NextGen Components,Inc.

PART CODE: SOT23BT4401S2X

SPECIFICATION SHEET

SPECIFICATION SHEET NO.	P0610- SOT23BT4401S2X
DATE	June 10, 2022
REVISION	A0
DESCRIPITION	SMD Plastic-Encapsulate Transistors, SOT-23 series, 3 pads MMBT4401 Type, NPN, Collector-Emitter Voltage 40V, Collector Current 0.6A Max. Operating Temp. Range -55°C ~+150°C, Package in Tape/Reel, 3000pcs/Reel RoHS/RoHS III compliant
CUSTOMER	
CUSTOMER PART NUMBER	
CROSS REF. PART NUMBER	
ORIGINAL PART NUMBER	MDD MMBT4401
PART CODE	SOT23BT4401S2X

VENDOR APPROVE
Issued/Checked/Approved   
DATE: June 10, 2022

CUSTOMER APPROVE
DATE:

NextGen Components,Inc.

PART CODE: **SOT23BT4401S2X**

SMD PLASTIC-ENCCAPULATE TRANSISTORS SOT23 SERIES

MAIN FEATURE

- Switching Transistor

APPLICATION

- For printed circuit board

RFQ
Request For Quotation

PART CODE GUIDE

SOT23	BT4401	S	2X
1	2	3	4

1) **SOT23:** SMD Plastic-Encapsulate Transistors, 3 pads SOT-23 series Code

2) **B4401**: Type code for MMBT4401

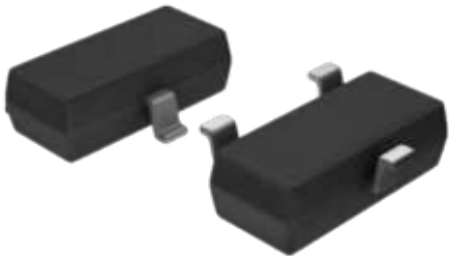
3) **S**: Package code, Package in Tape/Reel, 3000pcs/Reel

4) **2X:** Marking code for "2X" on the case surface, Different Marking for different specification.

SMD PLASTIC-ENCCAPULATE TRANSISTORS SOT23 SERIES

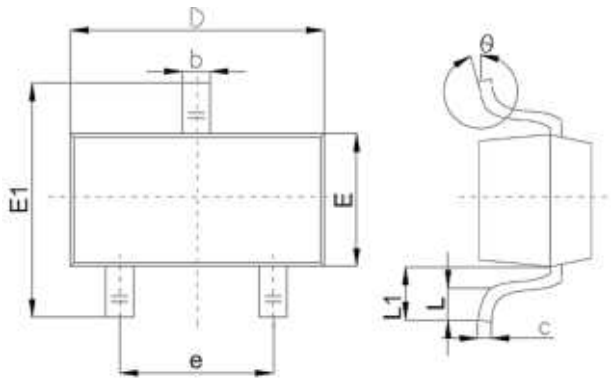
DIMENSION (Unit: Inch/mm)

Image for reference



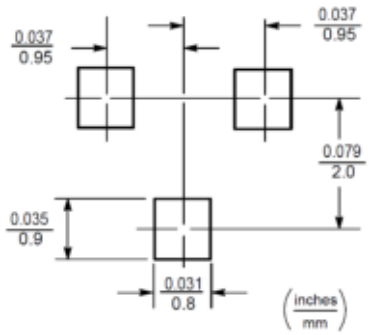
Marking: 2X

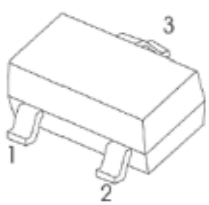
SOT-23



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	1.80	1.90	2.00
L	0.10		0.50
L1	0.40		0.55
ϴ	0°		10°

Recommend Pad Layout





1.Base
2.Emitter
3.Collector

SMD PLASTIC-ENCCAPULATE TRANSISTORS SOT23 SERIES

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, 0.00591 grams

MAX. RATINGS AT Ta=25 °C

Parameter	SYMBOLS	VALUE	UNITS
		LIMIT	
Collector-Base Voltage	V_{CBO}	60	Volts
Collector-Emitter Voltage	V_{CEO}	40	Volts
Emitter-Base Voltage	V_{EBO}	6	Volts
Collector Current	I_C	600	mA
Collector Power Dissipation	P_C	300	mW
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	357	°C/W
Junction temperature	T_J	+150	°C
Storage temperature range	T_{STG}	-55 ~ +150	°C

