

**SPECIFICATION SHEET**

<b>SPECIFICATION SHEET NO.</b>	R0608- 2SC1623S20S0L7	
<b>DATE</b>	June 8, 2024	
<b>REVISION</b>	A2	Updated With Most Recent Data
<b>DESCRIPTION AND MAIN PARAMETRICS</b>	<p>SMD Plastic-Encapsulate Transistors, 3 Pads, Case SOT-23</p> <p>2SC Series, Transistor Type NPN,</p> <p>hFE Rank Range (L7) 300~600</p> <p>Collector-Base Voltage 60V Max. Collector Current 100mA Max.</p> <p>Operating Temp. Range -55°C ~+150°C</p> <p>Package in Tape/Reel, 3000pcs/Reel</p> <p>RoHS III/REACH Compliant and Halogen Free (HF)</p>	
<b>CUSTOMER</b>		
<b>CUSTOMER PART NO.</b>		
<b>CROSS REF. PART NO.</b>		
<b>ORIGINAL MFG/PART NO.</b>	MDD Diodes/2SC1623-L7	
<b>PART CODE</b>	2SC1623S20S0L7	

**VENDOR APPROVE**

Issued/Checked/Approved



DATE: June 8, 2024

**CUSTOMER APPROVE**

DATE:

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

**MAIN FEATURE**

- Epoxy Meets UL-94 V-0 Flammability Rating
- DC Current Gain:  $h_{FE}=90\sim600$  @ $V_{CE}=6V$ ,  $I_C=1mA$
- High Voltage  $V_{CEO}=50V$
- Surface Mount Package Ideally Suited for Automatic Insertion
- REACH/RoHS III Complaint and Halogen Free
- Cross Main Competitor Parts in Market



**APPLICATION**

- For SMD application

**ELECTRICAL CHARACTERISTICS**

- See Page 4~ Page 5 For Different Part Code

**HOW TO ORDER**

- Please Follow Up Part Code Guide And Indicate Pat Code When You Order Or RFQ For Custom Specification

**PART CODE GUIDE**

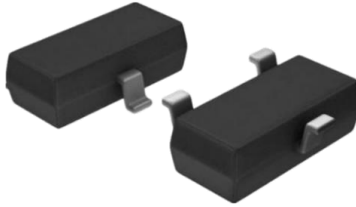
**RFQ**  
Request For Quotation

CODE	NAME	KEY SPECIFICATION OPTION
2SC	Product Series Code	SMD Plastic-Encapsulate Transistors 2SC series
1623	Specification Code	For Original Part Number 2SC1623
S2	Case Code	S2: Case SOT-23
0S0	Internal Control Code	Custom letter A~Z, a-z or Digits (0-9)
L7	hFE Rank Range Code	L4: 90~180; L5: 135~270; L6: 200~400; L7: 300~600

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

**DIMENSION** (Unit: Inch/mm)

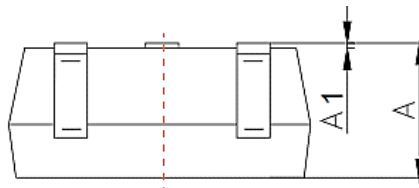
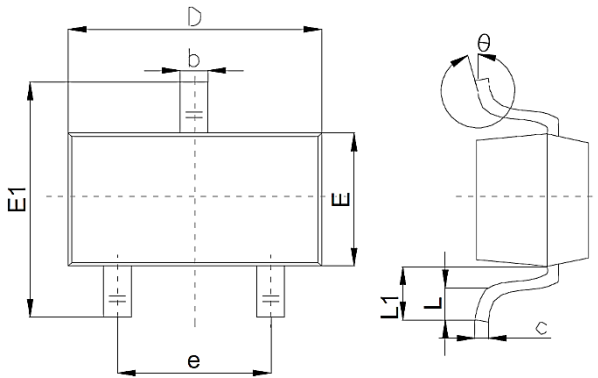
Image for reference



