Elektronische Bauelemente

2N7002T

115 mAMPS, 60VOLTS, $R_{DS(on)}$=7.5 Ω

Small Signal MOSFET

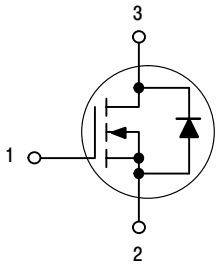
RoHS Compliant Product

Small Signal MOSFET
115 mAmps, 60 Volts
N–Channel SOT–523

MAXIMUM RATINGS

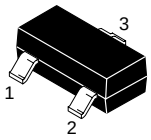
Rating	Symbol	Value	Unit
Drain–Source Voltage	V_{DSS}	60	Vdc
Drain–Gate Voltage (R_{GS} = 1.0 MΩ)	V_{DGR}	60	Vdc
Gate–Source Voltage – Continuous – Non–repetitive ($t_p \leq 50$ μs)	 V_{GS} V_{GSM}	 ±20 ±40	 Vdc Vpk

N–Channel



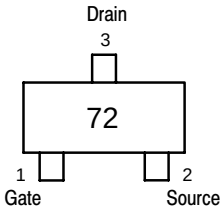
THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR–5 Board (Note 3.) T_A = 25°C Derate above 25°C	P_D	150 1.8	mW mW/°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction and Storage Temperature	T_J, T_{stg}	–55 to +150	°C



SOT–523

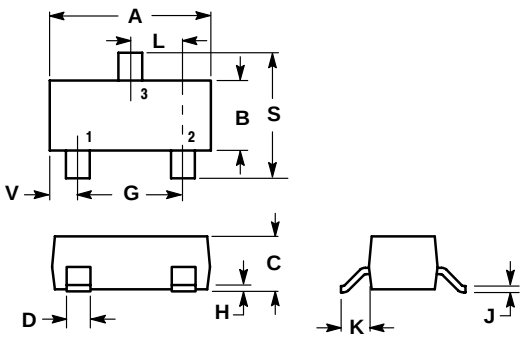
MARKING DIAGRAM & PIN ASSIGNMENT



72 = Device Code

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.
3. FR–5 = 1.0 x 0.75 x 0.062 in.
4. Alumina = 0.4 x 0.3 x 0.025 in 99.5% alumina.

SOT-523		
Dim	**Min**	**Max**
A	1.500	1.700
B	0.750	0.850
C	0.600	0.900
D	0.150	0.300
G	0.900	1.100
H	0.000	0.100
J	0.100	0.200
K	0.100	0.300
L	0.400	0.600
S	1.450	1.750
V	0.250	0.350
All Dimension in mm		



ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic		Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS						
Drain–Source Breakdown Voltage (V_{GS} = 0, I_D = 10 μAdc)		$V_{(BR)DSS}$	60	–	–	Vdc
Zero Gate Voltage Drain Current (V_{GS} = 0, V_{DS} = 60 Vdc)	T_J = 25°C T_J = 125°C	I_{DSS}	– –	– –	1.0 500	μAdc
Gate–Body Leakage Current, Forward (V_{GS} = 20 Vdc)		I_{GSSF}	–	–	10	nAdc
Gate–Body Leakage Current, Reverse (V_{GS} = –20 Vdc)		I_{GSSR}	–	–	–10	nAdc
ON CHARACTERISTICS (Note 2.)						
Gate Threshold Voltage (V_{DS} = V_{GS}, I_D = 250 μAdc)		$V_{GS(th)}$	1.0	–	2.0	Vdc
On–State Drain Current (V_{DS} ≥ 2.0 $V_{DS(on)}$, V_{GS} = 10 Vdc)		$I_{D(on)}$	0.5	1	–	A
Static Drain–Source On–State Resistance (V_{GS} = 10 V, ID = 500 mAdc) (V_{GS} = 5.0 Vdc, ID = 50 mAdc)	TC = 25°C TC = 25°C	$R_{DS(on)}$	– –	– –	13.5 7.5	Ohms
Forward Transconductance (V_{DS} = 10 V, I_D = 200 mAdc)		g_{FS}	80	–	–	ms
DYNAMIC CHARACTERISTICS						
Input Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{iss}	–	–	50	pF
Output Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{oss}	–	–	25	pF
Reverse Transfer Capacitance (V_{DS} = 25 Vdc, V_{GS} = 0, f = 1.0 MHz)		C_{rss}	–	–	5.0	pF
SWITCHING CHARACTERISTICS (Note 2.)						
Turn–On Delay Time	(V_{DD} = 30 Vdc, I_D ≅ 200 mAdc, R_G = 25 Ω, R_L = 150 Ω, V_{gen} = 10 V)	$t_{d(on)}$	–	–	20	ns
Turn–Off Delay Time		$t_{d(off)}$	–	–	20	ns

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TYPICAL ELECTRICAL CHARACTERISTICS

