NextGen Components,Inc.

PART CODE: BC847CS2000S1G

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	R0610- BC847CS2000S1G	
DATE	June 10, 2024	
REVISION	A2	Updated With Most Recent Data
DESCRIPTION AND MAIN PARAMETRICS	SMD Plastic-Encapsulate Transistors, 3 Pads, Case SOT-23 BC84 Series, Transistor Type NPN, h_{FE} Rank Range (1G) 420~800 Collector-Base Voltage 50V Max. Collector Current 0.1A Max. Operating Temp. Range -65°C ~+150°C Package in Tape/Reel, 3000pcs/Reel RoHS III/REACH Compliant and Halogen Free (HF)	
CUSTOMER		
CUSTOMER PART NO.		
CROSS REF. PART NO.		
ORIGINAL MFG/PART NO.	MDD Diodes/BC847C-1G	
PART CODE	BC847CS2000S1G	

VENDOR APPROVE			
Issued/Checked/Approved	NextGen Components, Inc. Mandy Xu	NextGen Components, Inc. Ruby Zhang	NextGen Components, Inc. Jack Zhang
DATE: June 10, 2024			

CUSTOMER APPROVE
DATE:

NextGen Components, Inc. sales@NextGenComponent.com www.NextGenComponent.com

NextGen Components,Inc.

PART CODE: **BC847CS2000S1G**

SMD TRANSISTORS BC84 SERIES CASE SOT-23

MAIN FEATURE

- Epoxy Meets UL-94 V-0 Flammability Rating
- DC Current Gain: h_{FE}=110~800 @V_{CE}=5V, I_C=2mA
- Surface Mount Package Ideally Suited for Automatic Insertion
- REACH/RoHS III Complaint and Halogen Free
- Cross Main Competitor Parts in Market

APPLICATION

- For Switching and AF Amplifier Applications

• ELECTRICAL CHARACTERISTICS

- See Page 4~ Page 6 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
BC84	Product Series Code	SMD Plastic-Encapsulate Transistors BC84 series
7C	Specification Code	For Original Part Number BC847C-1G
S2	Case Code	S2: Case SOT-23
000S	Internal Control Code	Custom letter A~Z, a-z or Digits (0-9)
1G	Marking Code	Custom letter A~Z, a-z or Digits (0-9), For different Part Code, see Page 7

SMD TRANSISTORS BC84 SERIES CASE SOT-23

DIMENSION (Unit: Inch/mm)

Image for reference

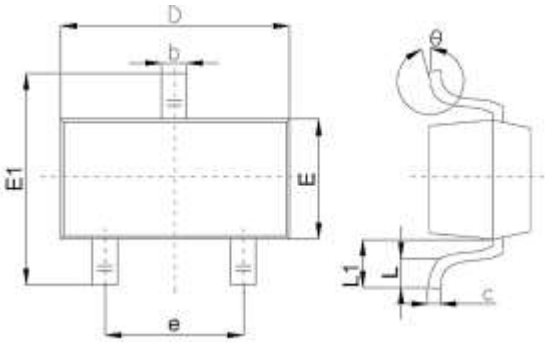


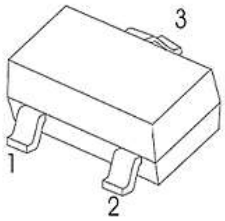
Marking:

See Page 6 - Marking List

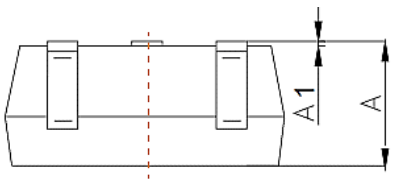
For different Part code

SOT-23



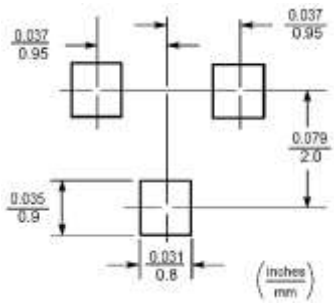


1. Base
2. Emitter
3. Collector



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°

Recommend Pad Layout



SMD TRANSISTORS BC84 SERIES CASE SOT-23

MAXIMUM RATINGS - @ 25 °C

PARAMETER	SYMBOLS	VALUE	UNITS
Emitter-Base Voltage	V_{EBO}	6.0	V
Collector Current -Continuous	I_C	0.1	A
Collector Power Dissipation	P_C	200	mW
Junction Temperature	T_J	+150	°C
Storage Temperature Range	T_{STG}	-65 ~ +150	°C

