Elektronische Bauelemente

2N7002DW

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

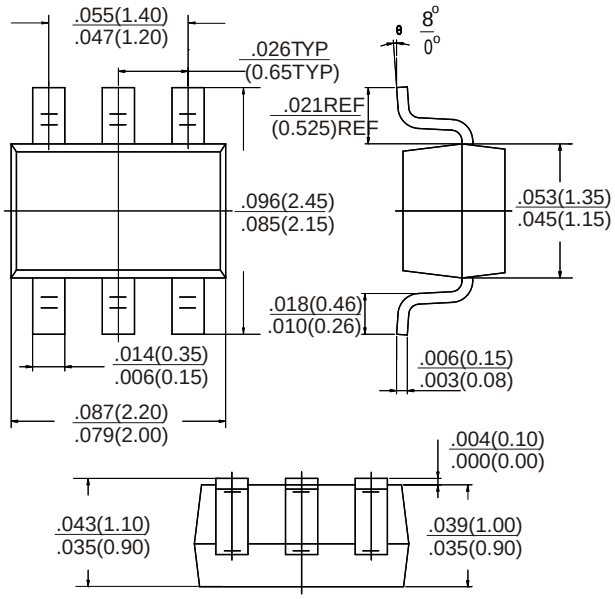
Small Signal MOSFET

RoHS Compliant Product

Small Signal MOSFET 115 mAmps, 60 Volts

N–Channel SOT–363

SOT-363



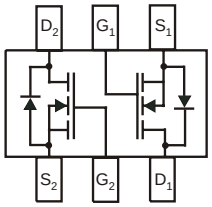
Dimensions in inches and (millimeters)

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	V_{GS}	±20	Vdc

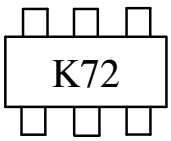
THERMAL CHARACTERISTICS

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	$R_{\theta JA}$	625	°C/W
Junction and Storage Temperature	T_J, T_{stg}	– 55 ~ +150	°C



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.

MARKING DIAGRAM



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

TYPICAL ELECTRICAL CHARACTERISTICS

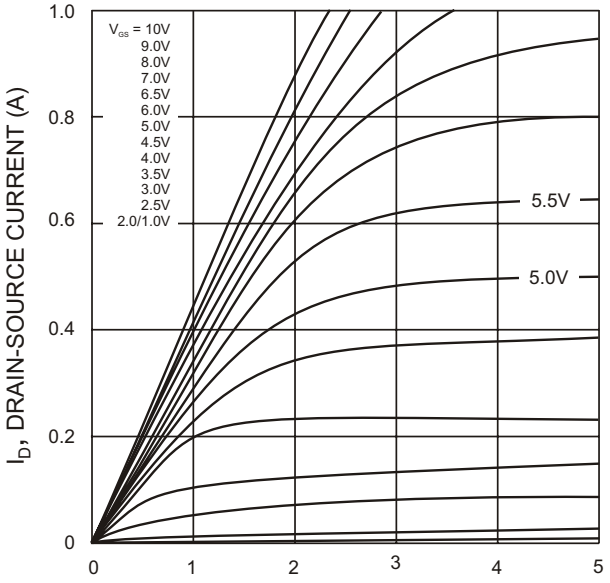


Fig. 1 On-Region Characteristics

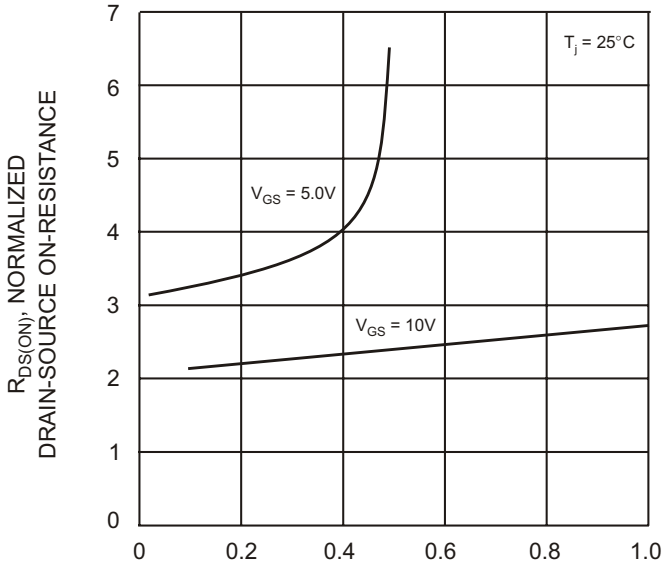


Fig. 2 On-Resistance vs Drain Current

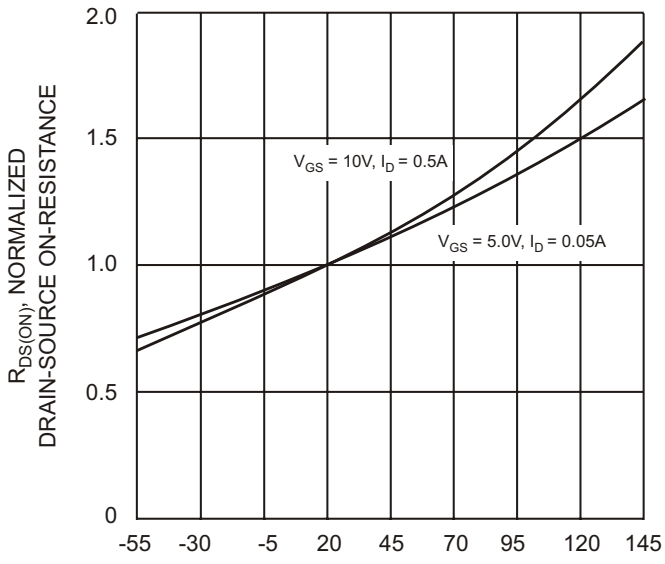


Fig. 3 On-Resistance vs Junction Temperature

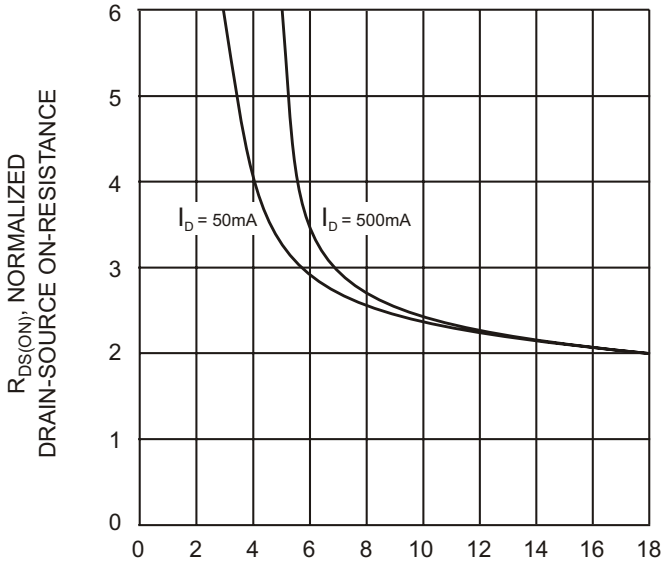


Fig. 4 On-Resistance vs. Gate-Source Voltage