

PRIMARY CHARACTERISTICS

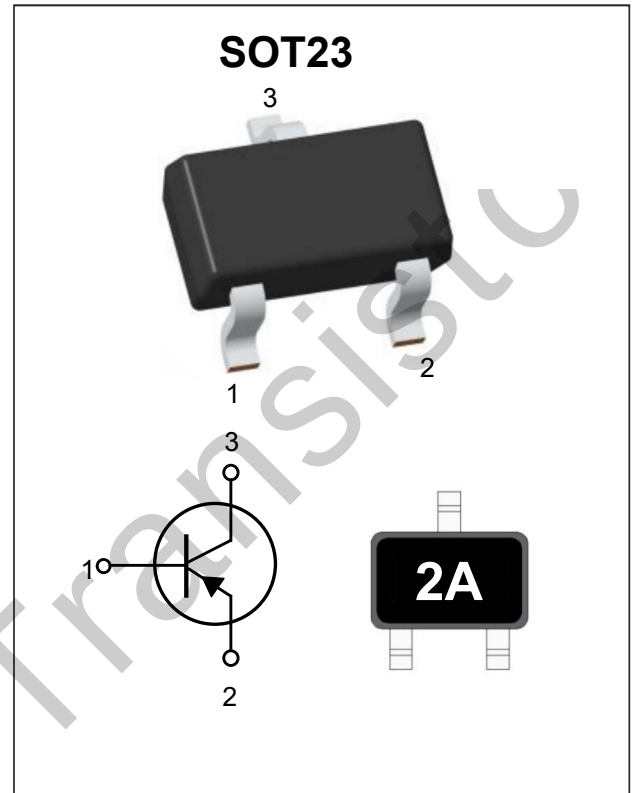
VCEO	IC	VCE(sat)	fT	Tjmax
-40V	-200mA	-0.40V	300MHz	150°C

Features

- Excellent hFE linearity
- Low noise
- PNP small signal switching transistor
- SOT-23 surface mount package
- Pinout: BEC (Base-Emitter-Collector)
- Marking Code: 2A

Mechanical Data

- Package: SOT-23
- SMD surface mount plastic package
- Tape & Reel packaging, 3Kpcs/Reel
- RoHS Compliant and Halogen Free
- Terminal count: 3