MAXIMUM RATINGS - @ 25 °C

PART CODE	Collector-Base Voltage	Collector-Emitter Voltage
	V_{CBO}	V_{CEO}
	V	V
BC846AS2000S1A	80	65
BC846BS2000S1B	80	65
BC847AS2000S1E	50	45
BC847BS2000S1F	50	45
BC847CS2000S1G	50	45
BC848AS2000S1J	30	30
BC848BS2000S1K	30	30
BC848CS2000S1L	30	30

SMD TRANSISTORS BC84 SERIES CASE SOT-23

ELECTRICAL MAXIMUM RATINGS - @ 25 °C

PARAMETER	SYMBOLS	VALUE			UNIT	TEST CONDITION
		MIN.	TYP.	MAX		
Emitter-base Breakdown Voltage	V_{EBO}	6.0			V	I_E= 10μA, I_C=0
Emitter Base Cut-off Current	I_{EBO}			0.1	μA	V_{EB}= 5V, I_C=0
Collector-emitter Saturation Voltage	$V_{CE(sat)}$			0.5	V	I_C=100mA, I_B=5mA
Base-emitter Saturation Voltage	$V_{BE(sat)}$			1.1	V	I_C=100mA, I_B=5mA
Transition Frequency	f_T	100			MHz	V_{CE}=5V, I_C=10mA f=100MHz
Collector Output Capacitance	C_{ob}			4.5	pF	V_{CB}=10V, f=1MHz

ELECTRICAL MAXIMUM RATINGS - @ 25 °C

PART CODE	Min. Collector-Base Breakdown Voltage	Min. Collector-Emitter Breakdown Voltage	DC Current Gain Range
	@ I_C=10μA, I_E=0	@ I_C=10mA, I_B=0	@V_{CE}=5V, I_C=2mA
	V_{CBO}	V_{CEO}	h_{FE}
	V	V	
BC846AS2000S1A	80	65	110~220
BC846BS2000S1B	80	65	200~450
BC847AS2000S1E	50	45	110~220
BC847BS2000S1F	50	45	200~450
BC847CS2000S1G	50	45	420~800
BC848AS2000S1J	30	30	110~220
BC848BS2000S1K	30	30	200~450
BC848CS2000S1L	30	30	420~800

SMD TRANSISTORS BC84 SERIES CASE SOT-23

ELECTRICAL MAXIMUM RATINGS - @ 25 °C

PART CODE	Max. Collector Cut-off Current			Max. Collector Cut-off Current			Marking List
	V_{CB}=70V I_E=0	V_{CB}=50V I_E=0	V_{CB}=30V I_E=0	V_{CE}=60V I_B=0	V_{CE}=45V I_B=0	V_{CE}=30V I_B=0	
	I_{CBO}			I_{CEO}			
	µA			µA			
BC846AS2000S1A	0.1	0.1	0.1	0.1	0.1	0.1	1A
BC846BS2000S1B	0.1	0.1	0.1	0.1	0.1	0.1	1B
BC847AS2000S1E	0.1	0.1	0.1	0.1	0.1	0.1	1E
BC847BS2000S1F	0.1	0.1	0.1	0.1	0.1	0.1	1F
BC847CS2000S1G	0.1	0.1	0.1	0.1	0.1	0.1	1G
BC848AS2000S1J	0.1	0.1	0.1	0.1	0.1	0.1	1J
BC848BS2000S1K	0.1	0.1	0.1	0.1	0.1	0.1	1K
BC848CS2000S1L	0.1	0.1	0.1	0.1	0.1	0.1	1L