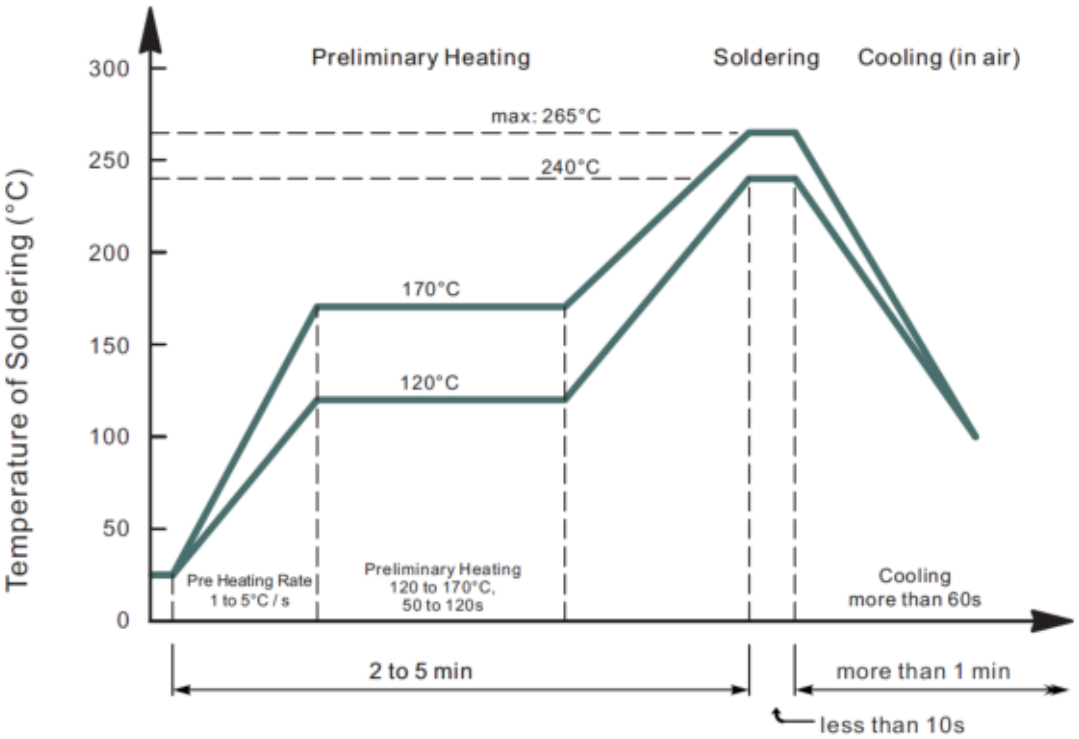
ELECTRICAL CHARACTERISTICS AT Ta= 25 °C

Parameter	SYMBOLS	VALUE			UNIT	Condition
		Min.	Typ.	Max.		
Collector-base breakdown voltage	$V_{(BR)CBO}$				V	I_C= 100μA, I_E=0
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	40			V	I_C= 1mA, I_B=0
Emitter-base breakdown voltage	$V_{(BR)EBO}$				V	I_E= 100μA, I_C=0
Collector cut-off current	I_{CBO}			0.1	μA	V_{CB}=50V, I_E=0
Collector cut-off current	I_{CEO}			0.1	μA	V_{CE}= 30V, I_C=0
Emitter cut-off current	I_{EBO}			0.1	μA	V_{EB}= 5V, I_C=0
DC Current gain	h_{FE}			300		V_{CE}=1V, I_C=150mA
Collector-emitter saturation voltage	$V_{CE(sat)}$			0.4	V	I_C=150mA, I_B=15mA
Base-emitter saturation voltage	$V_{BE(sat)}$			0.95	V	I_C=150mA, I_B=15 mA
Transition frequency	f_T	250			MHz	V_{CE}=10V, I_C=20mA, f=100MHz

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)