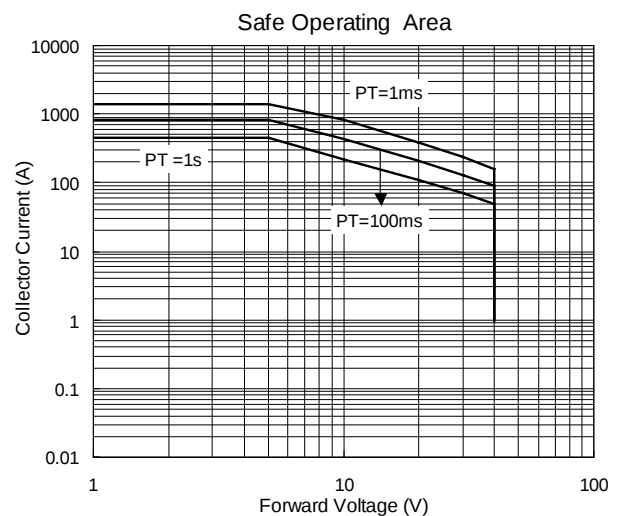
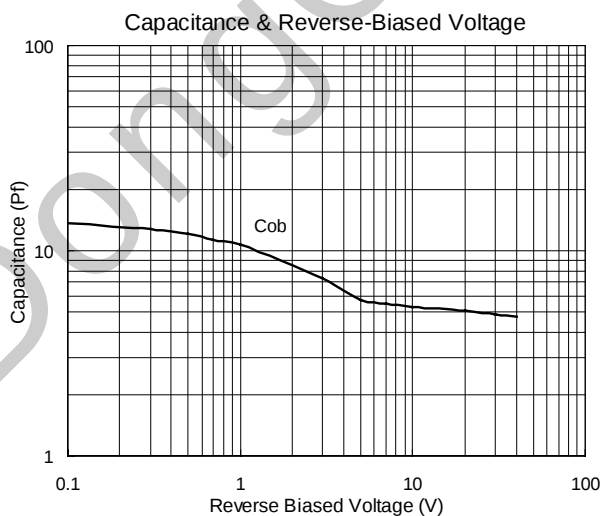
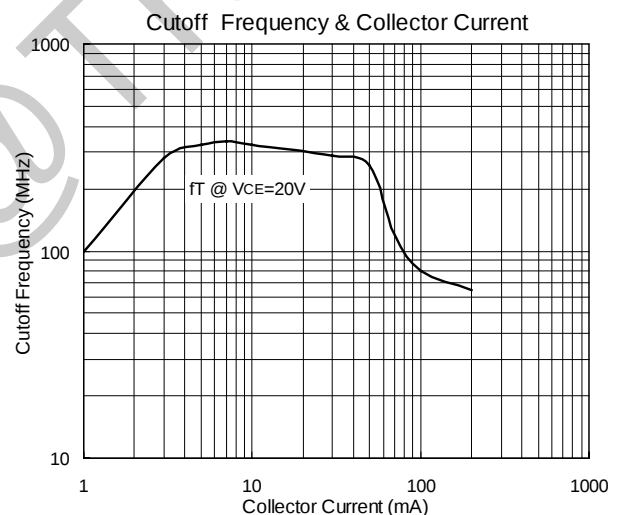
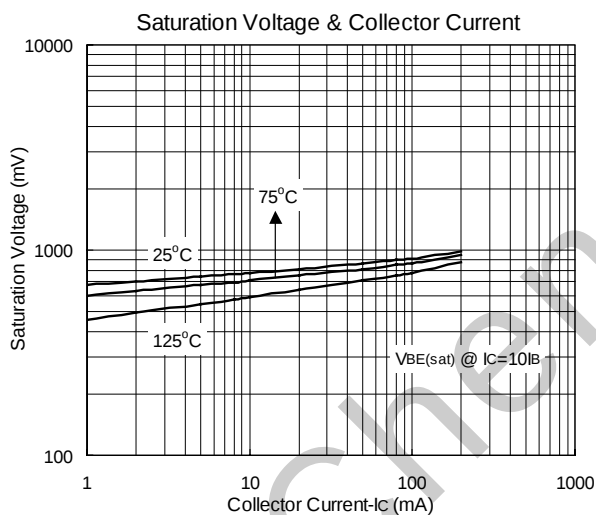
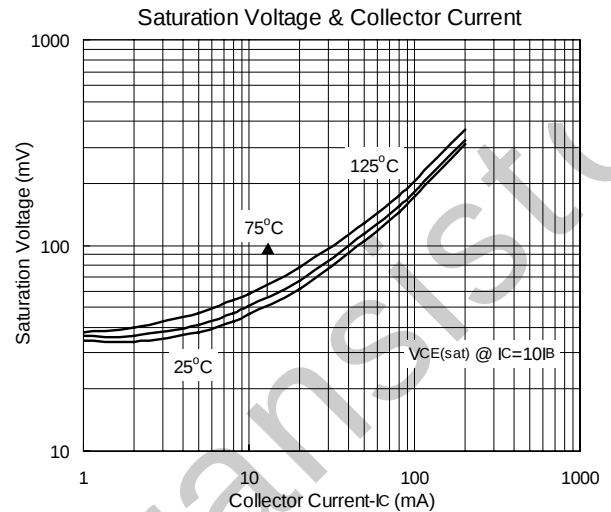
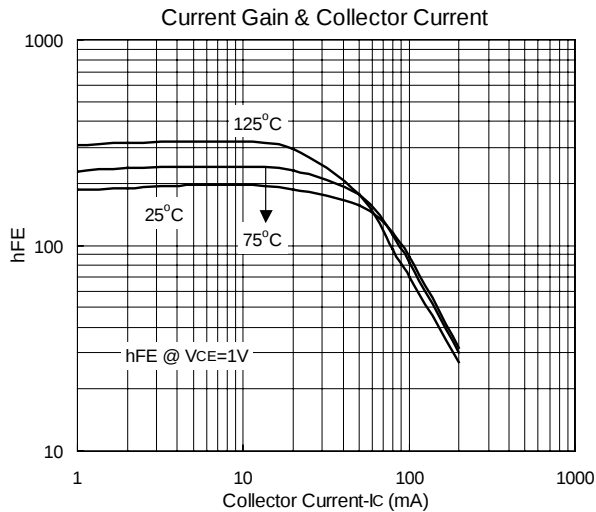

