



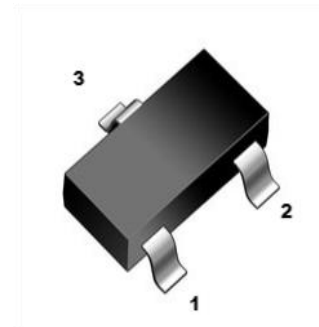
1. Features

- High density cell design for ultra low on-resistance
- Voltage controlled small signal switch
- Rugged and reliable
- High saturation current capability
- ESD protected

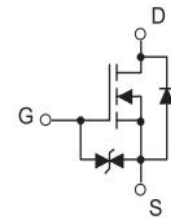
2. Mechanical Data

- Case:Molded Plastic,SOT-23 .
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking: 72K
- Mounting Position : Any.

SOT-23



1 Gate
2 Source
3 Drain



3. Maximum Ratings and Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	UNIT
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	340	mA
Power Dissipation	P_D	350	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	125	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55~ +150	°C



4. Electrical Characteristics

Rating at 25°C ambient temperature unless otherwise specified.

Parameter	Symbol	Test Condition	Min	Typ	Max	Units
Off Characteristics						
Drain-source breakdown voltage	V _(BR) DSS	V _{GS} = 0V, I _D =250μA	60			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =48V, V _{GS} = 0V			1	μA
Gate-source leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±10	μA
On characteristics						
Drain-source on-resistance ¹	R _{DS(on)}	V _{GS} =10V, I _D =500mA		0.9	5	Ω
		V _{GS} =4.5V, I _D =200mA		1.1	5.3	Ω
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0		2.5	V
Dynamic Characteristics ²						
Input capacitance	C _{iss}	V _{DS} =10V, V _{GS} =0V, f =1MHz			50	pF
Output capacitance	C _{oss}				30	pF
Reverse transfer capacitance	C _{rss}				10	pF
Switching Characteristics ²						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, V _{GS} =10V, I _D =0.2A, R _G =6Ω			10	ns
Turn-off delay time	t _{d(off)}				30	ns
Source-drain diode characteristics and maximum ratings						
Diode forward voltage	V _{SD}	I _S =0.3A, V _{GS} =0V			1.5	V

Note :

1. Pulse Test : Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
2. Guaranteed by design, not subject to production testing.



