WT591-AT

PNP Transistor

Features

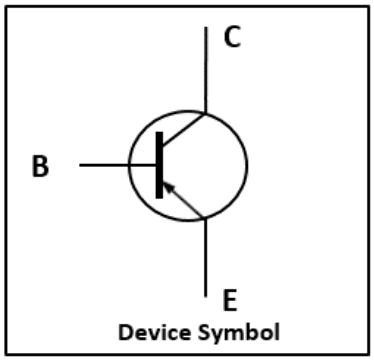
- Low equivalent on-resistance
- Complementary NPN Type: WT491-AT

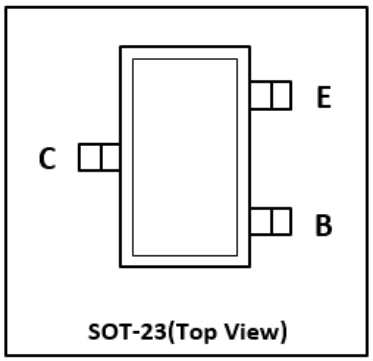


Mechanical Characteristics

- SOT-23 Package
- Marking : Making Code
- RoHS Compliant & HF
- Device meets MSL1 requirement

Schematic & PIN Configuration





Absolute Maximum Rating

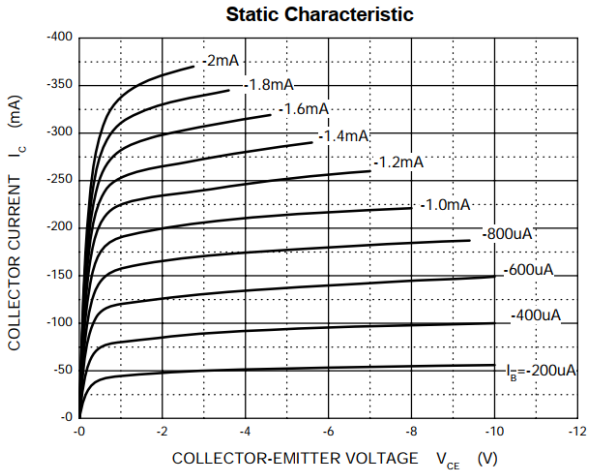
Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	-80	V
Collector Emitter Voltage	V_{CEO}	-60	V
Emitter Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-1	A
Power Dissipation	P_D	500	mW
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	500	°C/W

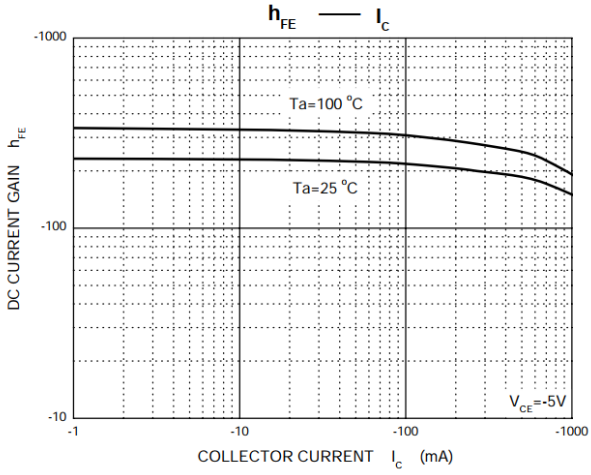
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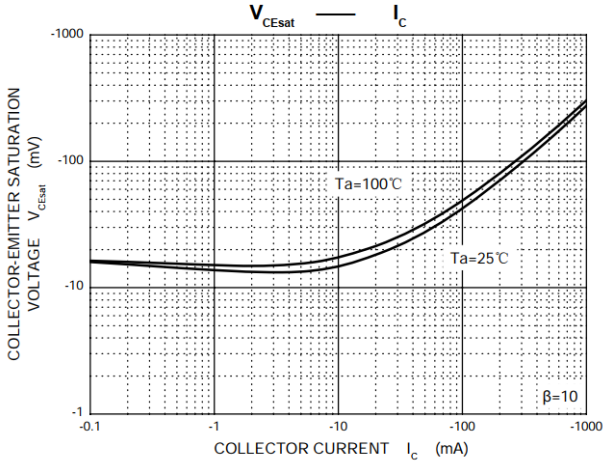
Electrical Characteristics (T_{amb}=25°C unless otherwise specified)