Absolute Maximum Ratings (Ta=25°C unless otherwise noted)

Parameters	Symbols	Limits	Units
Collector-Base Voltage	VCBO	-40	V
Collector-Emitter Voltage	VCEO	-40	V
Emitter -Base Voltage	VEBO	-6	V
Collector Current-Continuous	IC	-200	mA
Collector Power Dissipation	PC	300	mW
Junction Temperature	Tj	-55~+150	°C
Storage Temperature	Tstg	-55~+150	°C
Thermal resistance From junction to ambient	RθJA	417	°C/W

Electrical Characteristics(Ta=25°C unless otherwise noted)

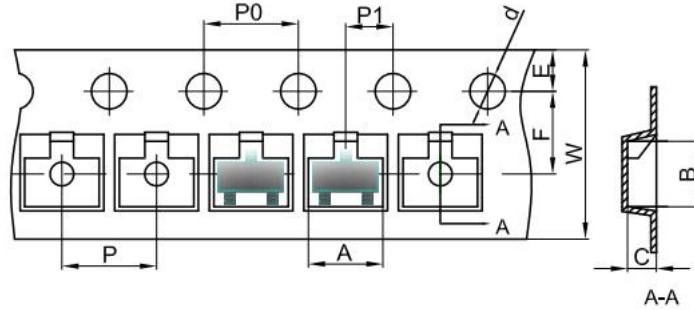
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	V(BR)CBO	IE=0, IC=-10μA	-50	-	-	V
Collector-emitter breakdown voltage	V(BR)CEO	IB=0, IC=-1mA	-40	-	-	V
Emitter-base breakdown voltage	V(BR)EBO	IC=0, IE=-10μA	-6	-	-	V
Collector cut-off current	ICEO	VCE=-30V, VEB=-3V	-	-	-50	nA
DC current gain	hFE(1)	IC=-0.1mA, VCE=-1V	60	-	-	
	hFE(2)	IC=-1mA, VCE=-1V	80	-	-	
	hFE(3)	IC=-10mA, VCE=-1V	100	-	300	
	hFE(4)	IC=-50mA, VCE=-1V	60	-	-	
Collector-emitter saturation voltage	VCE(sat)	IC=-10mA, IB=-1mA	-	-	-0.25	V
		IC=-50mA, IB=-5mA	-	-	-0.40	V
Base -emitter saturation voltage	VBE(sat)	IC=-10mA, IB=-1mA	-0.65	-	-0.85	V
		IC=-50mA, IB=-5mA	-	-	-0.95	V
Transition frequency	fT	IC=-10mA, VCE=-20V, f=100MHz	300	-	-	MHz
Collector output capacitance	Cob	VCB=-5V, IE=0, f=1MHz	-	4.0	8.0	pF
Input Capacitance	Cibo	VCB=-5V, IE=0, f=1MHz	-	-	10	pF
Input Impedance	hie	IC=-1mA, VCE=-10V, f=1kHz	0.5	-	8.0	KΩ
Voltage Feedback Ratio	hre	IC=-1mA, VCE=-10V, f=1kHz	1.0	-	400	×10-4
Output Admittance	hoe	IC=-1mA, VCE=-10V, f=1kHz	1.0	-	40	μΩ
Noise Figure	NF	IC=-100μA, VCE=-5V, RS=1KΩ, f=1kHz	-	-	5.0	dB
Delay time	td	VCC=-30V, VBE(off)=-0.5V, IC=-10mA, IB1=-1mA	-	-	35	ns
Rise time	tr		-	-	35	ns
Storage time	ts		-	-	225	ns
Fall time	tf	VCC=-30V, IC=-10mA, IB1=IB2=-1mA	-	-	75	ns

