

DATA SHEET

2N7002KW

N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR

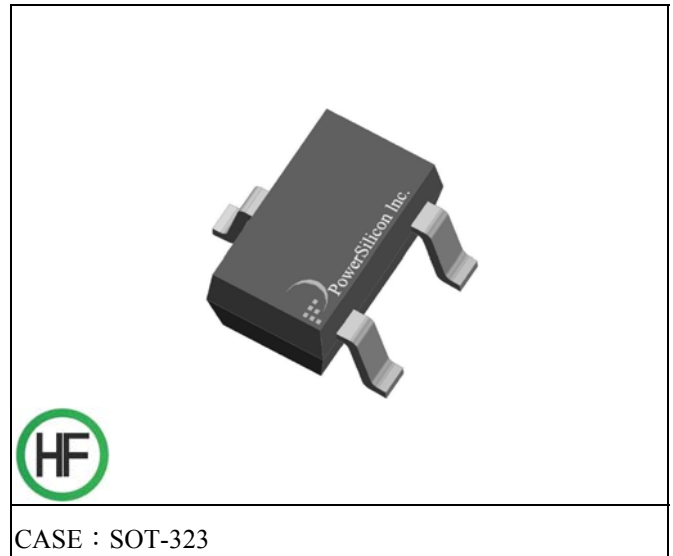
VOLTAGE 60 Volts **CURRENT** 300 mA

FEATURES

- N-CHANNEL ENHANCEMENT MODE FIELD EFFECT TRANSISTOR, DESIGNED FOR HIGH SPEED PULSE AMPLIFIER AND DRIVE APPLICATION.
- ESD MIL-STD883 , ±1KV CONTACT DISCHARGE COMPLIANT PROTECTION.
- LEAD FREE AND HALOGEN-FREE.

MECHANICAL DATA

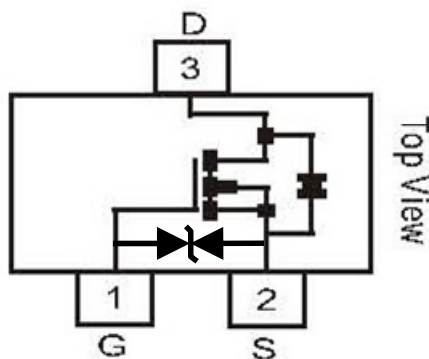
- HIGH DENSITY CELL DESIGN FOR LOW $R_{DS(ON)}$ VOLTAGE CONTROLLED SMALL SIGNAL SWITCHING.
- RUGGED AND RELIABLE.
- HIGH SATURATION CURRENT CAPABILITY.



ABSOLUTE MAXIMUM RATINGS

RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED.

PATING	SYMBOL	2N7002KW	UNITS
DRAIN-SOURCE VOLTAGE	V_{DSS}	60	V
GATE-SOURCE VOLTAGE	V_{GSS}	±20	V
MAXIMUM DRAIN CURRENT-CONTINUE	I_D	115	mA
DRAIN CURRENT (PEAK VALUE)	IDM	800	mA
MAXIMUM POWER DISSIPATION DERATING @ TA = 25°C	P_D	225	mW
OPERATING AND STORAGE JUNCTION TEMPERATURE RANGE	T_J, T_{STG}	- 55 TO +150	°C



