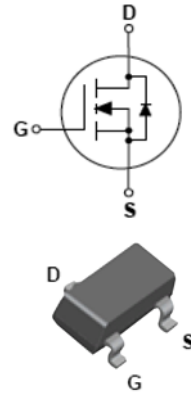


Small Signal MOSFET Transistor



SOT-23

Features:

- High Density Cell Design For Low $R_{DS(ON)}$
- Voltage Controlled Small Switch
- Rugged and Reliable
- High Saturation Current Capability

Applications:

- N-channel enhancement mode effect transistor
- Switching application.

Maximum Ratings:

$T_A = 25^\circ\text{C}$ unless otherwise specified.

Parameter	Symbol	Value	Units
Drain-Source voltage	V_{DSS}	60	V
Drain-Gate voltage ($R_{GS} \leq 1\text{M}\Omega$)	V_{DGR}	60	V
Gate -Source voltage - continuous Non Repetitive ($t_p < 50\mu\text{s}$)	V_{GSS}	± 20 ± 40	V
Maximum drain current - Continuous - Pulsed	I_D	115 800	mA
Power dissipation	P_D	200	mW
Thermal resistance, junction-to-ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Junction and storage temperature	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$

Small Signal MOSFET Transistor



Electrical Characteristics:

T_A = 25°C unless otherwise specified.

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Drain-Source breakdown voltage	V _{(BR)DSS}	V _{GS} =0V, I _D =10μA	60			V
Gate Threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1	2.1	2.5	
Gate-body leakage Forward Reverse	I _{GSS}	V _{DS} =0V, V _{GS} =20V V _{DS} =0V, V _{GS} =-20V			100 -100	nA
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} =0V			1	μA
		V _{DS} =60V, V _{GS} =0V, T _J =125°C			500	
On-state drain current	I _{D(ON)}	V _{GS} =10V, V _{DS} ≥ 2V _{DS(ON)}	500	2,700		mA
Drain-Source on-voltage	V _{DS(ON)}	V _{GS} =10V, I _D =500mA		0.6	3.75	V
		V _{GS} =5V, I _D =50mA		0.09	1.5	
Forward trans conductance	g _{FS}	V _{DS} ≥ 2V _{DS(ON)} , I _D =200mA	80	320		mS
Static drain-Source on-resistance	R _{DS(ON)}	V _{GS} =10V, I _D =500mA		1.2	7.5	Ω
		V _{GS} =10V, I _D =500mA, T _J =100°C		1.7	13.5	
		V _{GS} =5V, I _D =50mA		1.7	7.5	
		V _{GS} =5V, I _D =50mA, T _J =100°C		2.4	13.5	
Drain-Source diode forward voltage	V _{SD}	V _{GS} =0V, I _D =115mA		0.88	1.5	V
Input capacitance	C _{ISS}	V _{DS} =25V, V _{GS} =0V, f=1MHz		20	50	pF
Output capacitance	C _{OSS}			11	25	
Reverse transfer capacitance	C _{RSS}			4	5	
Turn-On delay time	t _{D(ON)}	V _{DD} =30V, I _D = 0.2A, R _L = 150Ω, V _{GS} = 10V, R _{GEN} = 25Ω			20	ns
Turn-Off delay time	t _{D(OFF)}				20	ns

Typical Characteristics:

T_a=25°C unless otherwise specified.