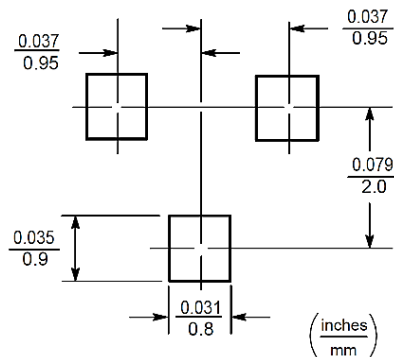
**Marking:**

See Page -4 Marking List  
For different Part code

SOT-23

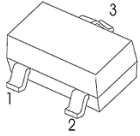


Recommend Pad Layout



Symbol	Value ( mm )		
	Min.	Typ.	Max.
A	0.9		1.4
A1			0.10
b	0.30		0.50
c	0.08		0.20
D	2.80	2.90	3.10
E	1.20		1.60
E1	2.25		2.80
e	1.8	1.9	2.00
L	0.10		0.50
L1	0.40		
θ	0°		10°

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**
**CLASSIFICATION OF hFE – For Different Part Code**

PART CODE	RANK CODE	RANK RANG	MARKING	PIN FUNCTION
2SC1623S20S0L4	L4	90~ 180	L4	 1. Base 2. Emitter 3. Collector
2SC1623S20S0L5	L5	135~ 270	L5	
2SC1623S20S0L6	L6	200~ 400	L6	
2SC1623S20S0L7	L7	300~ 600	L7	

**MECHANICAL DATA**

CASE	TERMINALS	POLARITY	MOUNTING POSITION	WEIGHT PER PIECE
JEDEC SOT-23 Molded Plastic Body	Solder Plated, Solderable Per MIL-STD-750, Method 2026	Polarity Symbol Marking On Case	Any	0.00019 Ounce, 0.0055 grams

**MAXIMUM RATINGS - @ 25 °C**

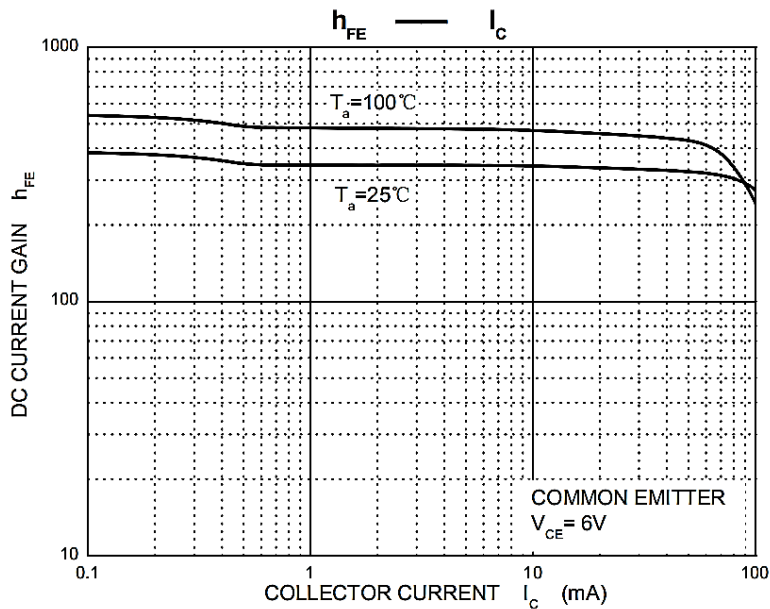
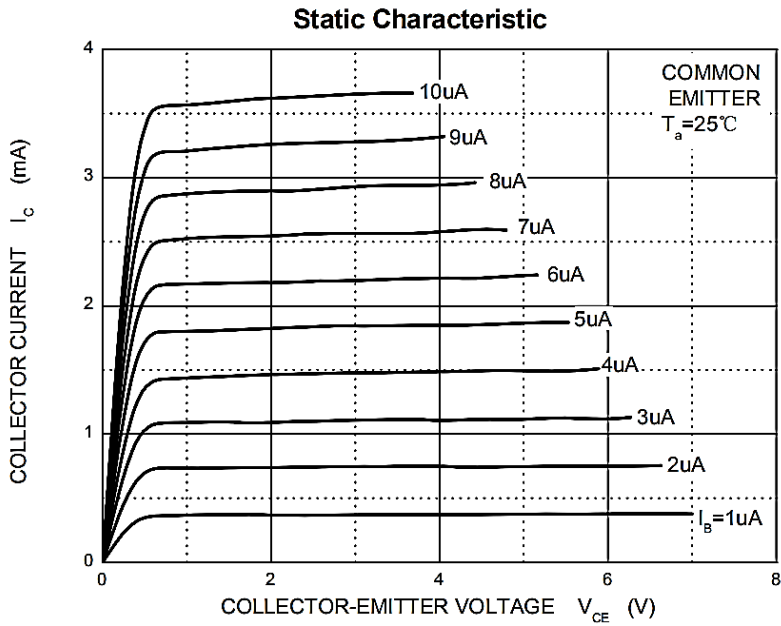
PARAMETER	SYMBOLS	VALUE	UNITS
		LIMIT	
Collector-base Voltage	V <sub>CB0</sub>	60	Volts
Collector-emitter Voltage	V <sub>CEO</sub>	50	Volts
Emitter-base Voltage	V <sub>EB0</sub>	5	Volts
Collector Current -Continuous	I <sub>C</sub>	100	mA
Collector Power Dissipation	P <sub>C</sub>	200	mW
Thermal Resistance Junction To Ambient	R <sub>θJA</sub>	625	°C/W
Junction Temperature	T <sub>J</sub>	+150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 ~ +150	°C