TYPICAL CHARACTERISTICS



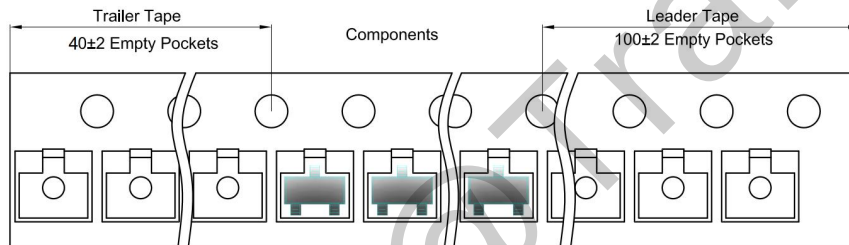
Package Information

Carrier Dimension(mm)

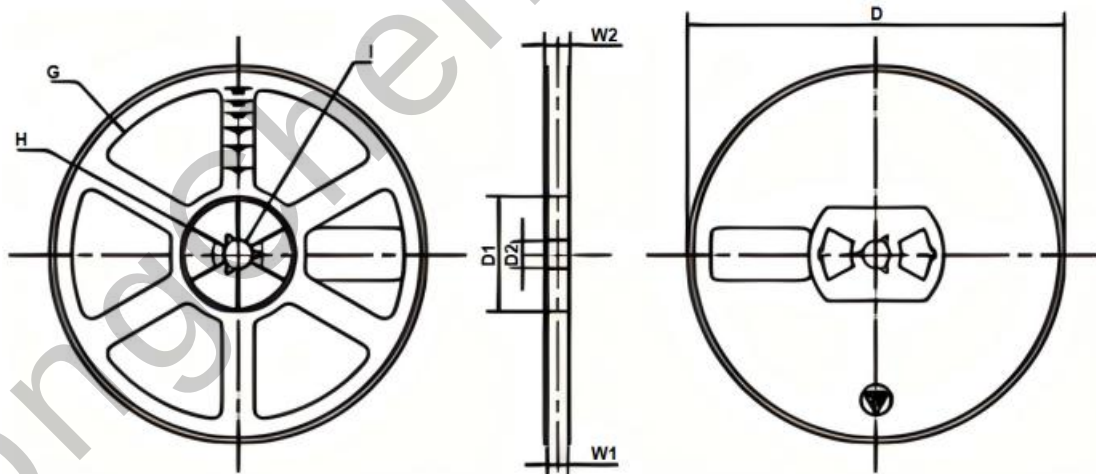


Dimensions are in millimeter

Pkg Type	A0	A1	B0	B1	K0	D0	D1	E	F	P0	P1	P2	10*P0	W	T
SOT-23	3.15	1.09	2.77	2.15	1.22	1.55	1.00	1.75	3.50	4.00	4.00	2.00	40.00	8.00	0.20
(Tolerance)	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.2	±0.1	±0.03



Reel Dimension(mm)



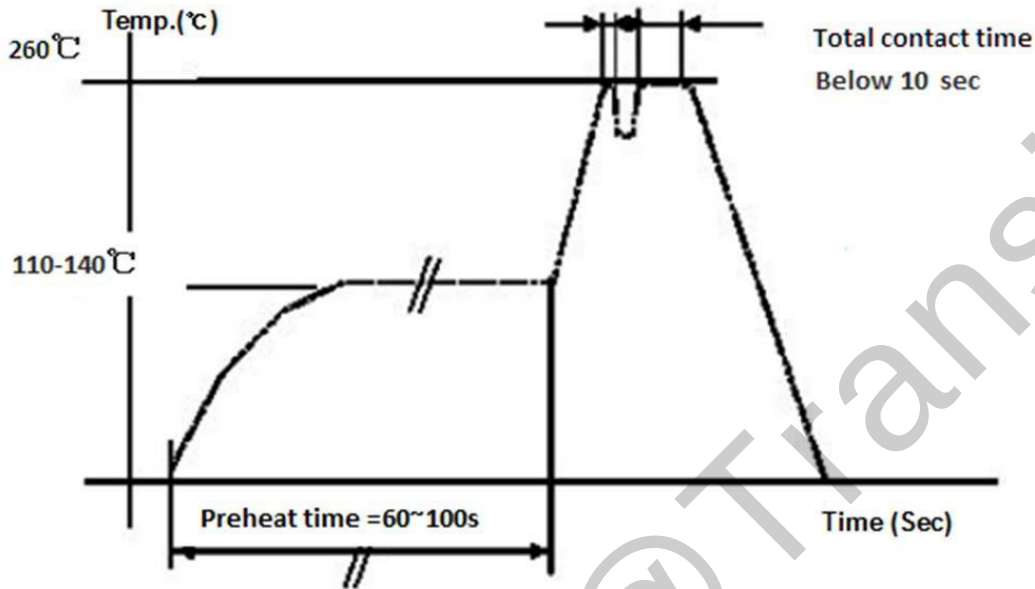
Reel Option	D	D1	D2	G	H	I	W1	W2
7" Dia	Φ178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30
Tolerance	±2	±1	±1	±1	±1	±1	±1	±1