TYPICAL CHARACTERISTIC CURVES - For Reference Only

Fig.1

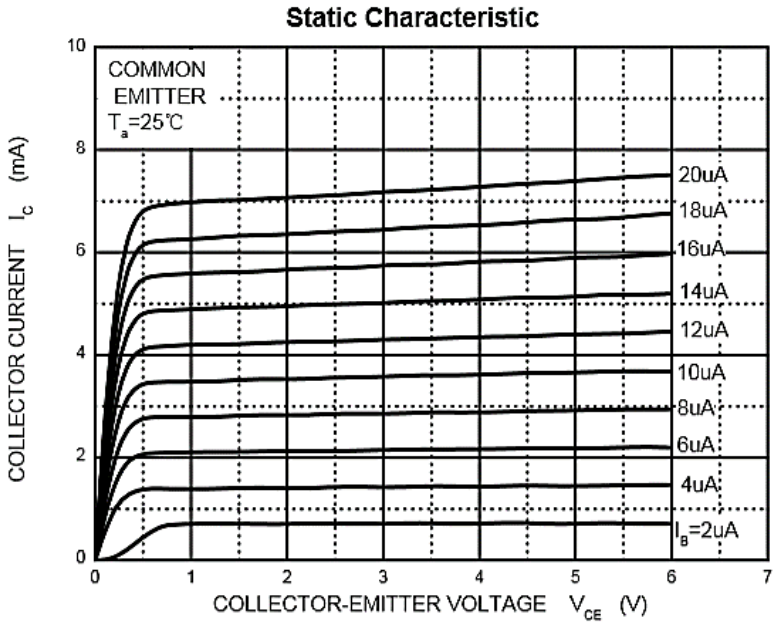
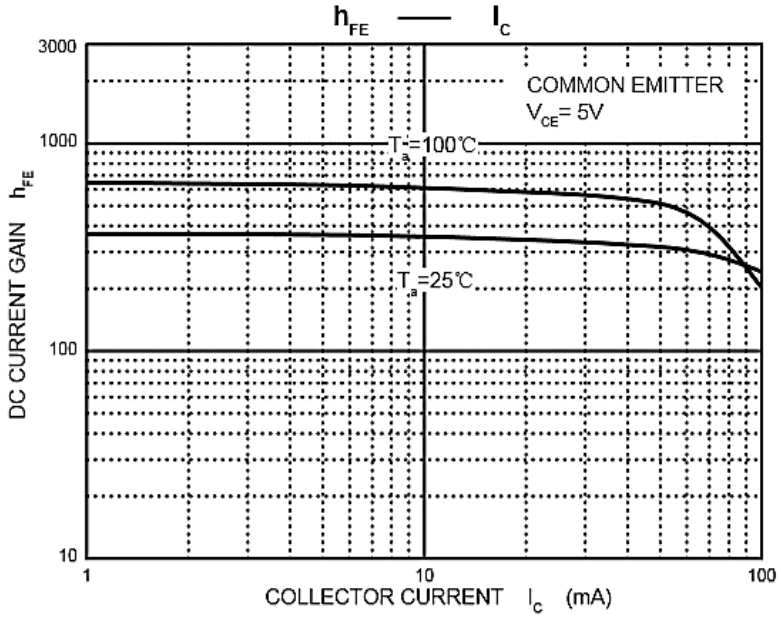