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**
**ELECTRICAL MAXIMUM RATINGS - @ 25 °C**

PARAMETER		SYMBOLS	VALUE			UNIT	TEST CONDITION
			MIN.	TYP.	MAX		
Collector-base Breakdown Voltage		V(BR)CBO	60			V	I <sub>c</sub> = 100μA, I <sub>E</sub> =0
Collector-emitter Breakdown Voltage		V(BR)CEO	50			V	I <sub>c</sub> = 1mA, I <sub>B</sub> =0
Emitter-base Breakdown Voltage		V(BR)EBO	5			V	I <sub>E</sub> = 100μA, I <sub>C</sub> =0
Collector Cut-off Current		I <sub>CBO</sub>			0.1	μA	V <sub>CB</sub> =60V, I <sub>E</sub> =0
Emitter Cut-off Current		I <sub>EBO</sub>			0.1	μA	V <sub>EB</sub> = 5V, I <sub>C</sub> =0
DC Current Gain	2SC1623S20S0L4	h <sub>FE</sub>	90		180		V <sub>CE</sub> =6V, I <sub>C</sub> =1mA
	2SC1623S20S0L5		135		270		
	2SC1623S20S0L6		200		400		
	2SC1623S20S0L7		300		600		
Collector-emitter Saturation Voltage		V <sub>CE(sat)</sub>			0.3	V	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA
Base-emitter Saturation Voltage		V <sub>BE(sat)</sub>			1	V	I <sub>C</sub> =100mA, I <sub>B</sub> =10mA
Transition Frequency		f <sub>T</sub>		250		MHz	V <sub>CE</sub> =6V, I <sub>C</sub> =10mA

