



# WT2222A

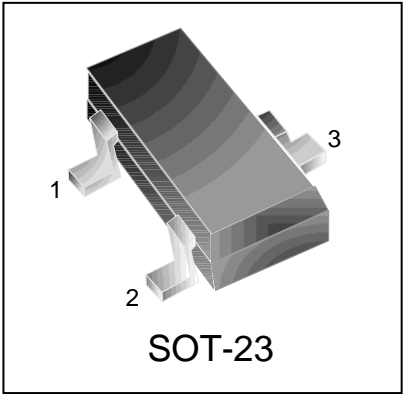
## NPN Silicon Transistor

### Features

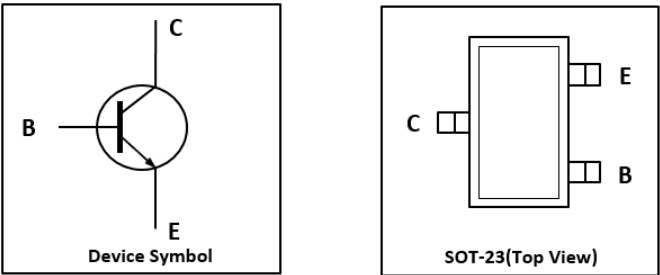
- Complementary to WT2907A
- Epitaxial Planar Die Construction
- Ideal for Medium Power Amplification and Switching

### Mechanical Characteristics

- SOT-23 Package
- Marking : Making Code
- RoHS Compliant & HF
- Device meets MSL3 requirement



### Schematic & PIN Configuration



### Absolute Maximum Rating

Parameter	Symbol	Value	Unit
Collector Base Voltage	$V_{CBO}$	75	V
Collector Emitter Voltage	$V_{CEO}$	40	V
Emitter Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	600	mA
Power Dissipation	$P_D$	350	mW
Junction Temperature	$T_j$	-55 ~ 150	°C
Storage Temperature	$T_{stg}$	-55 ~ 150	°C
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	357	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	185	°C/W

**Electrical Characteristics ( $T_{amb}=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu\text{A}$ , $I_E = 0$	75	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 10\text{mA}$ , $I_B = 0$	40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu\text{A}$ , $I_C = 0$	6	-	-	V
Collector Cut-Off Current	$I_{CBO}$	$V_{CB} = 60\text{V}$ , $I_E = 0$	-	-	10	nA
Collector Cut-Off Current	$I_{CEX}$	$V_{CE} = 30\text{V}$ , $V_{EB(off)} = 3\text{V}$	-	-	10	nA
Emitter Cut-Off Current	$I_{EBO}$	$V_{EB} = 3\text{V}$ , $I_C = 0$	-	-	100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 10\text{V}$ , $I_C = 0.1\text{mA}$	40	-	-	
	$h_{FE(2)}$	$V_{CE} = 10\text{V}$ , $I_C = 1.0\text{mA}$	50	-	-	
	$h_{FE(3)}$	$V_{CE} = 10\text{V}$ , $I_C = 10\text{mA}$	75	-	-	
	$h_{FE(4)}$	$V_{CE} = 10\text{V}$ , $I_C = 150\text{mA}$	100	-	300	
	$h_{FE(5)}$	$V_{CE} = 10\text{V}$ , $I_C = 500\text{mA}$	40	-	-	
	$h_{FE(6)}$	$V_{CE} = 1.0\text{V}$ , $I_C = 150\text{mA}$	50	-	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 150\text{mA}$ , $I_B = 15\text{mA}$	-	-	0.3	V
		$I_C = 500\text{mA}$ , $I_B = 50\text{mA}$	-	-	1	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 150\text{mA}$ , $I_B = 15\text{mA}$	-	-	1.2	V
		$I_C = 500\text{mA}$ , $I_B = 50\text{mA}$	-	-	2	V
Transition Frequency	$f_T$	$V_{CE}=20\text{V}$ , $I_C=20\text{mA}$ , $f=100\text{MHz}$	300	-	-	MHz
Delay Time	$t_d$	$V_{CC} = 30\text{V}$ , $V_{BE(off)} = -0.5\text{V}$ , $I_C = 150\text{mA}$ , $I_{B1} = 15\text{mA}$	-	-	10	ns
Rise Time	$t_r$		-	-	25	ns
Storage Time	$t_s$	$V_{CC} = 30\text{V}$ , $I_C = 150\text{mA}$ $I_{B1} = -I_{B2} = 15\text{mA}$	-	-	225	ns
Fall Time	$t_f$		-	-	60	ns

