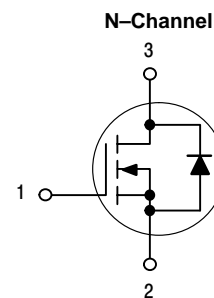


RoHS Compliant Product

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

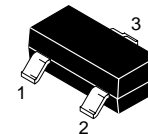
**MAXIMUM RATINGS**

Rating	Symbol	Value	Unit
Drain-Source Voltage	$V_{DSS}$	60	Vdc
Drain-Gate Voltage ( $R_{GS} = 1.0 M\Omega$ )	$V_{DGR}$	60	Vdc
Gate-Source Voltage	$V_{GS}$	$\pm 20$	Vdc
- Continuous	$V_{GSM}$	$\pm 40$	Vpk
- Non-repetitive ( $t_p \leq 50 \mu s$ )			



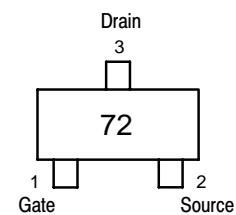
**THERMAL CHARACTERISTICS**

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



SOT-523

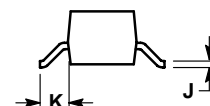
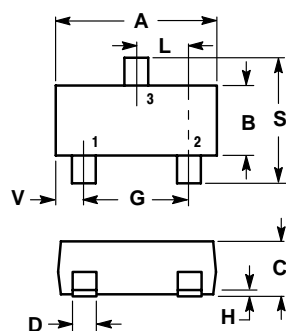
**MARKING DIAGRAM & PIN ASSIGNMENT**



72 = Device Code

1. The Power Dissipation of the package may result in a lower continuous drain current.
2. Pulse Test: Pulse Width  $\leq 300 \mu s$ , Duty Cycle  $\leq 2.0\%$ .
3. FR-5 =  $1.0 \times 0.75 \times 0.062$  in.
4. Alumina =  $0.4 \times 0.3 \times 0.025$  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** ( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
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**OFF CHARACTERISTICS**

Drain-Source Breakdown Voltage ( $V_{GS} = 0, I_D = 10 \mu\text{A}$ )	$V_{(BR)DSS}$	60	-	-	Vdc
Zero Gate Voltage Drain Current ( $V_{GS} = 0, V_{DS} = 60 \text{ Vdc}$ )	$I_{DSS}$	-	-	1.0 500	$\mu\text{A}$ $^\circ\text{C}$
Gate-Body Leakage Current, Forward ( $V_{GS} = 20 \text{ Vdc}$ )	$I_{GSSF}$	-	-	10	nA
Gate-Body Leakage Current, Reverse ( $V_{GS} = -20 \text{ Vdc}$ )	$I_{GSSR}$	-	-	-10	nA

**ON CHARACTERISTICS** (Note 2.)

Gate Threshold Voltage ( $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$ )	$V_{GS(th)}$	1.0	-	2.0	Vdc
On-State Drain Current ( $V_{DS} \geq 2.0 V_{DS(on)}, V_{GS} = 10 \text{ Vdc}$ )	$I_{D(on)}$	0.5	1	-	A
Static Drain-Source On-State Resistance ( $V_{GS} = 10 \text{ V}, I_D = 500 \text{ mA}$ ) $TC = 25^\circ\text{C}$ ( $V_{GS} = 5.0 \text{ Vdc}, I_D = 50 \text{ mA}$ ) $TC = 25^\circ\text{C}$	$R_{DS(on)}$	-	-	13.5 7.5	Ohms
Forward Transconductance ( $V_{DS} = 10 \text{ V}, I_D = 200 \text{ mA}$ )	$g_{FS}$	80	-	-	ms

**DYNAMIC CHARACTERISTICS**

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

**SWITCHING CHARACTERISTICS** (Note 2.)

Turn-On Delay Time	( $V_{DD} = 30 \text{ Vdc}, I_D \cong 200 \text{ mA},$ $R_G = 25 \Omega, R_L = 150 \Omega, V_{gen} = 10 \text{ V}$ )	$t_{d(on)}$	-	-	20	ns
Turn-Off Delay Time		$t_{d(off)}$	-	-	20	ns