Package Specifications

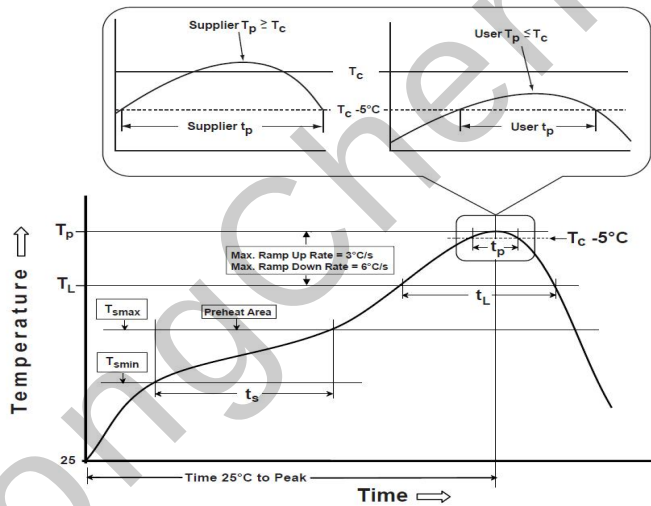
Package	Reel Size	Reel DIA. (mm)	Q'TY/Reel (Kpcs)	Box Size (mm)	QTY/Box (Kpcs)	Carton Size (mm)	Q'TY/Carton (Kpcs)
SOT23	7'	178	3	210*208*203	45	440*400*230	180

Recommended Soldering Profile for Rectifier Diodes (Pb Free)

a) Wave Soldering Profile



b) Reflow Soldering Profile (Pb Free Application), refer to IPC/JEDEC J-STD-020



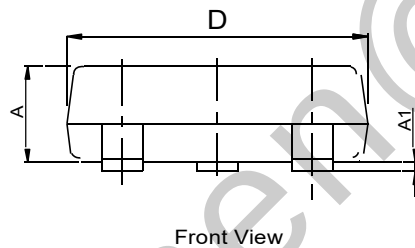
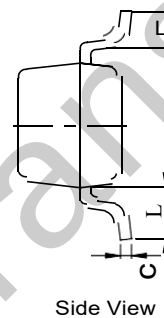
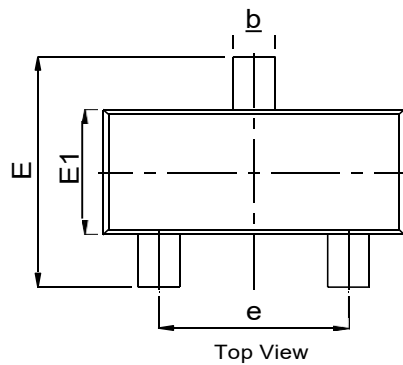
Preheat/Soak Temperature Min (Tsmin) Temperature Max (Tsmax) Time (ts) from (Tsmin to Tsmax)	50 °C 200 °C 60-120 seconds
Melting Point of Solder (Sn Ag Cu)	217°C
Ramp-up Rate to 217°C(Melting Point of Solder)	3°C/sec
Time at Temp.>217°C (Melting Point of Solder)	60~150 Sec
Peak Temperature	255±5°C
Time within 5°Cbelow Peak Temp.	20~40 Sec
Cooling Rate	6°C/sec (max)
Time from 25°C to Peak Temp.	8min (max)

c) Manual Soldering

When using an electric soldering iron for manual soldering, it is recommended that the temperature does not exceed 300°C and the soldering time is less than 10 seconds.