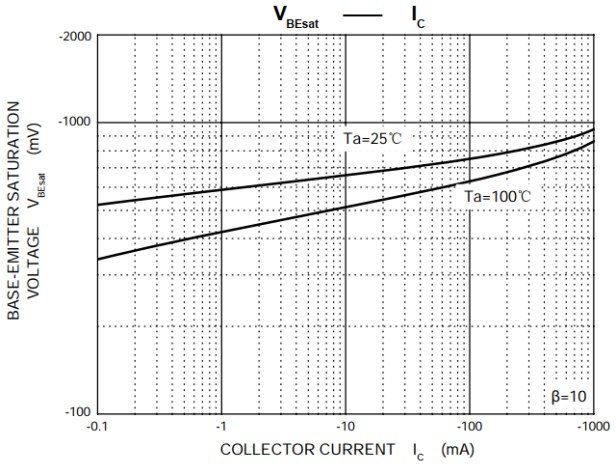
Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	I_C = -100μA, I_E = 0	-80	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	I_C = -10mA, I_B = 0	-60	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	I_E = -100μA, I_C = 0	-5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = -60V, I_E = 0	-	-	-100	nA
Emitter Cut-off Current	I_{EBO}	V_{EB} = -4V, I_C = 0	-	-	-100	nA
DC Current Gain	$h_{FE(1)}$	V_{CE} = -5V, I_C = -1mA	100	-	-	
	$h_{FE(2)}$	V_{CE} = -5V, I_C = -500mA	100	-	300	
	$h_{FE(3)}$	V_{CE} = -5V, I_C = -1A	80	-	-	
	$h_{FE(4)}$	V_{CE} = -5V, I_C = -2A	15	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = -500mA, I_B = -50mA	-	-	-0.30	V
		I_C = -1A, I_B = -100mA	-	-	-0.60	V
Base -Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = -1A, I_B = -100mA	-	-	-1.20	V
Base-Emitter Voltage	V_{BE}	V_{CE} = -5V, I_C = -1A	-	-	-1.00	V
Transition Frequency	f_T	V_{CE}= -10V, I_C= -50mA, f= 100MHz	150	-	-	MHz
Output Capacitance	C_{OBO}	V_{CB}= -10V,f = 1MHz	-	-	10	pF

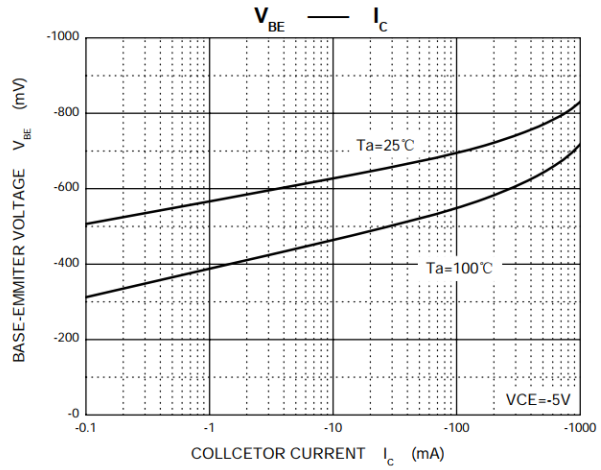
Typical Characteristics

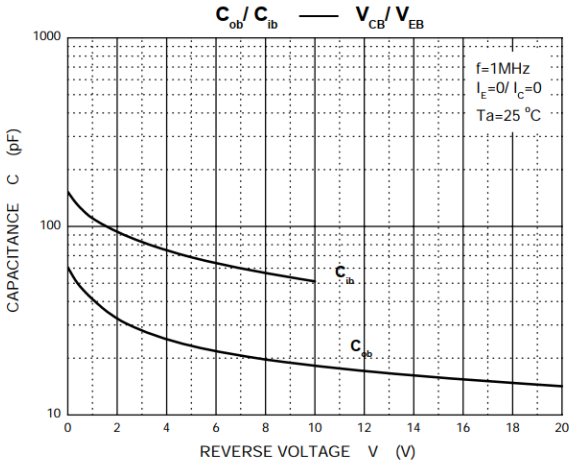





V_{CEsat} —— I_C
COLLECTOR-EMITTER SATURATION VOLTAGE V_{CEsat} (mV)
-1000
-100
-10
-1
-0.1
-1
-10
-100
-1000
Ta=100℃
Ta=25℃
β=10
COLLECTOR CURRENT I_C (mA)