Fig.2



TYPICAL CHARACTERISTIC CURVES - For Reference Only

Fig.3

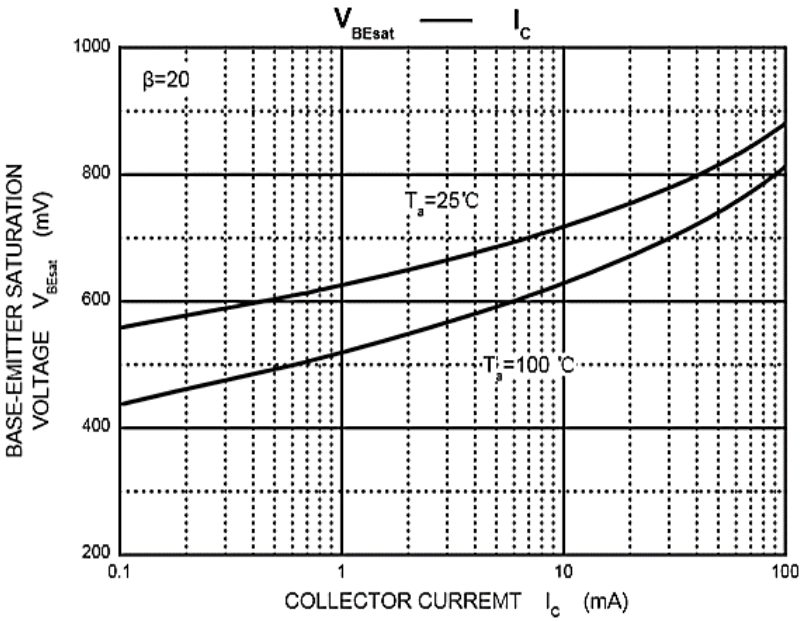
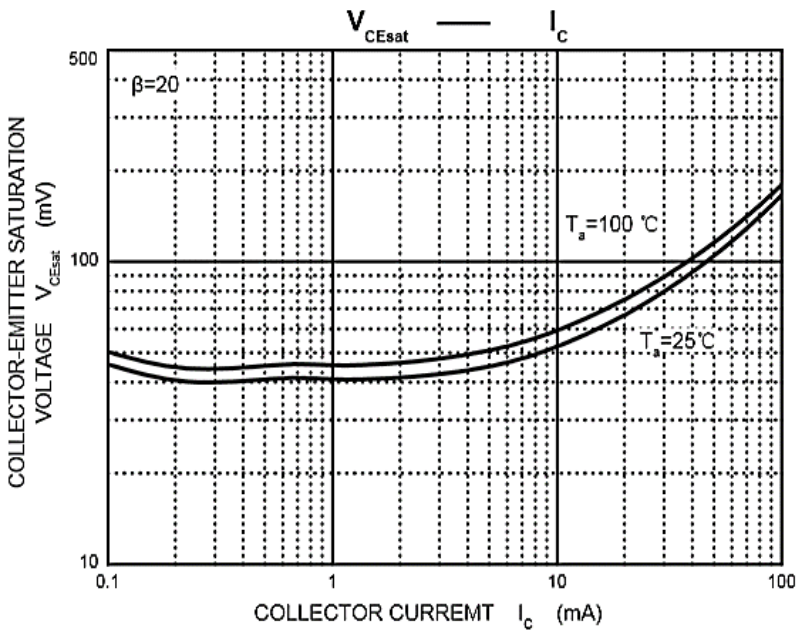