Outline Drawing

SOT-23

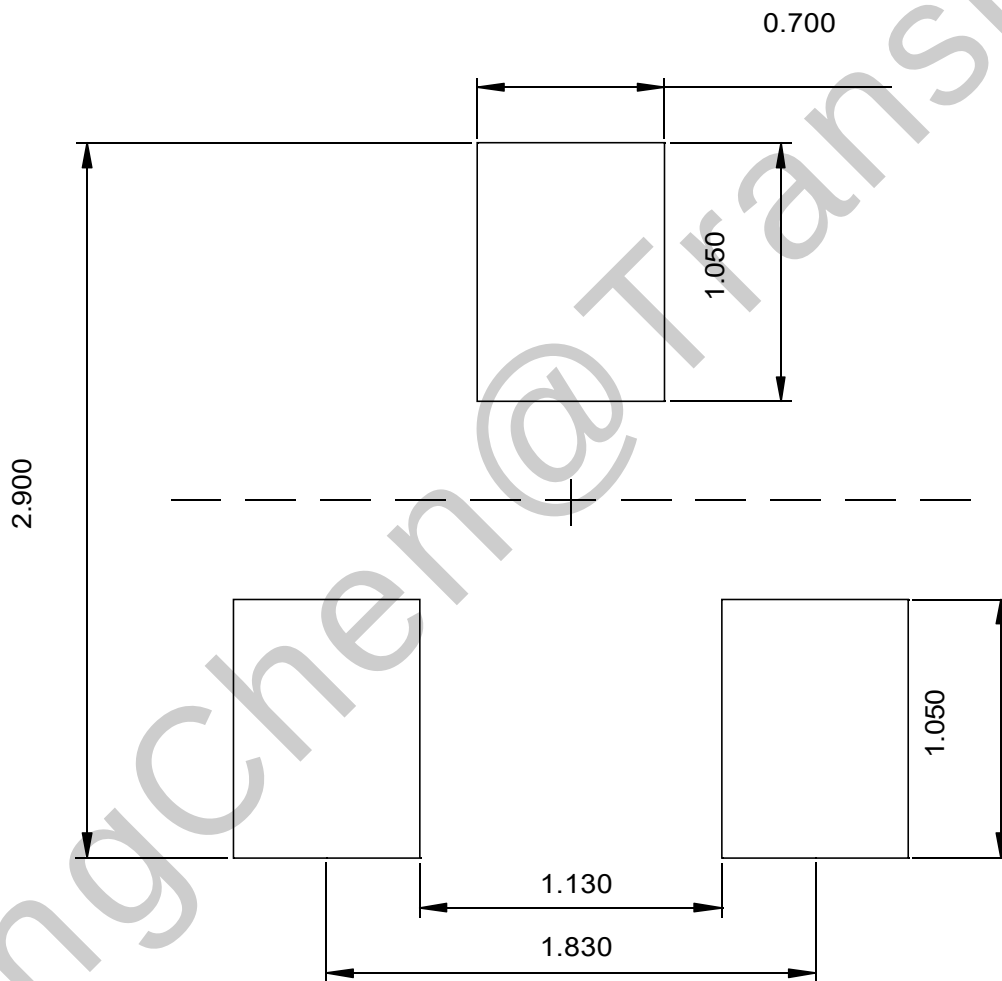


DIM.	MILLIMETER		
	MIN.	NOM.	MAX.
A	0.90	1.00	1.10
A1	0.00	-	0.10
D	2.80	2.90	3.00
E	2.30	2.40	2.50
E1	1.20	1.30	1.40
L	0.45	0.55	0.65
L1	0.20	-	0.55
b	0.30	0.40	0.50
c	-	0.10	0.15
e	-	1.90	-

Dimensions in inches and (millimeters)

Suggested Soldering Pad Layout

SOT-23



Dimensions in inches and (millimeters)

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Head Office

Contact Information:

DongChen Electronics Co.,Ltd.

Address: 2F., No.407, Sec. 2, Longgang Rd.,Zhongli Dist.,
Taoyuan City 32097, Taiwan (R.O.C.)

Tel: 03-284-1808

Fax: 03-284-1404

Mail:dc@dongchen.com.tw

Web:www.dongchen.com.tw