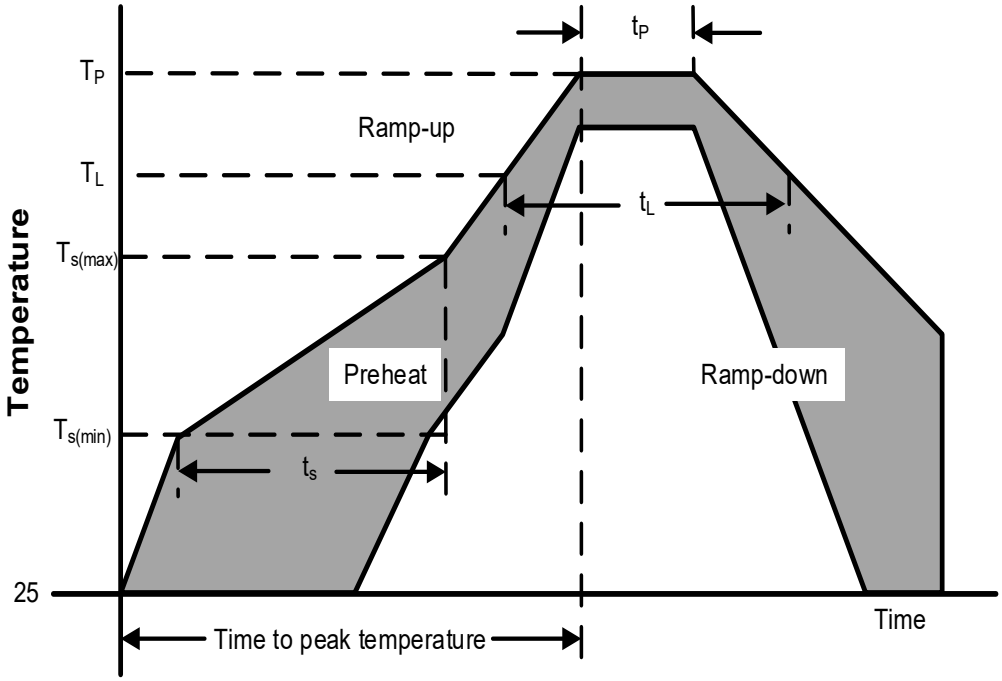

V_{BEsat} —— I_C
BASE-EMITTER SATURATION VOLTAGE V_{BEsat} (mV)
-2000
-1000
-100
-0.1
-1
-10
-100
-1000
Ta=25℃
Ta=100℃
β=10
COLLECTOR CURRENT I_C (mA)


V_{BE} —— I_C
BASE-EMMITER VOLTAGE V_{BE} (mV)
-1000
-800
-600
-400
-200
-0
-0.1
-1
-10
-100
-1000
Ta=25℃
Ta=100℃
VCE=-5V
COLLCETOR CURRENT I_C (mA)


C_{ob} / C_{ib} —— V_{CB} / V_{EB}
CAPACITANCE C (pF)
1000
100
10
0
2
4
6
8
10
12
14
16
18
20
f=1MHz
I_E=0/ I_C=0
Ta=25 °C
C_{ib}
C_{ob}
REVERSE VOLTAGE V (V)

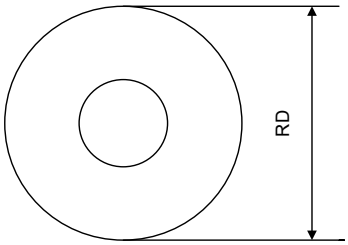
Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	Temperature Min ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (ts)	60 – 190 secs
Average ramp up rate (Liquidus Temp) (T_L) to peak		5°C/second max
$T_{S(max)}$ to T_L——Ramp-up Rate		5°C/second max
Reflow	Temperature (T_L) (Liquidus)	217°C
	Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260+0/-5 °C
Time within actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		5°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max.
Do not exceed		280°C