Fig.4



TYPICAL CHARACTERISTIC CURVES - For Reference Only

Fig.5

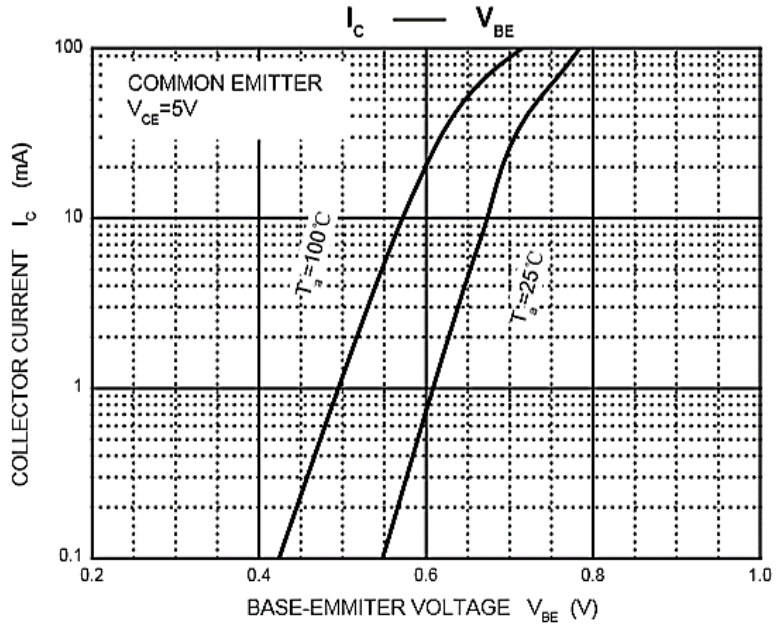
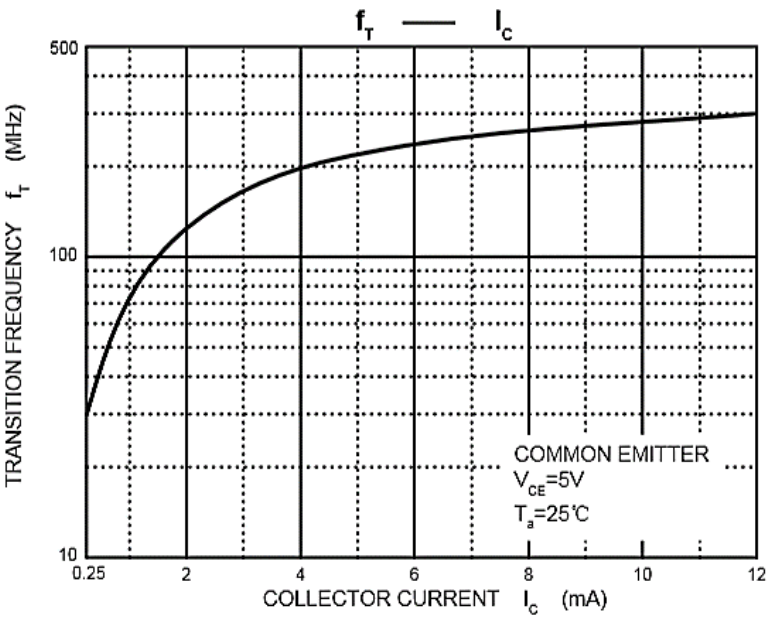


Fig.6



TYPICAL CHARACTERISTIC CURVES - For Reference Only

Fig.7

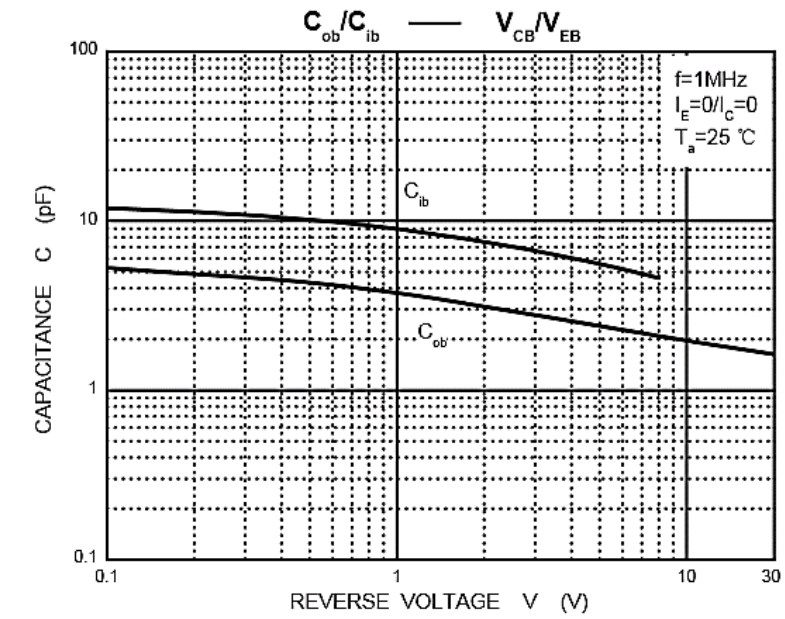
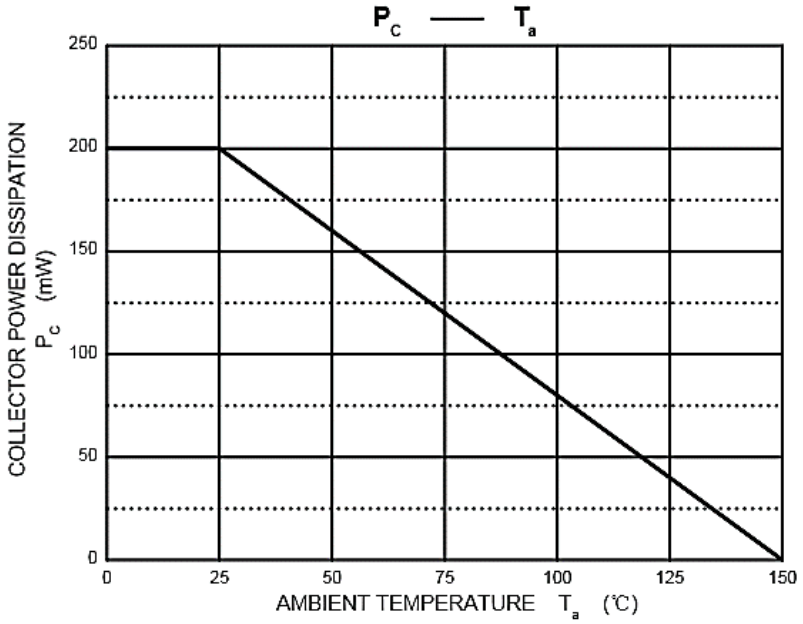