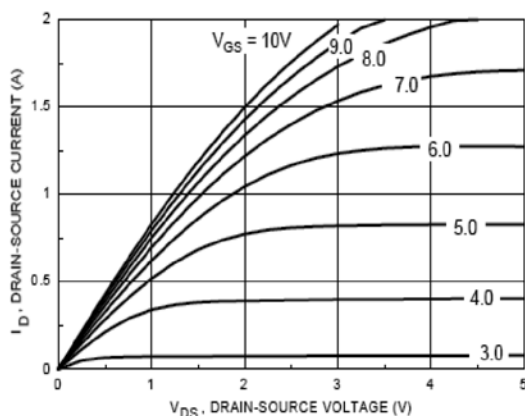


Figure 1. On-Region Characteristics

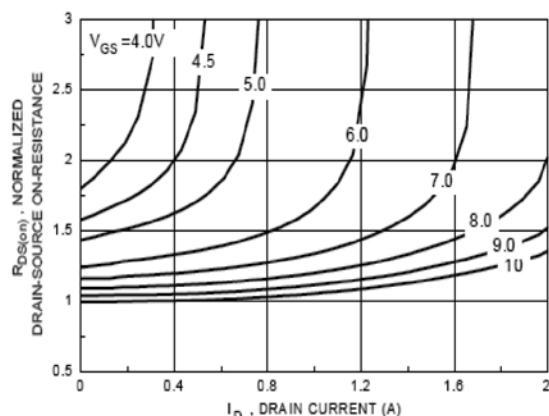


Figure 2. On-Resistance Variation with Gate Voltage and Drain Current

Small Signal MOSFET Transistor

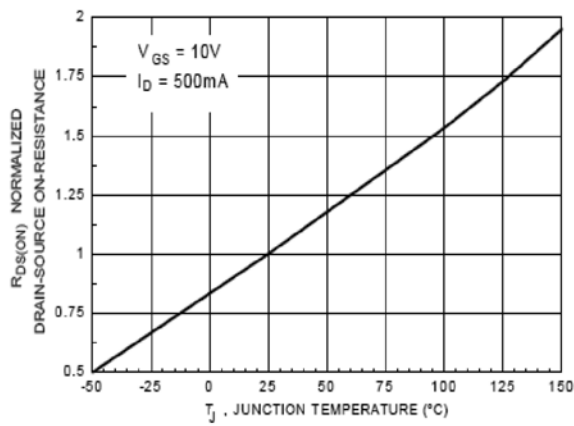


Figure 3. On-Resistance Variation with Temperature

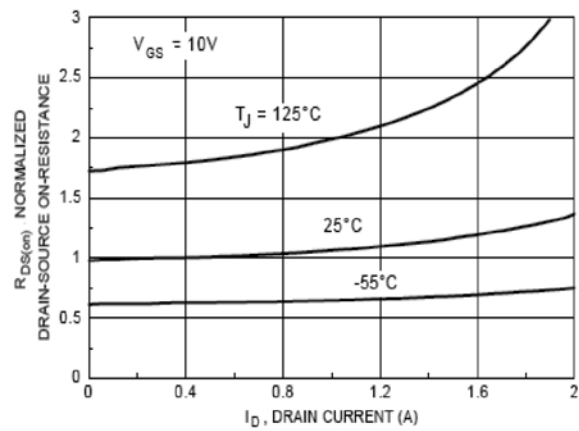


Figure 4. On-Resistance Variation with Drain Current and Temperature

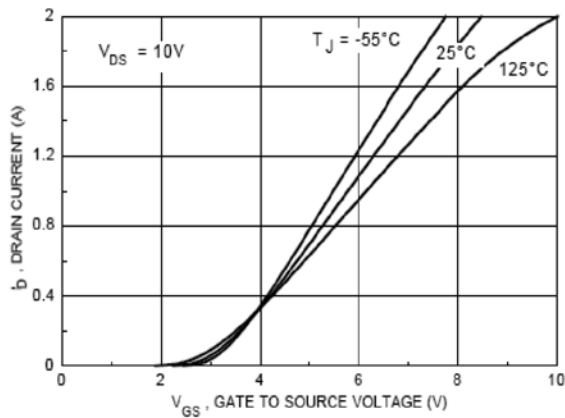


Figure 5. Transfer Characteristics

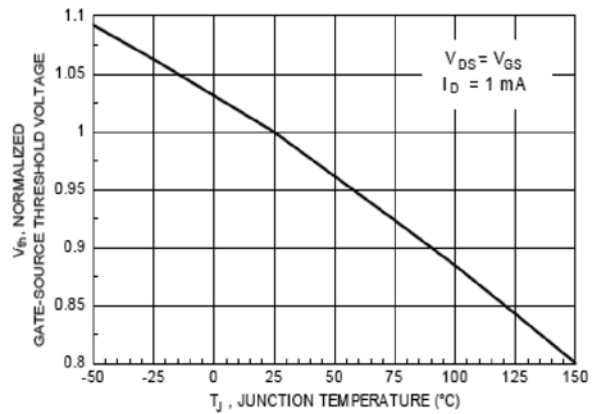


Figure 6. Gate Threshold Variation with Temperature

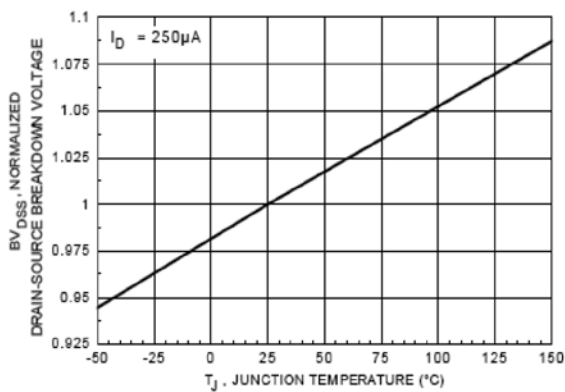


Figure 7. Breakdown Voltage Variation with Temperature