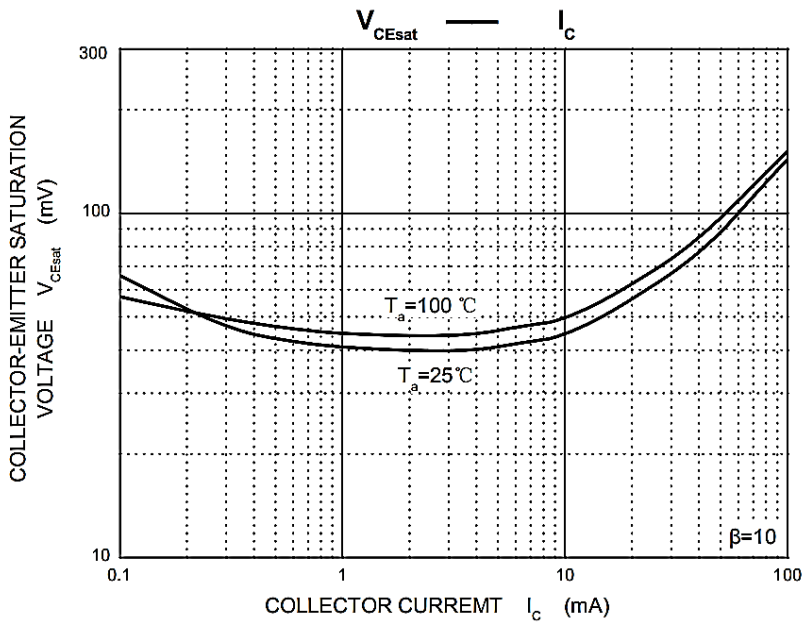
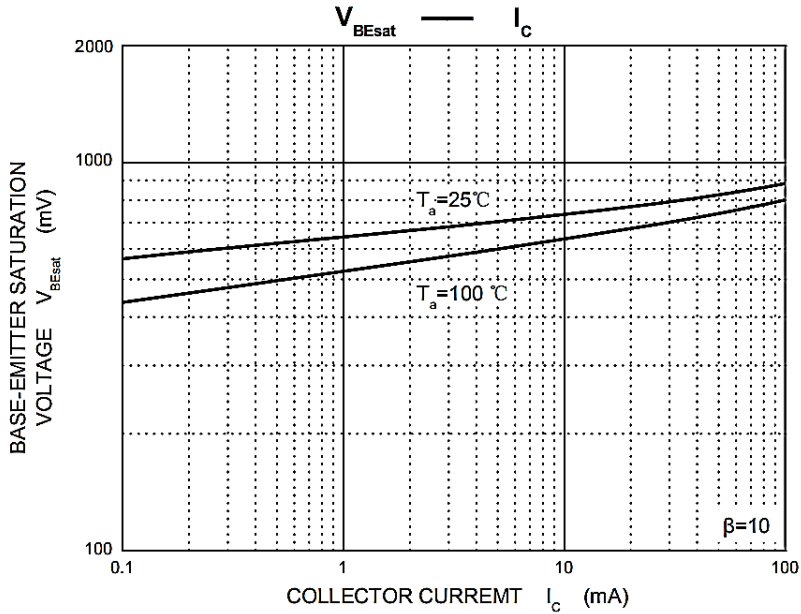
**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