**Typical Characteristics**

Figure 1.Static Characteristics

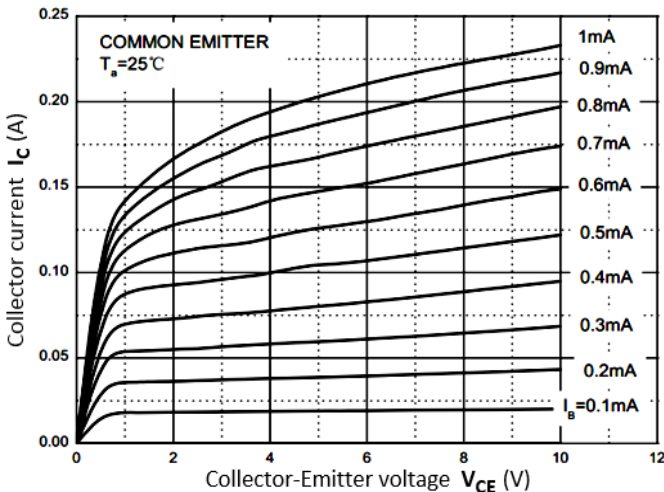


Figure 2.  $h_{FE}$  vs.  $I_C$

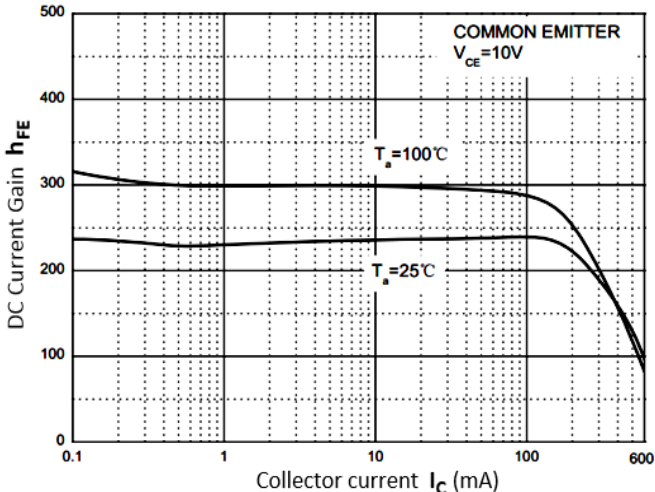
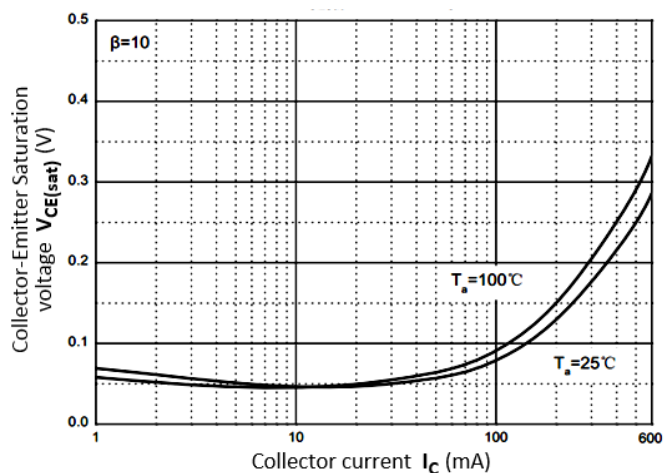
