

340mA N-Channel Small Signal MOSFET - 60V
PRIMARY CHARACTERISTICS

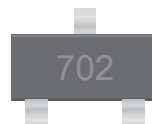
BV_{DSS}	$R_{DS(ON)MAX}$	I_D
60V	$5.3\Omega @ V_{GS}=4.5V$	340mA
	$5.0\Omega @ V_{GS}=10V$	

FEATURES

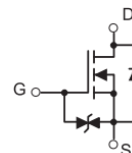
- High density cell design for low $R_{DS(ON)}$
- Voltage controlled small signal switch
- Rugged and reliable
- ESD Protected

SOT-23
PACKAGE

Marking : 702



1. GATE
2. SOURCE
3. DRAIN


MECHANICAL DATA

- Case : Molded plastic, SOT-23
- Polarity : Shown above
- Terminals : Plated terminals, solderable per MIL-STD-750, Method 2026
- Epoxy : UL94-V0 rated flame retardant

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

Symbol	Parameter	Value	Units
V_{DS}	Drain-source Voltage	60	V
V_{GS}	Gate-source-Voltage	± 20	V
I_D	Drain Current	340	mA
P_d	Total Power Dissipation	300.	mW
T_J	Junction Temperature	-55 to 150	$^\circ\text{C}$
T_{JL}	Storage Temperature	-55 to 150	$^\circ\text{C}$
R	Thermal Resistance from Junction to Ambient	357	$^\circ\text{C/W}$

ELECTRICAL CHARACTERISTICS (Ta = 25 °C)

Symbol	Parameter	Test Conditions	Min	Max	Units
$V_{(BR)DSS}$	Drain-source Voltage Breakdown Voltage	$V_{GS}=0V, I_D=10\mu A$	60		V
$V_{GS(th)}$	Gate-Threshold Voltage (note 1)	$V_{DS}=V_{GS}, I_D=1mA$	1.0	2.5	V
I_{GSS}	Gate -body Leakage	$V_{DS}=0V, V_{GS}=\pm 10V$ $V_{DS}=0V, V_{GS}=\pm 5V$		± 200 ± 100	nA nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=48V, V_{GS}=0V$		1	μA
R_{dson}	Drain-source On-resistance (note 1)	$V_{GS}=4.5V, I_D=200mA$ $V_{GS}=10V, I_D=500mA$		5.3 5.0	Ω
V_{sd}	Diode Forward Voltage (note 1)	$V_{GS}=0V, I_S=300mA$		1.5	V

Dynamic Characteristics

C_{iss}	Input Capacitance	$V_{DS}=10V$ $V_{GS}=0V$ $f=1MHz$		40	pF
C_{oss}	Output Capacitance			30	
C_{rss}	Reverse Transfer Capacitance			10	