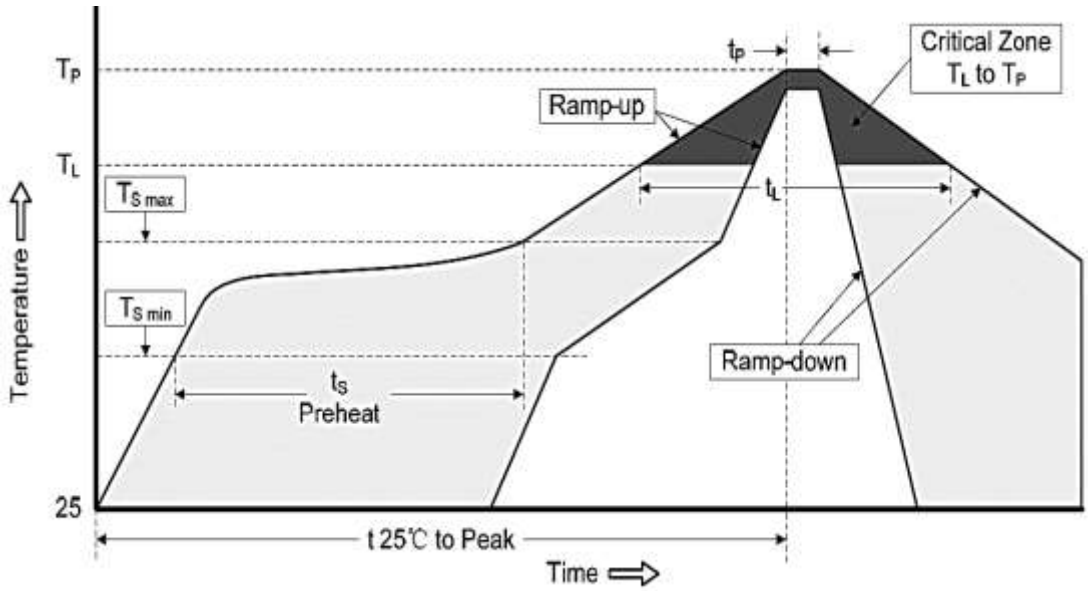
Fig.8



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	T_A=100°C for 1000 Hours at V_R=80% Rated V_R	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, T_A=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	T_A=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

