



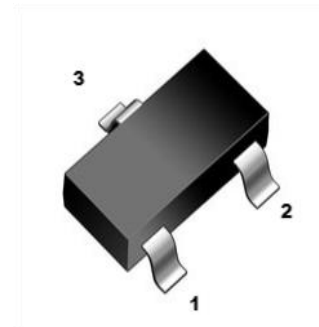
1. Features

- Low On-Resistance
- Low Gate Threshold Voltage
- Low Input Capacitance
- Fast Switching Speed
- Low Input/Output Leakage
- ESD Protected up to 2kV

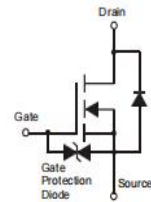
2. Mechanical Data

- Case:Molded Plastic,SOT-323 .
- Epoxy:UL 94V-0 rate flame retardant
- Terminals:Plated Leads Solderable perMIL-STD-750,Method-2026.
- Marking: NA1
- Mounting Position : Any.

SOT-323



- 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}	20	V
Gate-Source Voltage	V_{GS}	± 6	V
Continuous Drain Current	I_D	630	mA
Power Dissipation	P_D	280	mW
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	452	°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	20			V
Zero gate voltage drain current	I _{DSS}	V _{DS} =20V,V _{GS} = 0V			100	nA
Gate-source leakage current	I _{GSS}	V _{GS} =±4.5V, V _{DS} = 0V			±1	μA
On characteristics						
Drain-source on-resistance	R _{DS(on)}	V _{GS} =4.5V, I _D =600mA		0.3	0.4	Ω
		V _{GS} =2.5V, I _D =500mA		0.4	0.5	Ω
		V _{GS} =1.8V, I _D =350mA		0.5	0.7	Ω
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	0.5		1	V
Dynamic Characteristics						
Input capacitance	C _{iss}	V _{DS} =16V,V _{GS} =0V,f =1MHz		60.67		pF
Output capacitance	C _{oss}			9.68		pF
Reverse transfer capacitance	C _{rss}			5.37		pF
Switching Characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =10V,V _{GS} =4.5V, R _L =47Ω,R _G =10Ω		5.1		ns
Turn-on rise Time	t _r			7.4		ns
Turn-off delay time	t _{d(off)}			26.7		ns
Turn-off fail Time	t _f			12.3		ns