- Recommended peak temperature is over 245℃, If peak temperature is below 245 ℃, you may adjust the following parameters; time length of peak temperature (longer), time length of soldering (longer), thickness of solder paste (thicker)
- Welding shall not exceed 2 times
- Remark: lead free solder paste (96.5 sn/3.0 Ag/0.5Cu)

SMD PLASTIC-ENCCAPULATE TRANSISTORS SOT23 SERIES

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

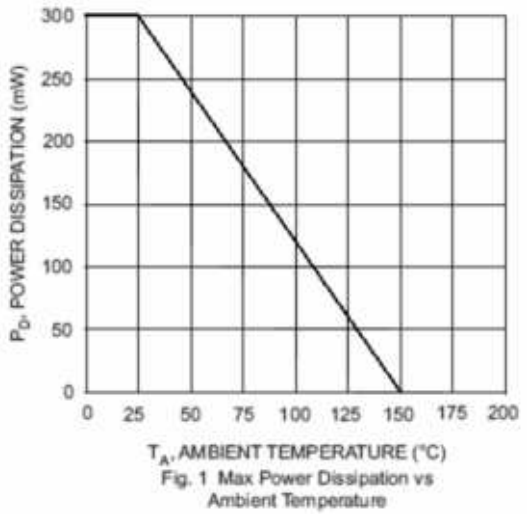


Fig. 1 Max Power Dissipation vs Ambient Temperature

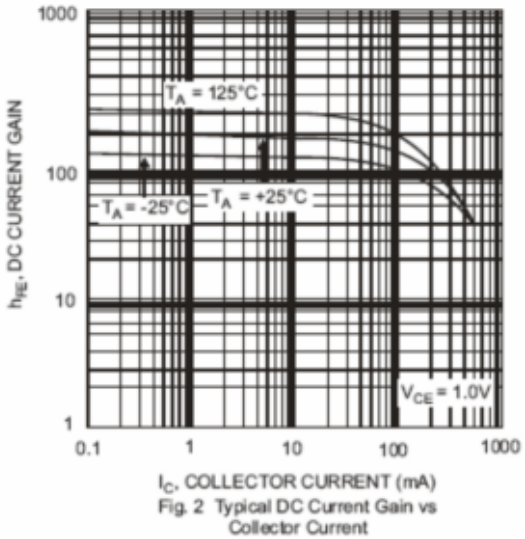


Fig. 2 Typical DC Current Gain vs Collector Current

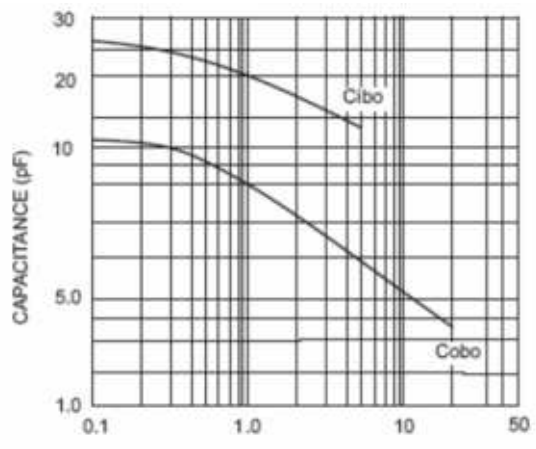


Fig. 3 Typical Capacitance

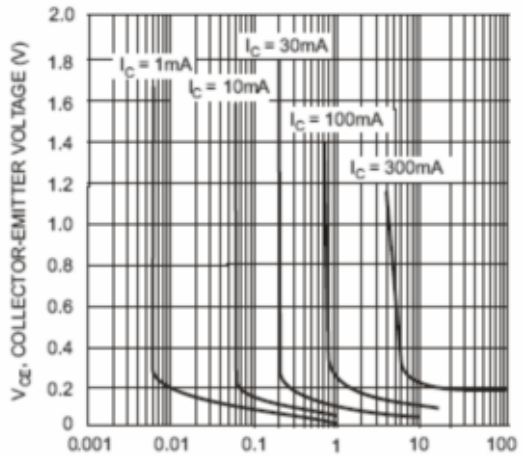


Fig. 4 Typical Collector Saturation Region

RATINGS AND CHARACTERISTIC CURVES (For Reference Only)