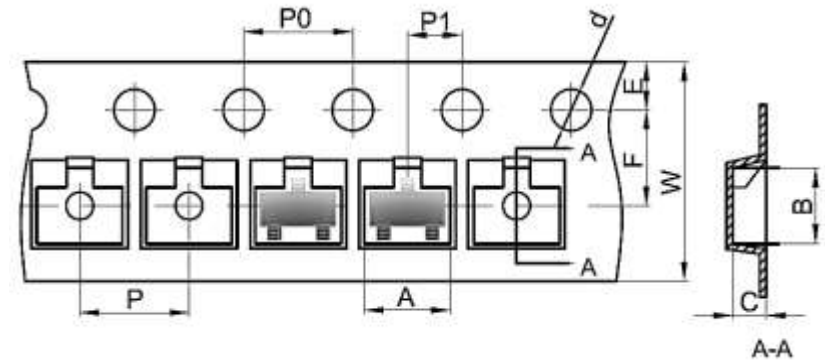
SUGGESTED REFLOW PROFILE - For Reference Only

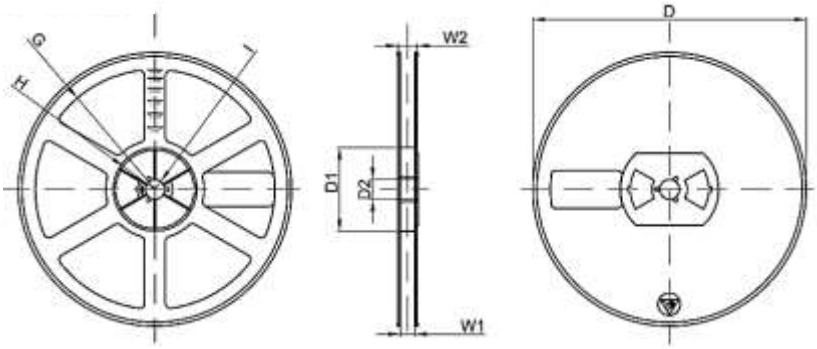


PROFILE FEATURE		PB-FREE ASSEMBLY
Average Ramp-up Rate (Ts Max to Tp)		3℃/second Max
Preheat	Temperature Min (Ts Min.)	150℃
	Temperature Max (Ts Max.)	200℃
	Time (ts Min. to ts Max.)	60～180 seconds
Time maintained above	Temperature (TL)	217℃
	Time (tL)	60～150 seconds
Peak/Classification Temperature (Tp)		260 ℃
Time within 5℃ of actual Peak Temperature (tp)		20～40 seconds
Ramp-down rate		6 ℃ /Second Max.
Time 25 ℃ to Peak Temperature		8 minutes Max.
Suggest reflow times		3 Times Max.

TAPE/REEL - Unit: mm

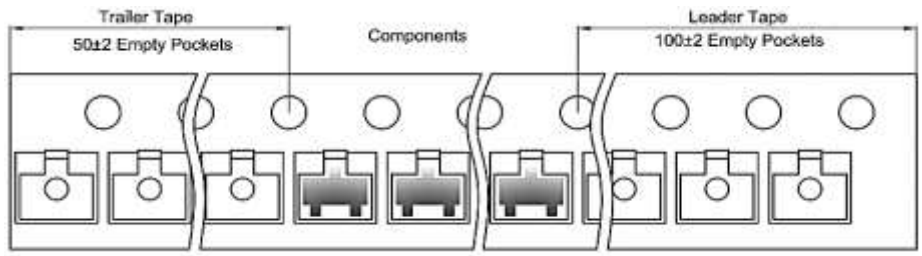
All Devices are packed in accordance with EIA standard RS-481-A and specifications. SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts In standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).





Symbol	Dimension (mm)
A	3.15±0.1
B	2.77±0.1
C	1.22±0.1
d	ϕ1.50±0.1
E	1.75±0.1
F	3.50±0.1
P0	4.00±0.1
P	4.00±0.1
P1	2.00±0.1
W	8.00±0.1
D	ϕ178±2
D1	54.4±1
D2	13.0±1
G	R78±1
H	R25.6±1
I	R6.5±1
W1	9.5±1
W2	12.3±1

TAPE LEADER AND TRAILER



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 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 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.
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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.