TYPICAL CHARACTERISTIC CURVES - For Reference Only



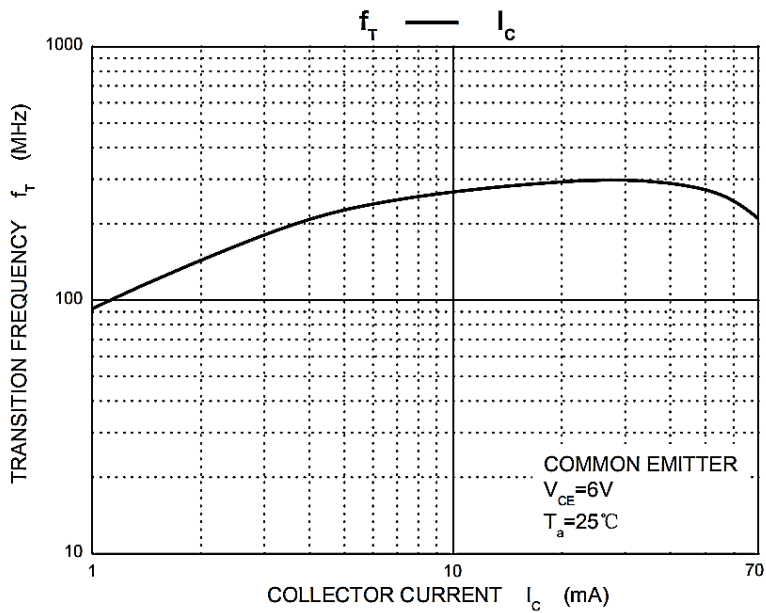
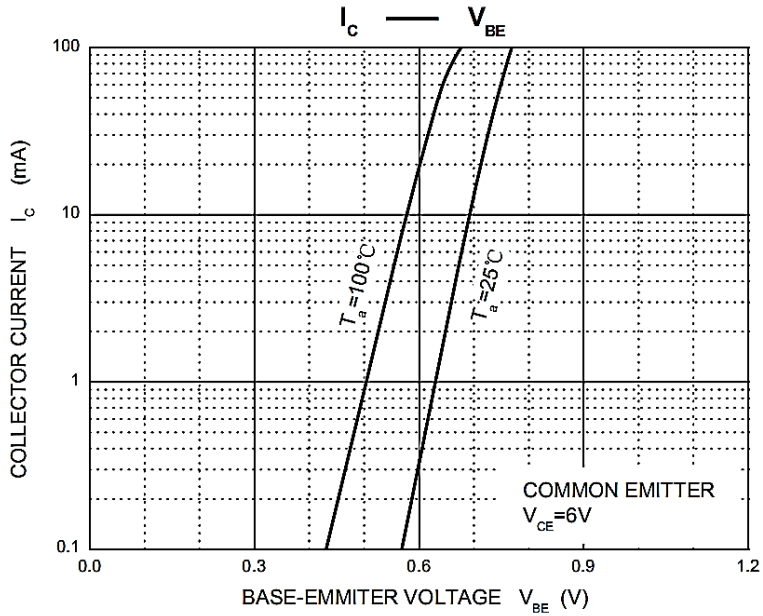
**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

TYPICAL CHARACTERISTIC CURVES - For Reference Only



**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

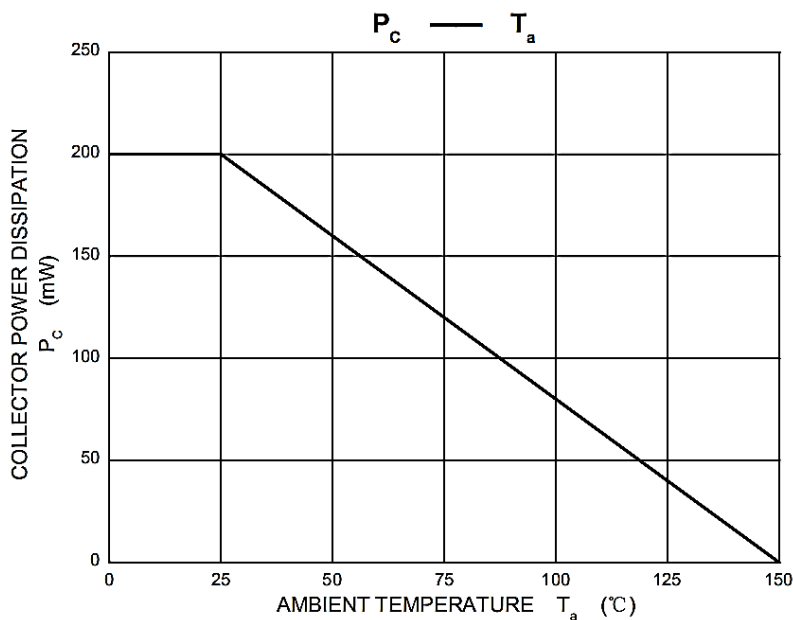
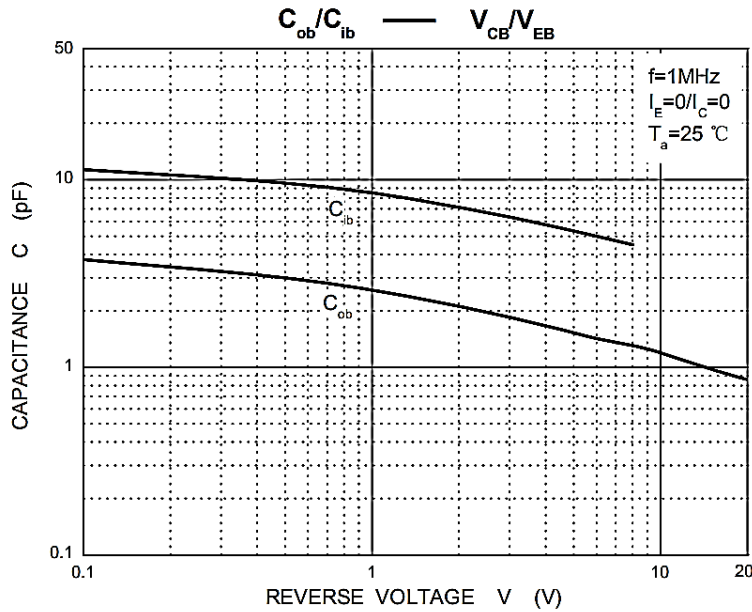
**TYPICAL CHARACTERISTIC CURVES - For Reference Only**