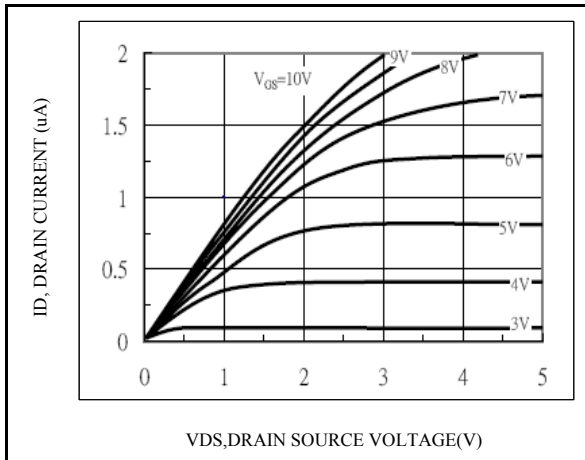
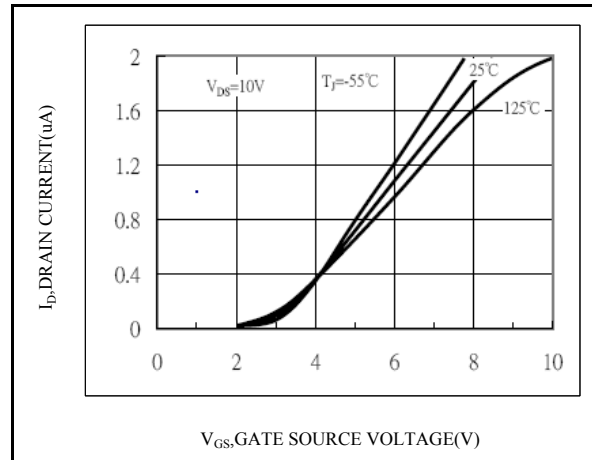
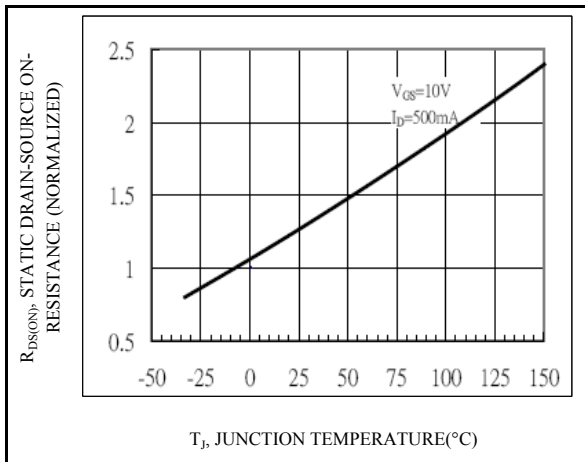
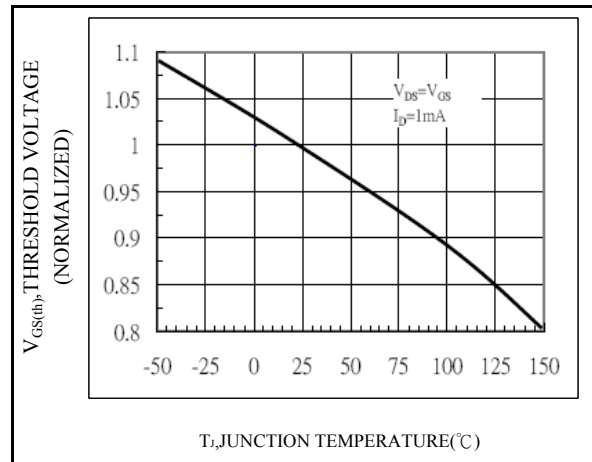
ELECTRICAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ Unless otherwise noted