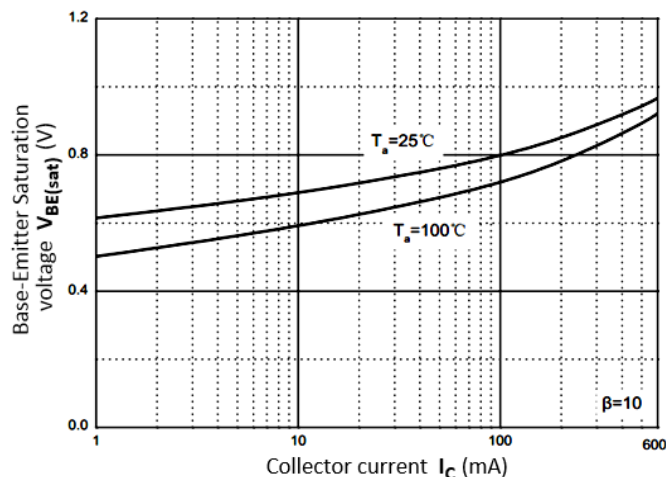
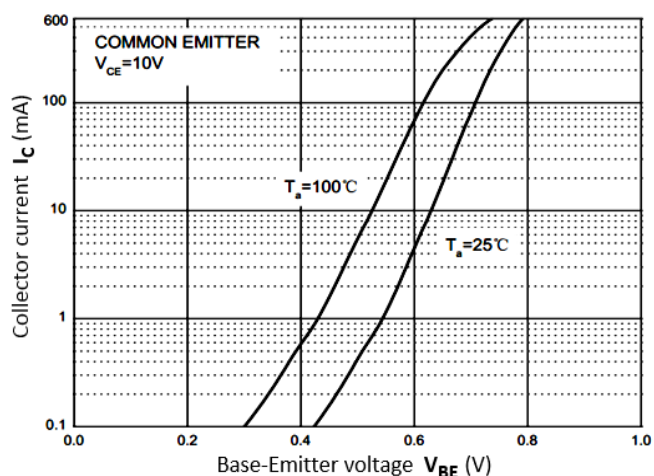
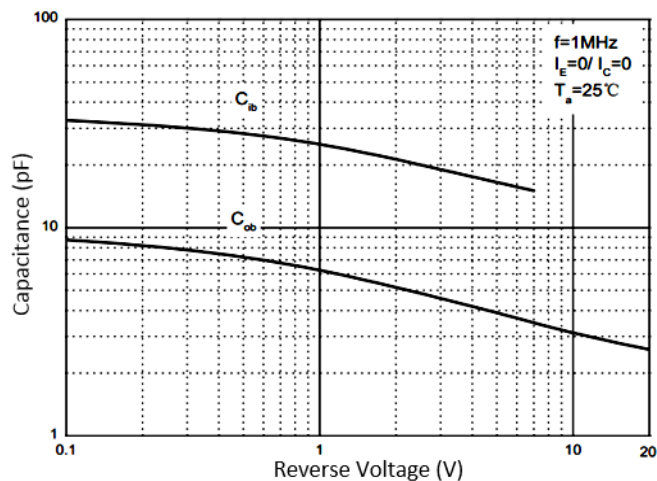
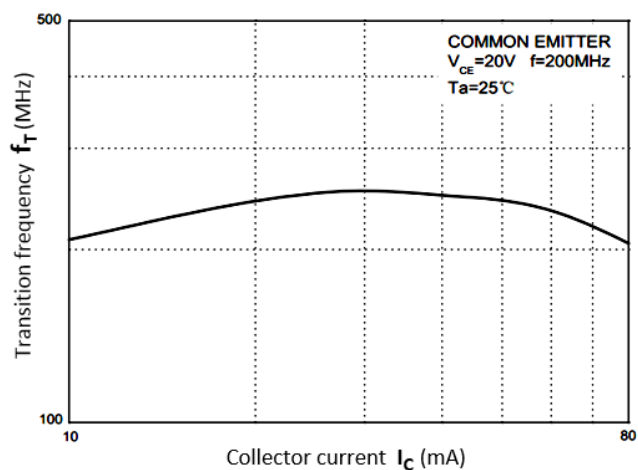
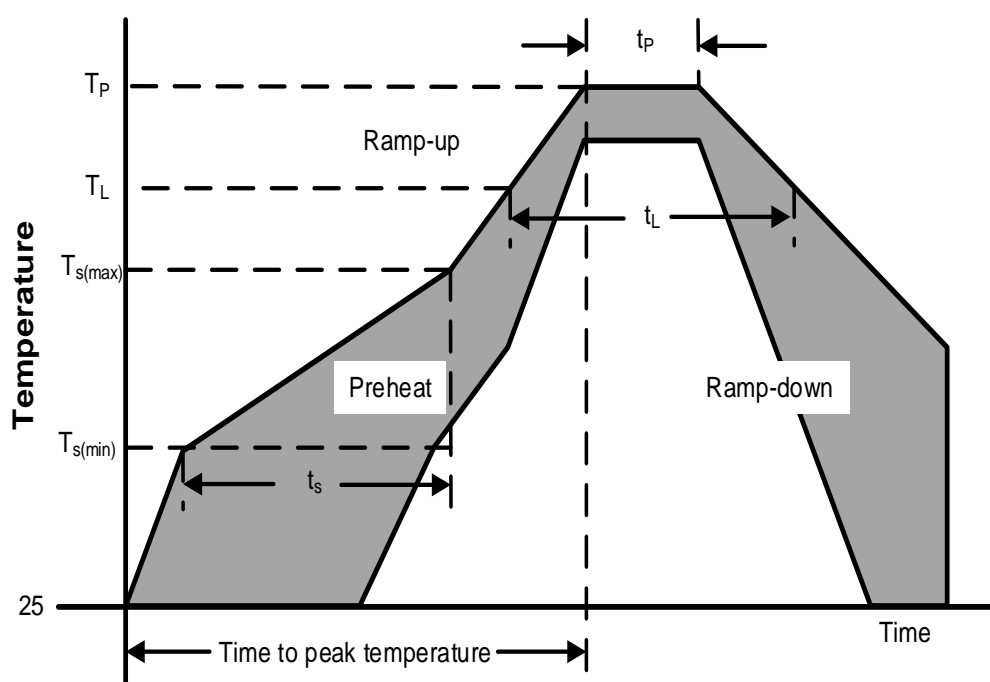