5. Rating And Characteristic Curves

Fig1: Output Characteristics

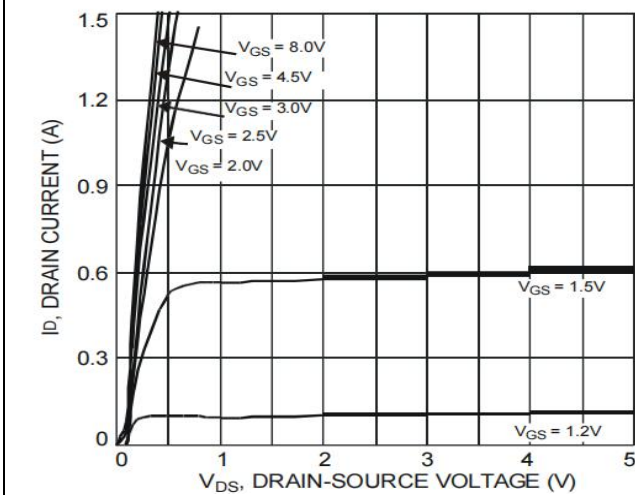


Fig2: Transfer Characteristics

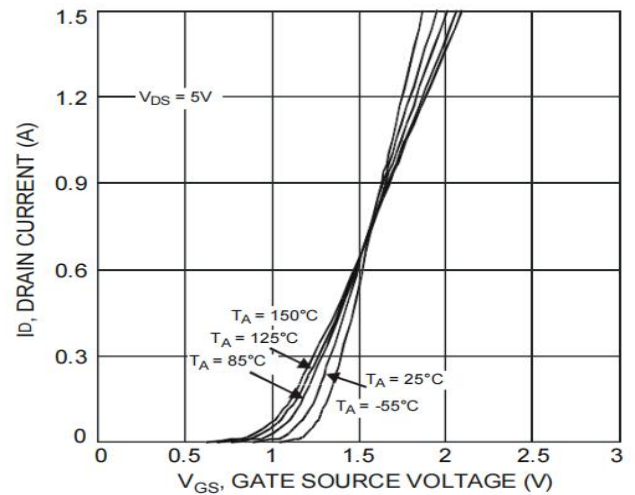


Fig.3 $R_{DS(on)} - I_D$

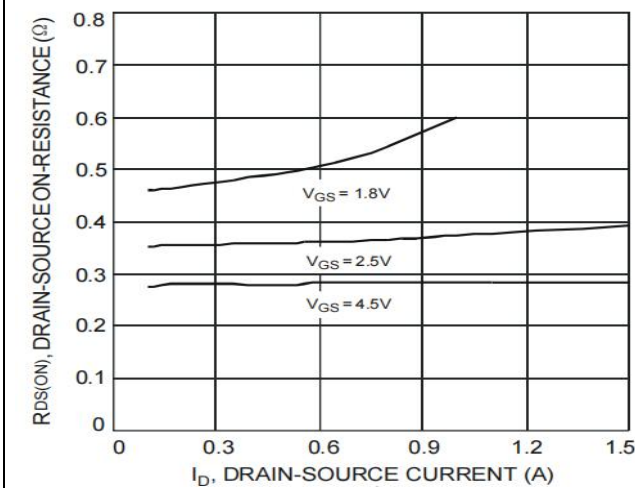


Fig.4 $R_{DS(on)} - I_D$

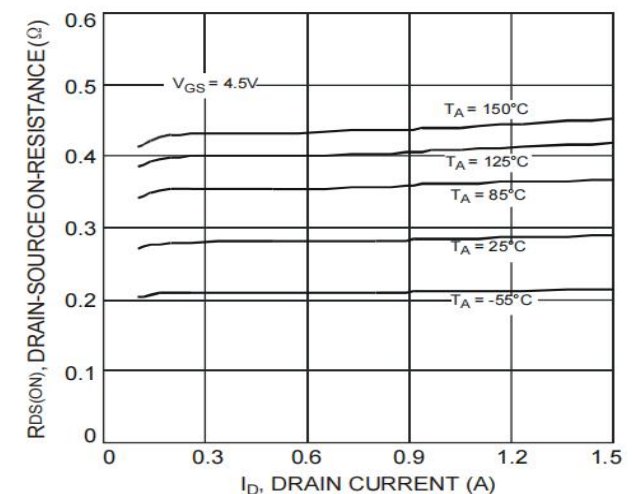
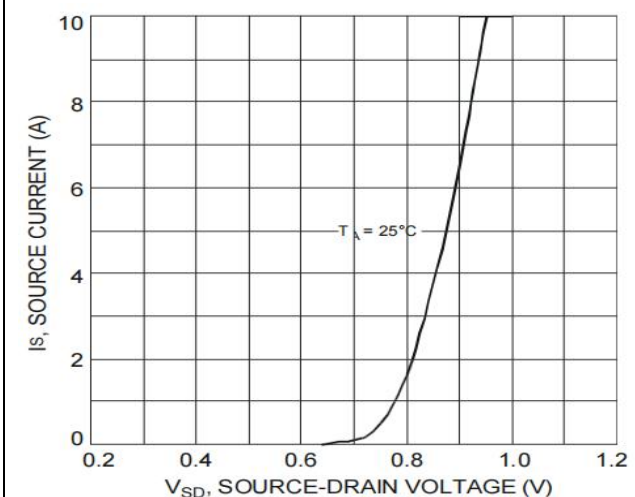
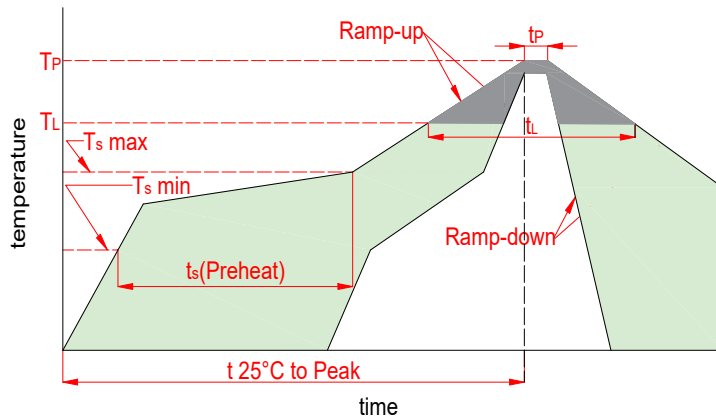


Fig.5 $I_S - V_{SD}$



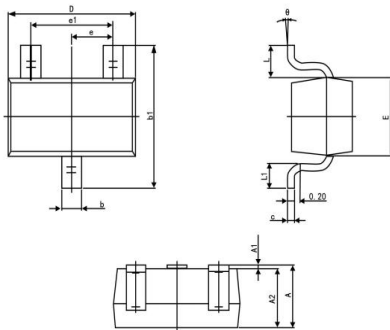


6. Soldering Parameters



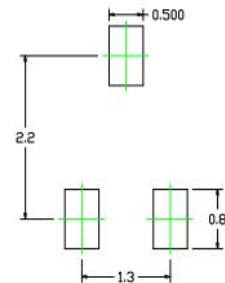
Reflow Condition		Lead-free
Pre Heat	Temp. min(T_s (min))	150℃
	Temp. max(T_s (min))	200℃
	Time(min to max)(t_s)	60~120s
Aver. ramp up rate(Liquidus Temp.)(T_L)to peak		3℃/s max
T_s (max) to T_L -Ramp-up Rate		3℃/s max
Reflow	Temp. (T_L)(Liquidus)	217℃
	Temp. (t_L)(Liquidus)	60~150s
Peak Temp. (T_P)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

7. Dimensions

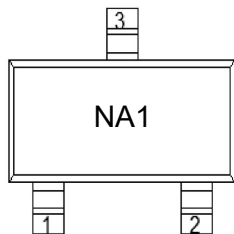


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.008	0.016	0.200	0.400
c	0.003	0.006	0.080	0.150
D	0.079	0.087	2.000	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e1	0.047	0.055	1.200	1.400
L1	0.010	0.018	0.260	0.460

Mounting PAD Layout



8. Part Marking System



9. Package Information

Package	Part Number	Tape Width(mm)	Quantity(pcs)
SOT-323	BC1012W	8	3000



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