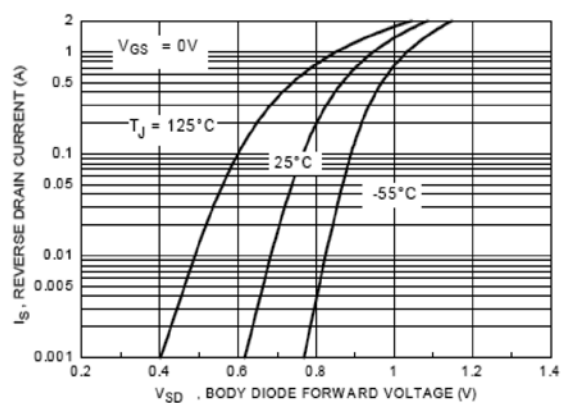


Figure 8. Body Diode Forward Voltage Variation with Temperature

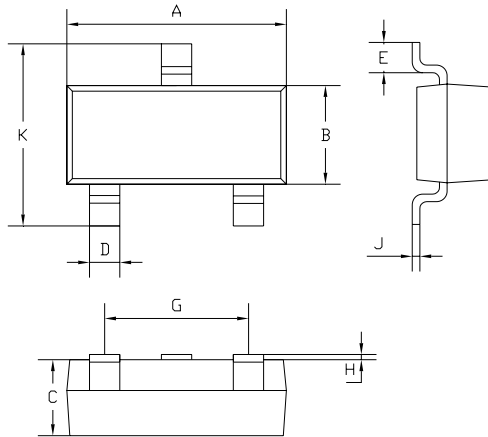


Small Signal MOSFET Transistor



Package Outline:

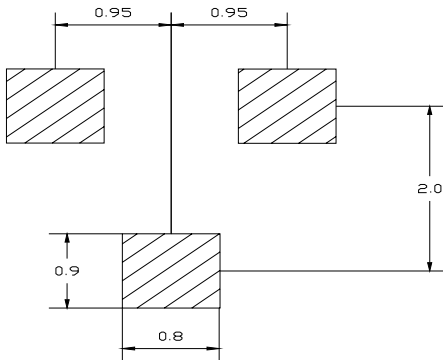
Plastic surface mounted package



SOT-23		
Dim.	Min.	Max.
A	2.85	2.95
B	1.25	1.35
C	1 Typ.	
D	0.37	0.43
E	0.35	0.48
G	1.85	1.95
H	0.02	0.1
J	0.1 Typ.	
K	2.35	2.45

Dimensions : Millimetres

Soldering Footprint:



Dimensions : Millimetres

Package Information:

Device	Package	Shipping
2N7002-7-F	SOT-23	3,000 / Tape & Reel

Part Number Table

Description	Part Number
Small Signal MOSFET Transistor	2N7002-7-F

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