5. Rating And Characteristic Curves

Fig1: Output Characteristics

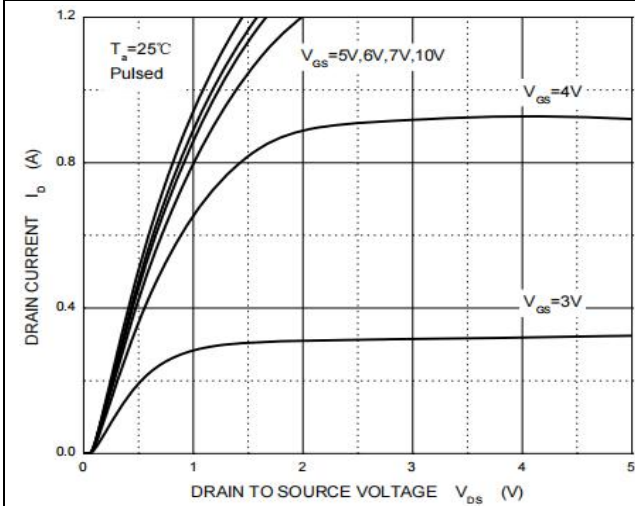


Fig2: Transfer Characteristics

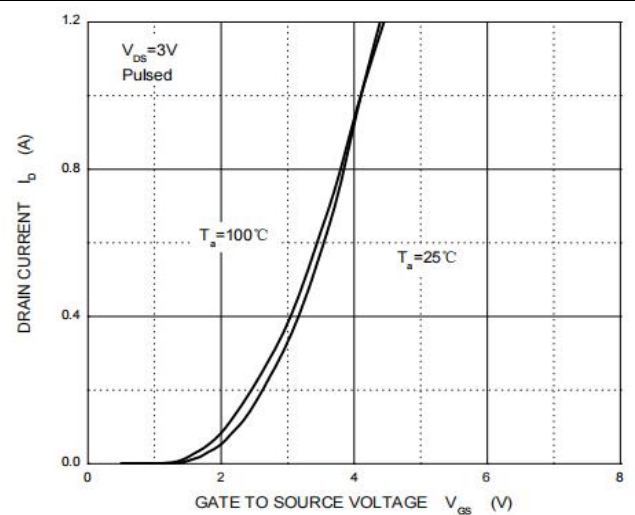


Fig.3 $R_{DS(on)} - I_D$

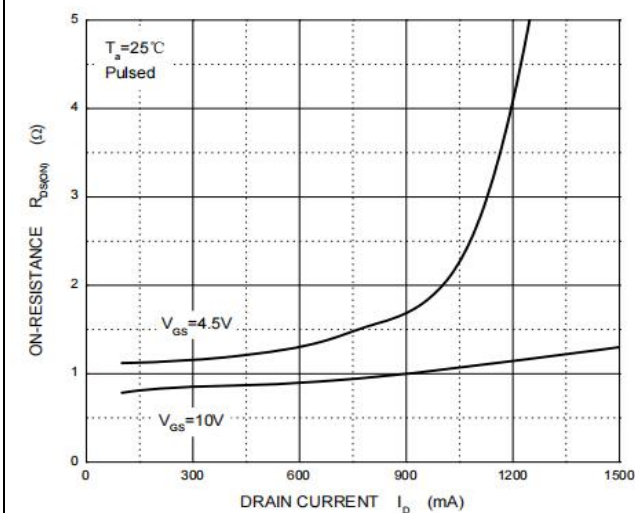


Fig.4 $R_{DS(on)} - V_{GS}$

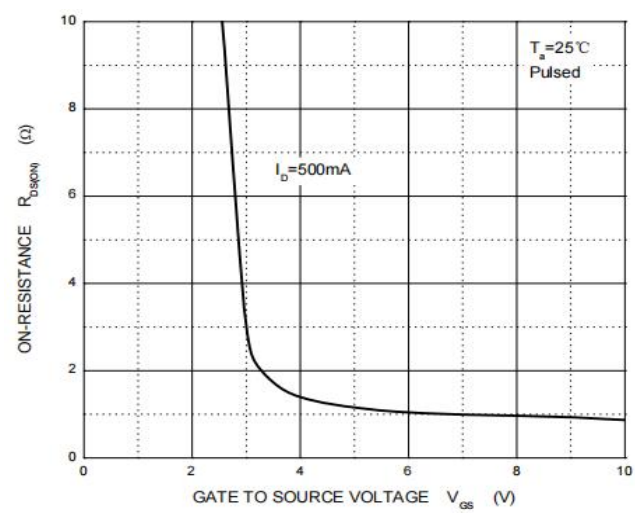


Fig.5 $I_S - V_{SD}$

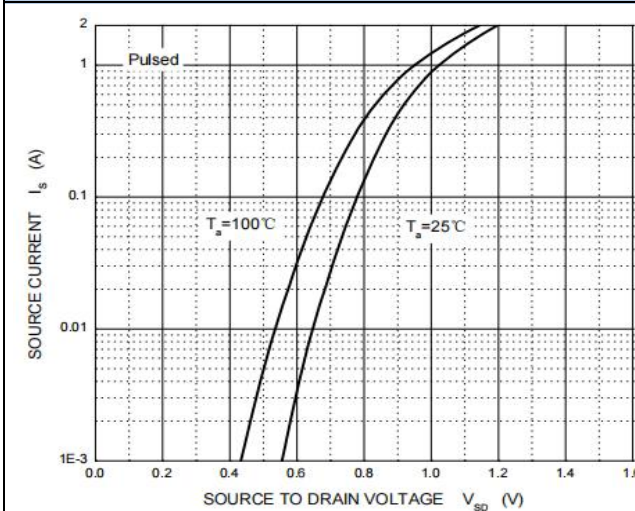
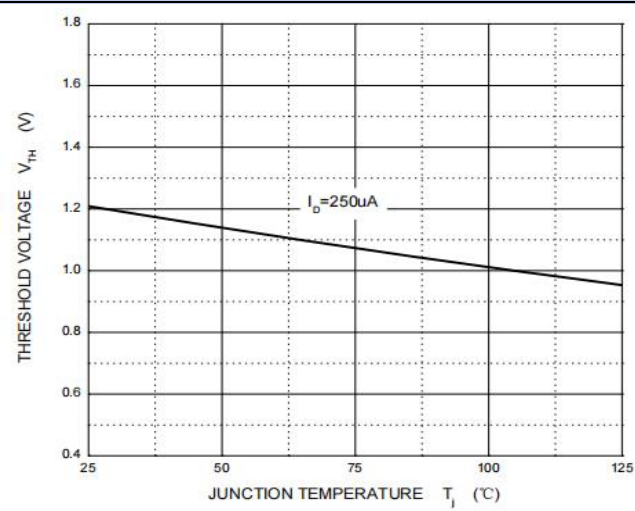
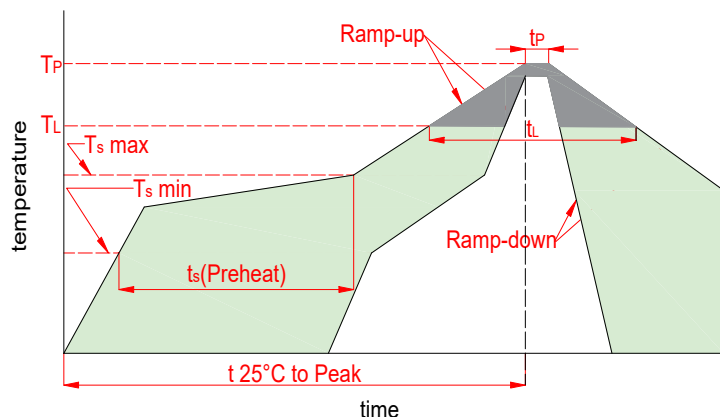


Fig.6 Threshold Voltage



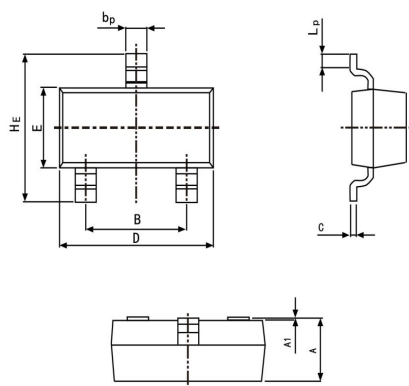


6. Soldering Parameters

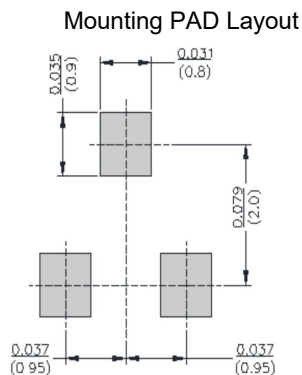


Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150°C
	Temp. max(T_s (min))	200°C
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3°C/s max
T_s (max) to T_L -Ramp-up Rate		3°C/s max
Reflow	Temp. (T_L)(Liquidus)	217°C
	Temp. (t_L)(Liquidus)	60~150s
Peak Temp. (T_p)		260 ^{+0/-5} °C
Time within actual peak Temp. (t_p)		30s max
Ramp-down Rate		6°C/s max
Time 25°C to peak Tempe. (T_p)		8 minutes max
Do not exceed		260°C

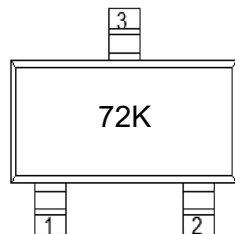
7. Dimensions



Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.045	0.90	1.15
B	0.070	0.081	1.78	2.05
bp	0.012	0.020	0.30	0.51
C	0.003	0.007	0.08	0.18
D	0.110	0.118	2.80	3.00
E	0.047	0.055	1.20	1.40
HE	0.087	0.110	2.20	2.80
A1	0.000	0.004	0.00	0.10
LP	0.008	0.020	0.20	0.50



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-23	2N7002K	8	3000



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