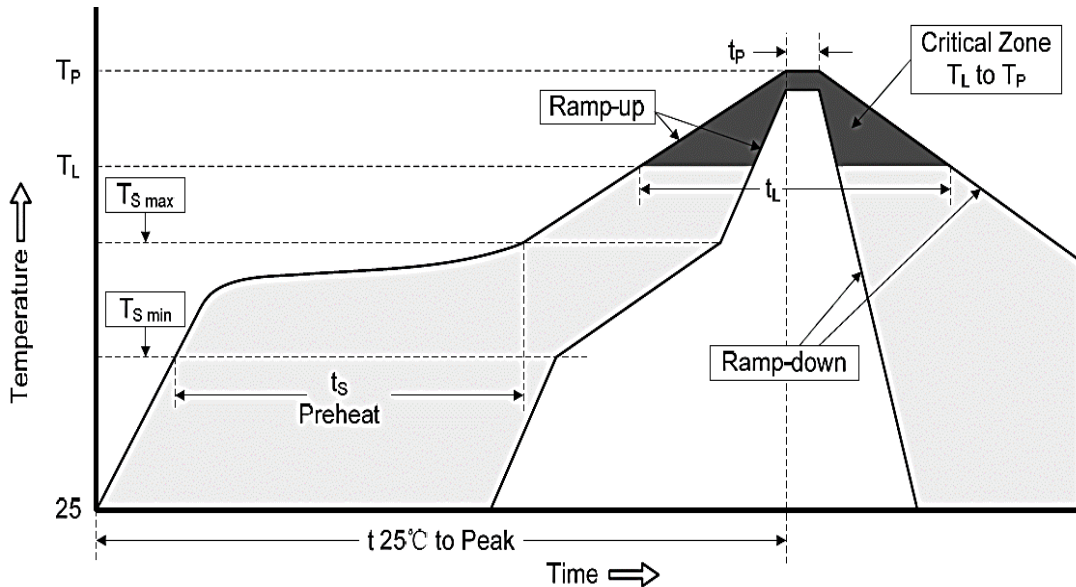
**SMD TRANSISTORS 2SC SERIES CASE SOT-23**