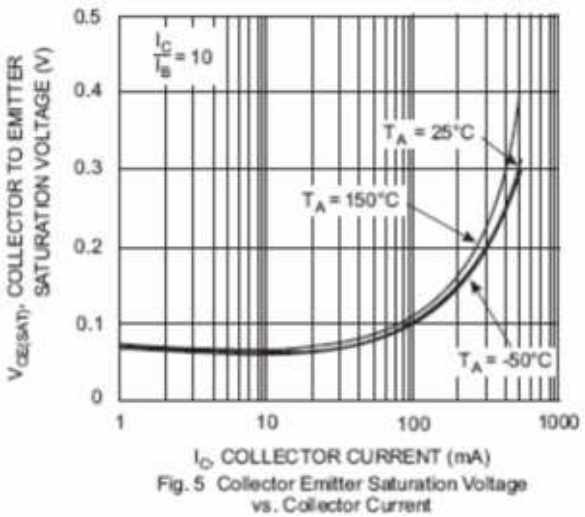


Fig. 5 Collector Emitter Saturation Voltage vs. Collector Current

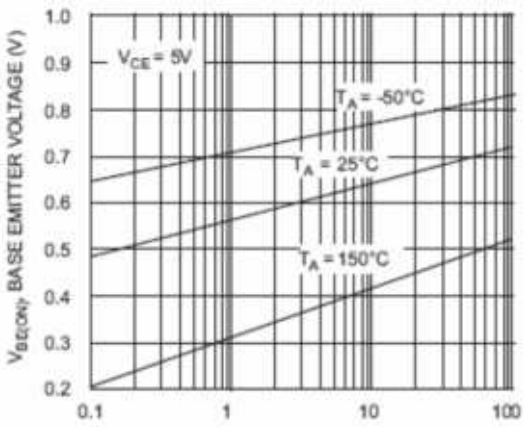
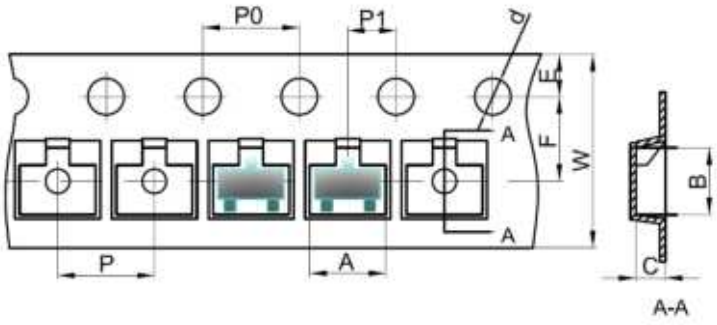
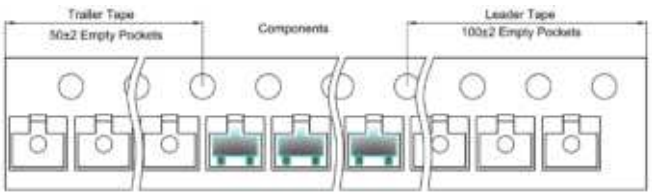


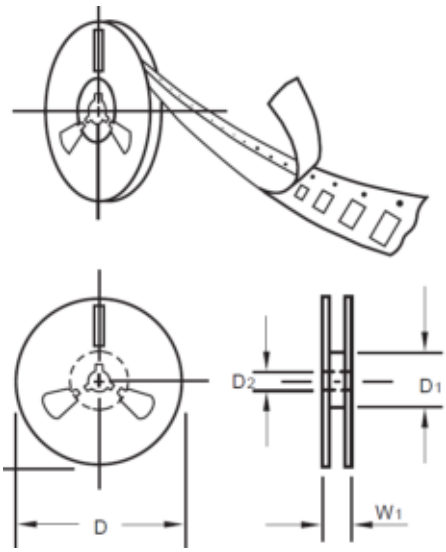
Fig. 6 Base Emitter Voltage vs. Collector Current

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

SMD PLASTIC-ENCCAPULATE TRANSISTORS SOT23 SERIES

PACKAGE

Case Code	SOT-23
Reel Size	7”
Reel Size	178 mm
MPQ/Reel	3000 pcs
Qty. /Box	6000 pcs
G.W/Box	1 LBS

DISCLAIMER

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