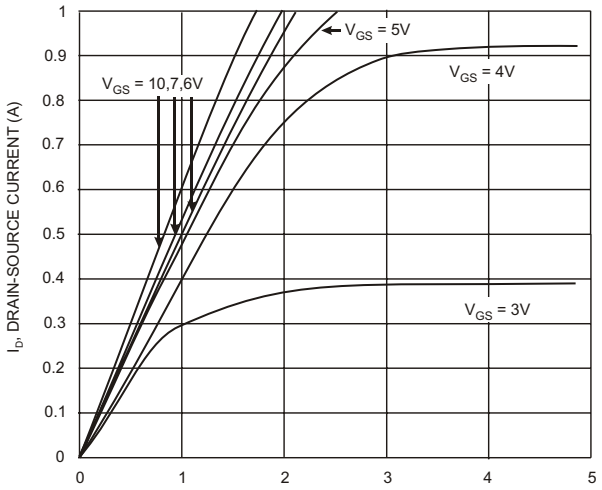

Fig. 1 On-Region Characteristics

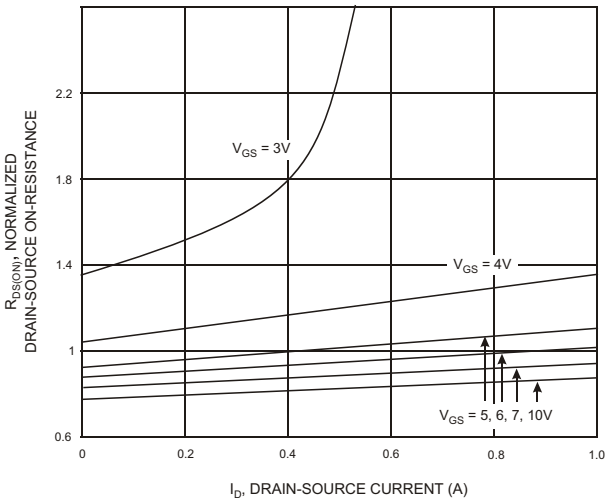

Fig. 2 On-Resistance Variation with Gate Voltage and Drain-Source Current

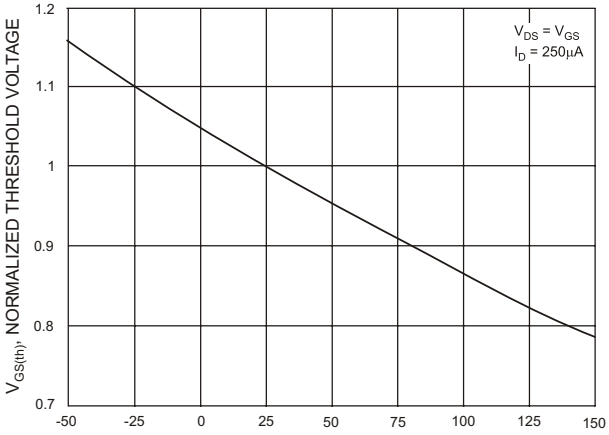

Fig. 3 Gate Threshold Variation with Temperature

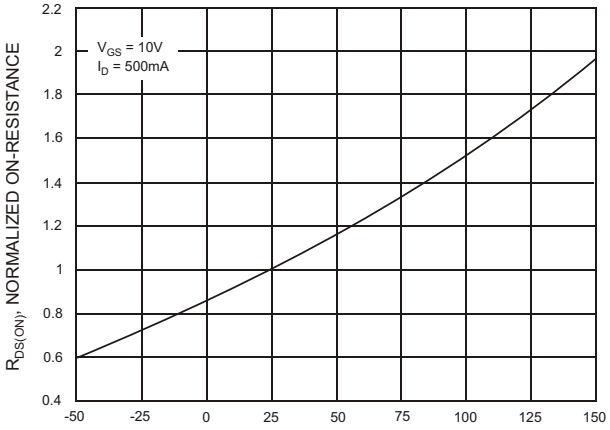

Fig. 4 On-Resistance Variation with Temperature

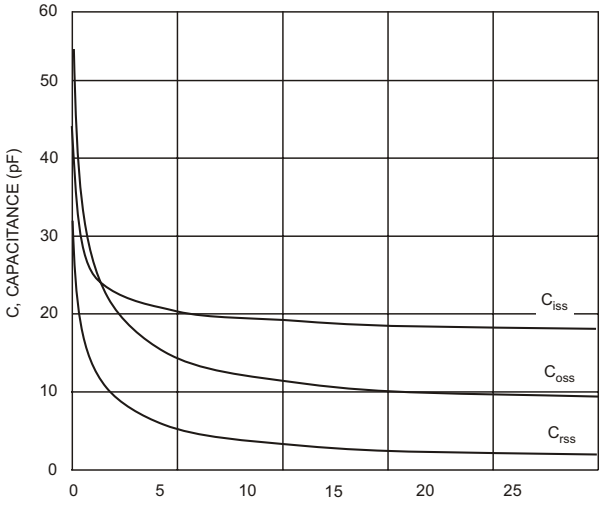

Fig. 5 Typical Capacitance

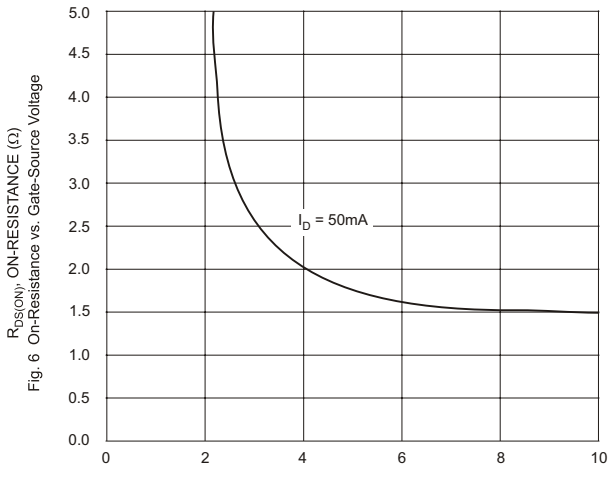

Fig. 6 On-Resistance vs. Gate-Source Voltage