**TYPICAL CHARACTERISTIC CURVES - For Reference Only**



**SMD TRANSISTORS 2SC SERIES CASE SOT-23**
**RELIABILITY**

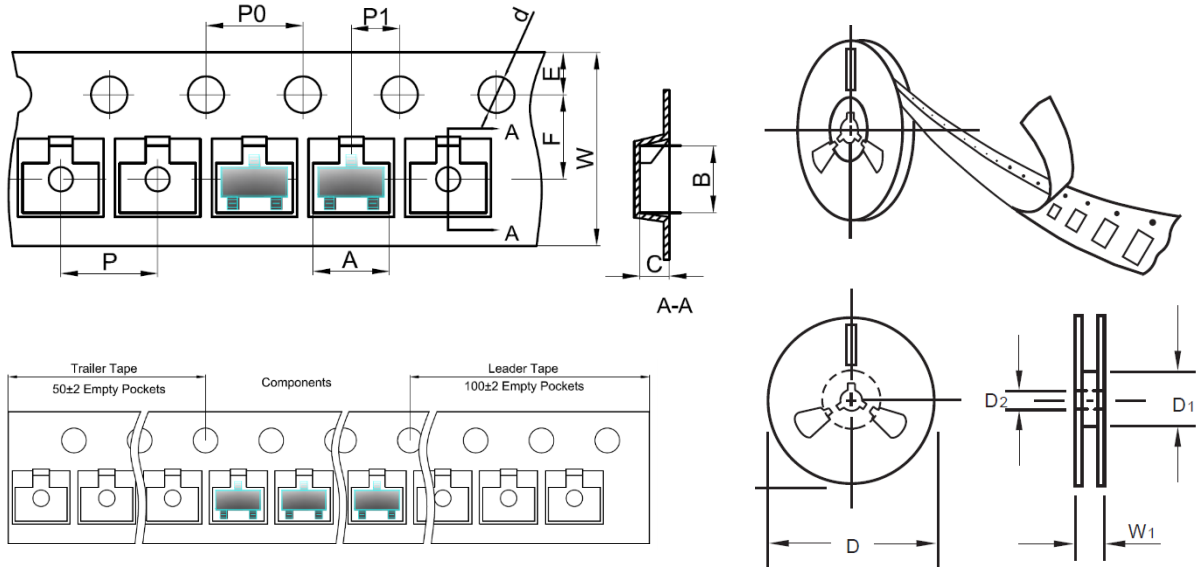
Number	Experiment Items	Experiment Method And Conditions	Reference Documents
1	Solder Resistance Test	Test 260°C± 5°C for 10 ± 2 sec. Immerse body into solder 1/16" ± 1/32"	MIL-STD-750D METHOD-2031.2
2	Solderability Test	230°C ±5°C for 5 sec.	MIL-STD-750D METHOD-2026.1 0
3	Pull Test	1 kg in axial lead direction for 10 sec.	MIL-STD-750D METHOD-2036.4
4	Bend Test	0.5Kg Weight Applied To Each Lead, Bending Arcs 90 °C ± 5 °C For 3 Times	MIL-STD-750D METHOD-2036.4
5	High Temperature Reverse Bias Test	TA=100°C for 1000 Hours at VR=80% Rated VR	MIL-STD-750D METHOD-1038.4
6	Forward Operation Life Test	TA=25°C Rated Average Rectified Current	MIL-STD-750D METHOD-1027.3
7	Intermittent Operation Life Test	On state: 5 min with rated IRMS Power Off state: 5 min with Cool Forced Air. On and off for 1000 cycles.	MIL-STD-750D METHOD-1036.3
8	Pressure Cooker Test	15 PSIG, TA=121°C, 4 hours	MIL-S-19500 APPENOIXC
9	Temperature Cycling Test	-55°C~+125°C; 30 Minutes For Dwelled Time 5 minutes for transferred time. Total: 10 cycles.	MIL-STD-750D METHOD-1051.7
10	Thermal Shock Test	0°C for 5 minutes., 100°C for 5minutes, Total: 10 cycles	MIL-STD-750D METHOD-1056.7
11	Forward Surge Test	8.3ms Single Sale Sine-wave One Surge.	MIL-STD-750D METHOD-4066.4
12	Humidity Test	TA=65°C, RH=98% for 1000 hours.	MIL-STD-750D METHOD-1021.3
13	High Temperature Storage life Test	150°C for 1000 Hours	MIL-STD-750D METHOD-1031.5