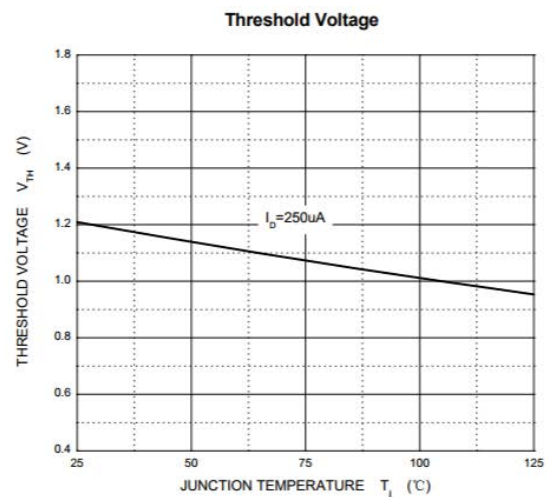
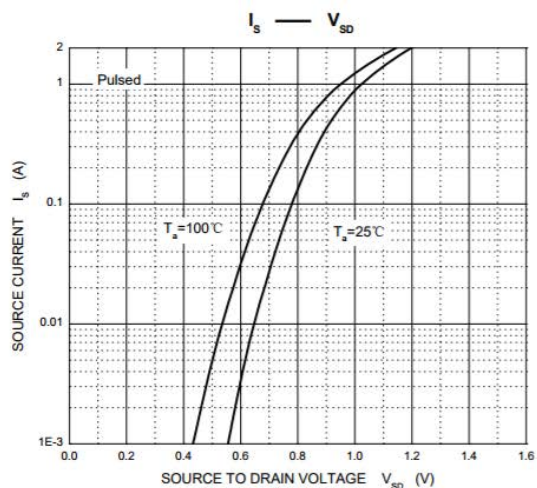
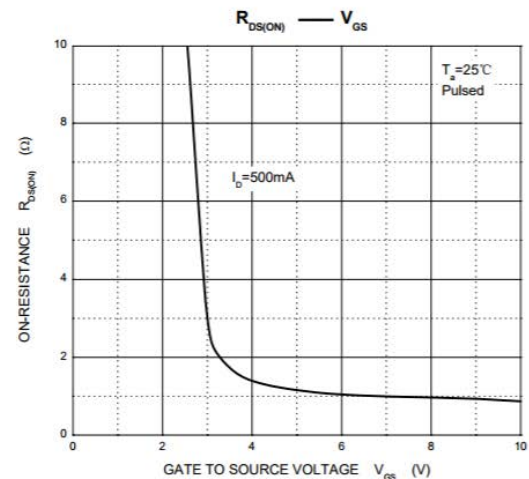
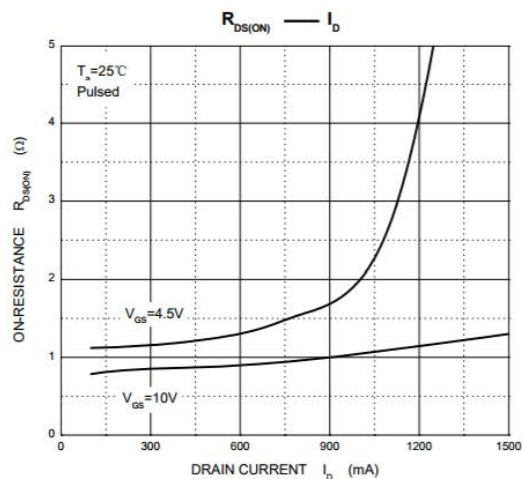
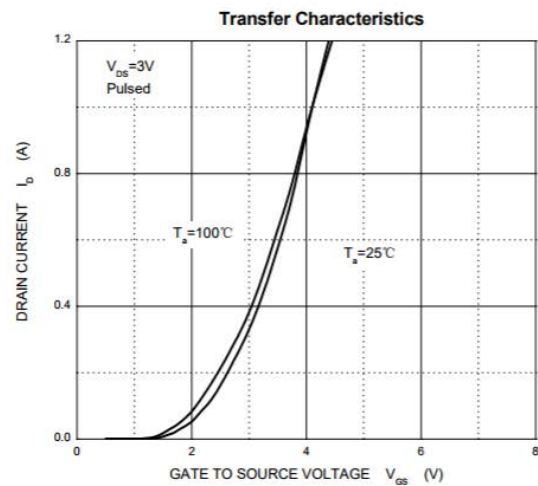
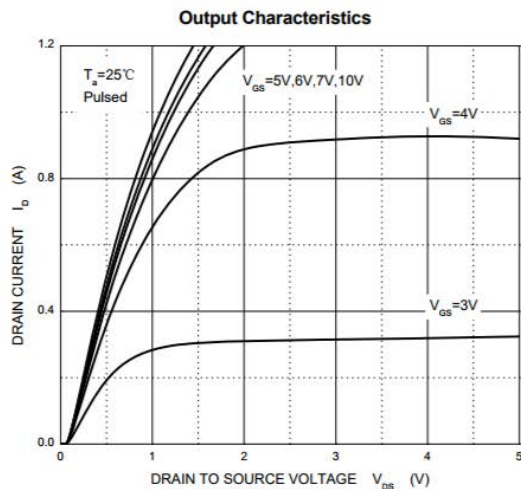
Switching Characteristics

$T_d(on)$	Turn on time	$V_{DD}=50V, R_L=250\Omega$ $R_{GS}=50\Omega, V_{GS}=10V$ $R_G=50\Omega$		10	ns
$T_d(off)$	Turn off time			15	

Note:

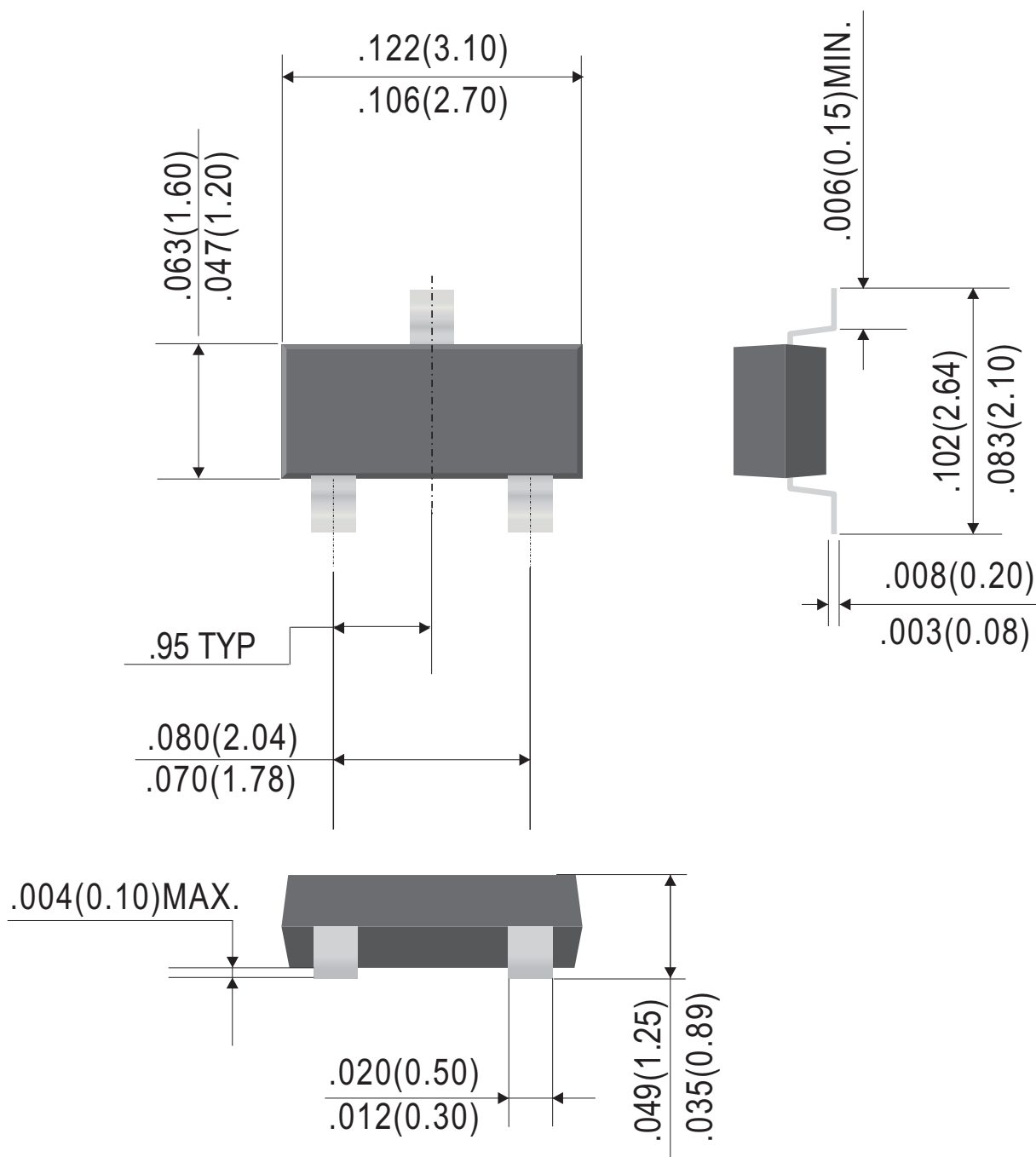
1. Pulse Test : Pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.

TYPICAL CHARACTERISTICS



Outline Drawing

SOT-23



Dimensions in inches and (millimeters)

Rev.E

Ordering Information:

Device PN	Packing
2N7002KNL -T ⁽¹⁾ H ⁽²⁾ -WS ⁽³⁾	Tape&Reel: 3 Kpcs/Reel

Note: (1) Packing code, Tape & Reel Packing

(2) Halogen free product for packing code suffix "H"

(3) WS : Willas brand abbreviation, Label Type does not display

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