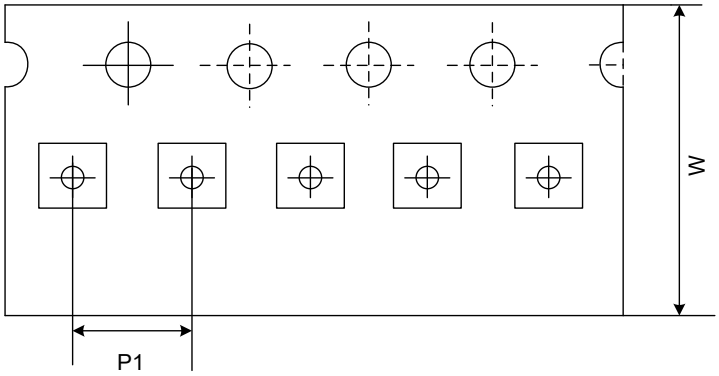


Tape And Reel Information

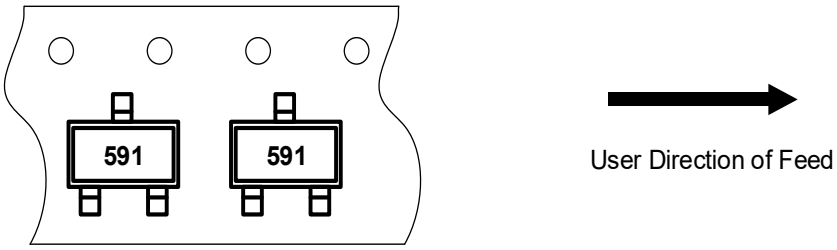
Reel Dimensions



Tape Dimensions



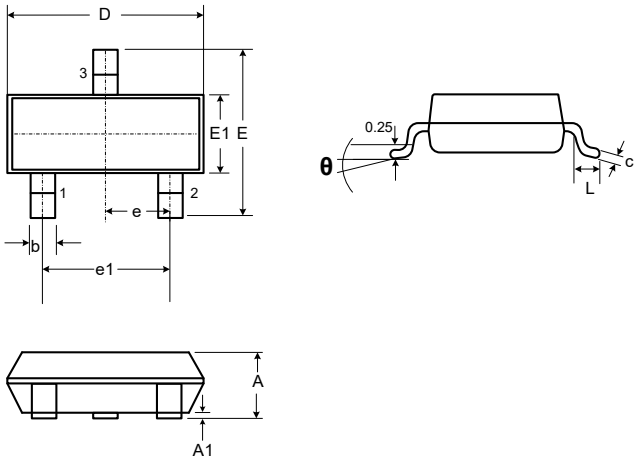
Quadrant Assignments For PIN1 Orientation In Tape

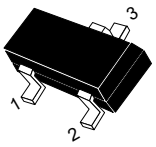


RD	Reel Dimensions	7 inch
W	Overall width of the carrier tape	8 mm
P1	Pitch between successive cavity centers	4 mm

Outline Drawing – SOT-23

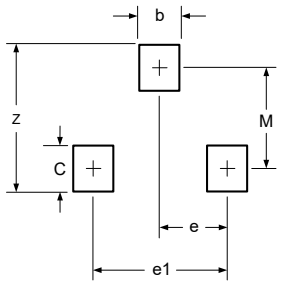
PACKAGE OUTLINE





SOT-23

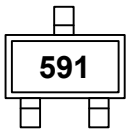
SYMBOL	MILLIMETERS	
	MIN	MAX
A	0.90	1.15
A1	0.00	0.15
b	0.30	0.55
c	0.07	0.20
D	2.80	3.10
E	2.10	2.65
E1	1.20	1.40
e	0.95 BSC	
e1	1.78	2.05
L	0.30	0.50
θ	0°	8°



DIMENSIONS		
DIM	INCHES	MILLIMETERS
M	0.0795	2.02
C	0.0315	0.80
Z	0.111	2.82
e	0.037 BSC	0.95 BSC
e1	0.075 BSC	1.9 BSC
b	0.0315	0.80

Notes:
Controlling Dimension: Millimeter.

Marking Codes

Part Number	WT591-AT
Marking Code	

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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1. The product specification aims to provide users with a reference regarding various product parameters, performance, and usage. It presents certain aspects of the product's performance in graphical form and is intended solely for users to select product and make product comparisons, enabling users to better understand and evaluate the characteristics and advantages of the product. It does not constitute any commitment, warranty, or guarantee.

2. The product parameters described in the product specification are numerical values, characteristics, and functions obtained through actual testing or theoretical calculations of the product in an independent or ideal state. Due to the complexity of product applications and variations in test conditions and equipment, there may be slight fluctuations in parameter test values. WAYON shall not guarantee that the actual performance of the product when installed in the customer's system or equipment will be entirely consistent with the product specification, especially concerning dynamic parameters. It is recommended that users consult with professionals for product selection and system design. Users should also thoroughly validate and assess whether the actual parameters and performance when installed in their respective systems or equipment meet their requirements or expectations. Additionally, users should exercise caution in verifying product compatibility issues, and WAYON assumes no responsibility for the application of the product.

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