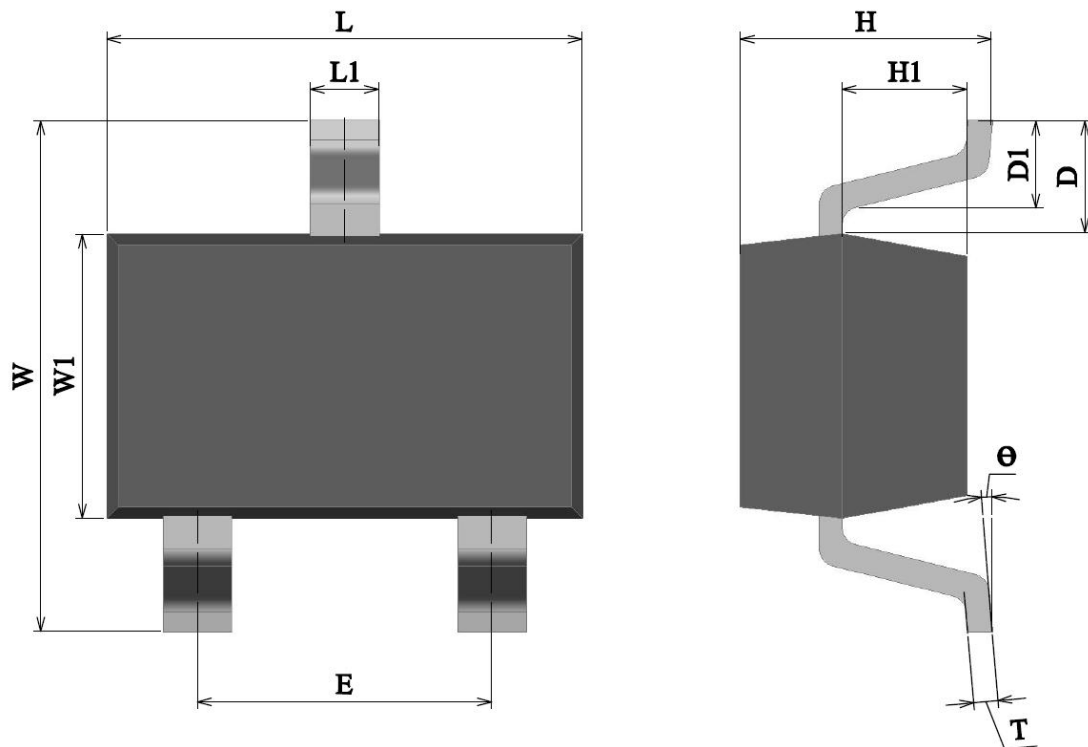
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain-source Breakdown Voltage	Bvdss	$I_D = 10\mu\text{A}, V_{GS} = 0$	60	-	-	V
Zero Gate Voltage Drain Current	Idss	$V_{DS} = \text{Max Rating}$ $V_{DS} = 60\text{V}, V_{GS} = 0, T_J = 25^\circ\text{C}$	-	-	1	μA
Current ($V_{DS} = 0$)	Igss	$V_{GS} = \pm 20\text{V}, V_{DS} = 0$	-	-	± 10	μA
ON CHARACTERISTICS(NOTE 1)						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1	-	2.5	V
Static Drain-source On Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 500\text{mA}$	-	1.4	2	Ω
Diode Forward Voltage	V_{SD}	$I_S = 115\text{mA}, V_{GS} = 0$	0.5	-	1.5	V
DYNAMIC CHARACTERISTICS						
Input Capacitance	Ciss	$V_{DS} = 10\text{V}, f = 1.0\text{MHz}, V_{GS} = 0$	-	-	40	pF
Output Capacitance	Coss		-	-	30	
Reverse Transfer Capacitance	Crss		-	-	10	
Turn-on Time	T_{ON}	$V_{DS} = 30\text{V}, I_D = 500\text{mA},$ $V_{GS} = 0 \sim 10\text{V}$	-	-	20	nS
Total-off Time	T_{OFF}		-	-	20	

NOTE:

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


Fig. 1-OHMIC REGION

Fig. 2-TRANSFER CHARACTERISTICS

Fig. 3-TEMPERATURE VERSUS STATIC DRAIN-SOURCE ON-RESISTANCE

Fig. 4-TEMPERATURE VERSUS GATE THRESHOLD VOLTAGE

SOT-323 DIMENSION



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
L	2.00	2.20	0.079	0.087
L1	0.20	0.40	0.008	0.016
W	2.15	2.45	0.085	0.096
W1	1.15	1.35	0.045	0.053
E	1.20	1.40	0.047	0.055
H	0.90	1.10	0.035	0.043
H1	0.35	0.75	0.014	0.030
D	0.525 REF		0.021 REF	
D1	0.26	0.46	0.010	0.018
T	0.08	0.15	0.003	0.006
θ	0°	8°	0°	8°