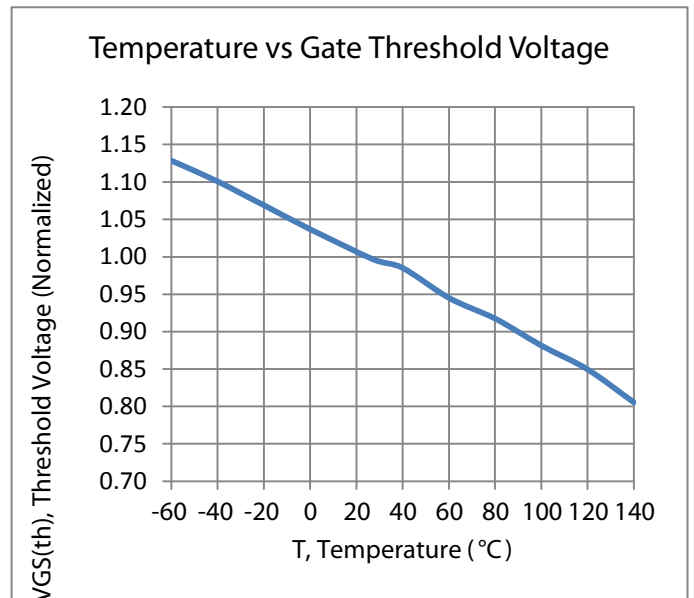
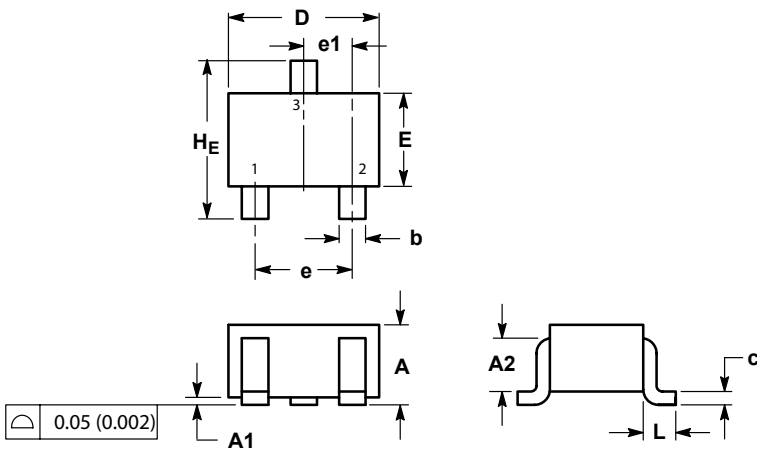


FIG4

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SC-70 (SOT-323)

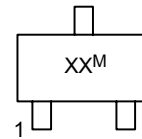


NOTES:
 1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.80	0.90	1.00	0.032	0.035	0.040
A1	0.00	0.05	0.10	0.000	0.002	0.004
A2	0.7 REF			0.028 REF		
b	0.30	0.35	0.40	0.012	0.014	0.016
c	0.10	0.18	0.25	0.004	0.007	0.010
D	1.80	2.10	2.20	0.071	0.083	0.087
E	1.15	1.24	1.35	0.045	0.049	0.053
e	1.20	1.30	1.40	0.047	0.051	0.055
e1	0.65 BSC			0.026 BSC		
L	0.425 REF			0.017 REF		
HE	2.00	2.10	2.40	0.079	0.083	0.095

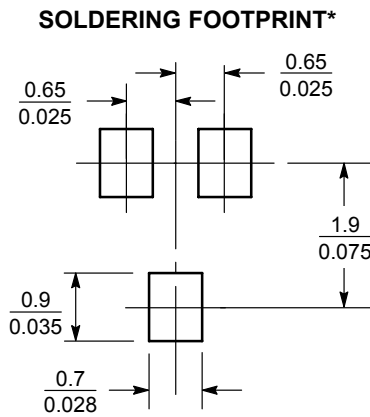
0.05 (0.002)

GENERIC MARKING DIAGRAM



XX = Specific Device Code
 M = Date Code
 ■ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "▪", may or may not be present.



SCALE 10:1 (mm/inches)