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**
**SUGGESTED REFLOW PROFILE - For Reference Only**


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate ( $T_S$ Max to $T_P$ )		3°C/second Max
Preheat	Temperature Min ( $T_S$ Min.)	150°C
	Temperature Max ( $T_S$ Max.)	200°C
	Time ( $t_s$ Min. to $t_s$ Max.)	60 ~ 180 seconds
Time maintained above	Temperature ( $T_L$ )	217°C
	Time ( $t_L$ )	60 ~ 150 seconds
Peak/Classification Temperature ( $T_P$ )		260 °C
Time within 5°C of actual Peak Temperature ( $t_p$ )		20 ~ 40 seconds
Ramp-down rate		6 °C /Second Max.
Time 25 °C to Peak Temperature		8 minutes Max.
Suggest reflow times		3 Times Max.

**SMD TRANSISTORS 2SC SERIES CASE SOT-23**
**TAPE/REEL - Unit: mm**

All Devices are packed in accordance with EIA standard RS-481-A and specifications.



ITEM	SYMBOL	TOLERANCE	SOT-23
Carrier width	A	0.1	3.15
Carrier Length	B	0.1	2.77
Carrier Depth	C	0.1	1.22
Sprocket hole	d	0.05	1.55
7" Reel outside diameter	D	2.0	178.00
7" Reel inner diameter	D1	Min.	54.4
Feed hole diameter	D2	0.5	13.00
Sprocket hole position	E	0.1	1.75
Punch hole position	F	0.1	3.50
Punch hole pitch	P	0.1	4.00
Sprocket hole pitch	P0	0.1	4.00
Embossment center	P1	0.1	2.00
Overall tape thickness	T	0.1	0.25
Tape width	W	0.3	8.00
Reel width	W1	1.0	19.50
MPQ/Reel	3000pcs/Reel		

## SMD TRANSISTORS 2SC SERIES CASE SOT-23

### IMPORTANT NOTES AND DISCLAIMER

1. **ROHS COMPLIANCE:** The levels of RoHS restricted materials in this product are below the maximum concentration values (also referred to as the threshold limits) permitted for such substances, or are used in an exempted application, in accordance with EU RoHS Directive (EU) 2015/863 EC (RoHS3). RoHS Test Report for this product can be obtained at Download Center.
2. **REACH COMPLIANCE:** REACH substances of high concern (SVHCs) information is available for this product. Since the European Chemical Agency (ECHA) has published notice of their intent to frequently revise the SVHC listing for the foreseeable future, REACH Test Report for this product can be obtained at Download Center.
3. All Product parametric performance is indicated in the Electrical Characteristics for the listed herein test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
4. NextGen Component, Inc (*NextGen*) reserves the right to make changes to this document and its products and specifications at any time without notice. Customers should obtain and confirm the latest product information and specifications before final design, purchase or use.
5. *NextGen* makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, not does *NextGen* assume any liability for application assistance or customer product design.
6. *NextGen* does not warrant or accept any liability with products which are purchased or used for any unintended or unauthorized application. No license is granted by implication or otherwise under any intellectual property rights of NextGen.
7. *NextGen* products are not authorized for use as critical components in life support devices or systems without express written approval by *NextGen*.
8. *NextGen* requires that customers first obtain an RMA (Returned Merchandise Authorization) number prior to returning any products. Returns must be made within 30 days of the date of invoice, be in the original packaging, unused and like-new condition. At the time of quoting or purchasing, a product may say that it is Non-Cancelable/ Non-Returnable (NCNR). These products are not returnable and not refundable.