**TYPICAL ELECTRICAL CHARACTERISTICS**

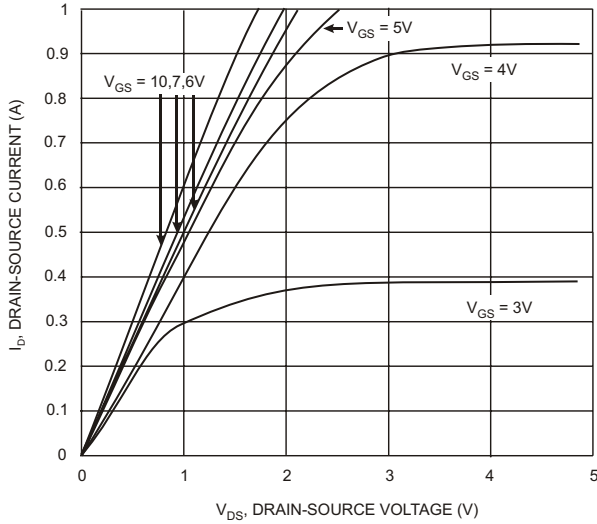


Fig. 1 On-Region Characteristics

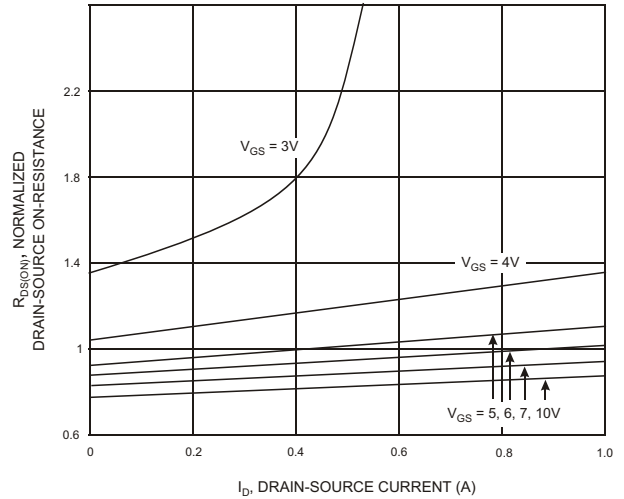


Fig. 2 On-Resistance Variation with Gate Voltage and Drain-Source Current

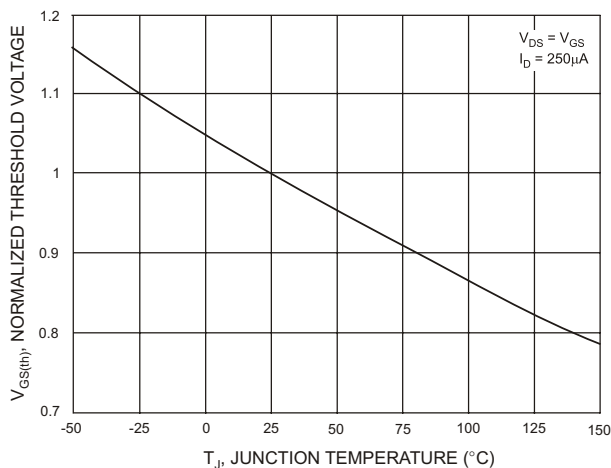


Fig. 3 Gate Threshold Variation with Temperature

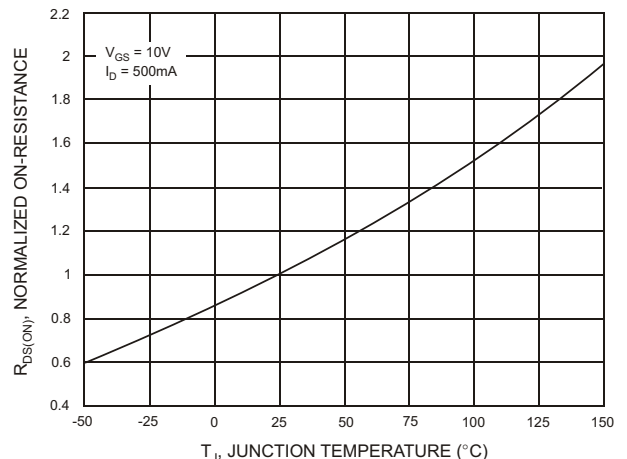


Fig. 4 On-Resistance Variation with Temperature

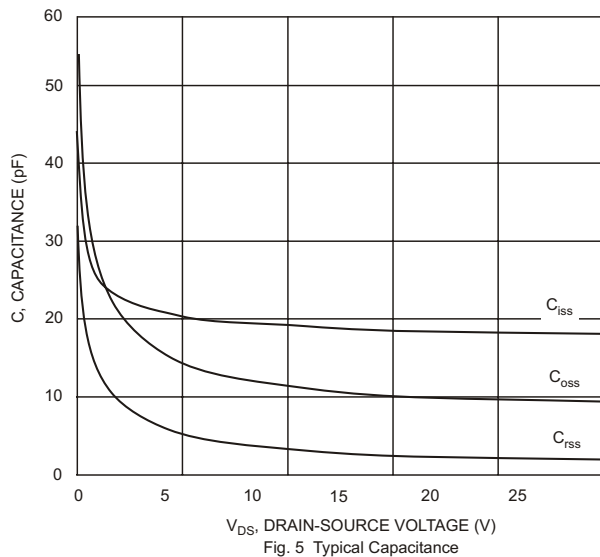


Fig. 5 Typical Capacitance

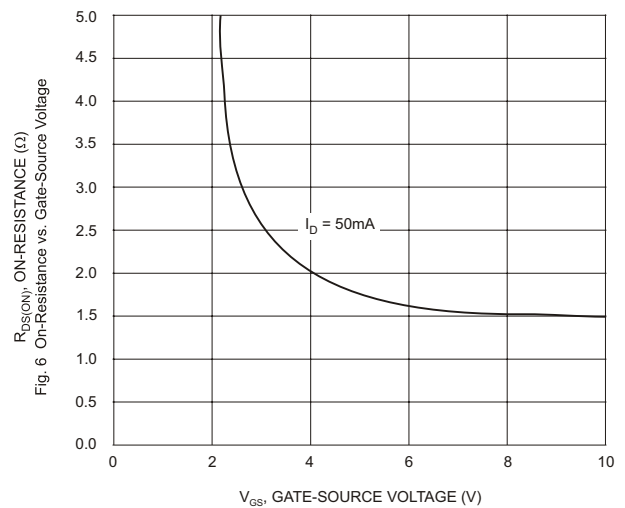


Fig. 6 On-Resistance vs. Gate-Source Voltage