Figure 3.  $V_{CE(sat)}$  vs.  $I_C$ Figure 4.  $V_{BE(sat)}$  vs.  $I_C$ Figure 5.  $I_C$  vs.  $V_{BE}$ Figure 6.  $C_{ob}/C_{ib}$  vs.  $V_{CB}/V_{EB}$ Figure 7.  $f_T$  vs.  $I_C$ 

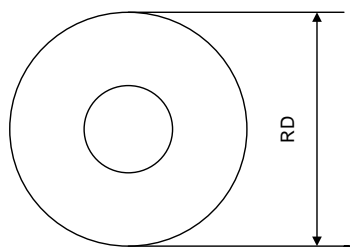
## Soldering Parameters

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) ( $t_s$ )	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

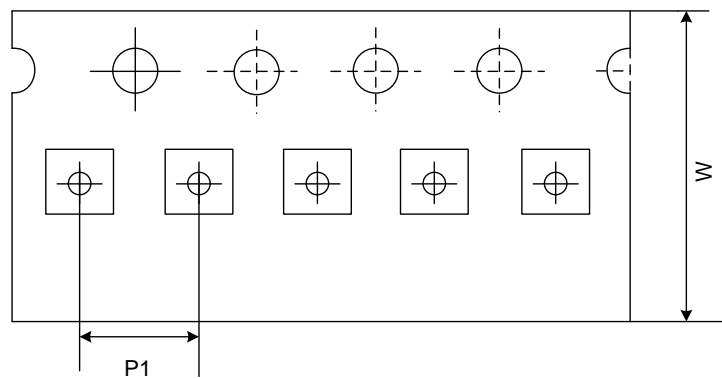


Tape And Reel Information

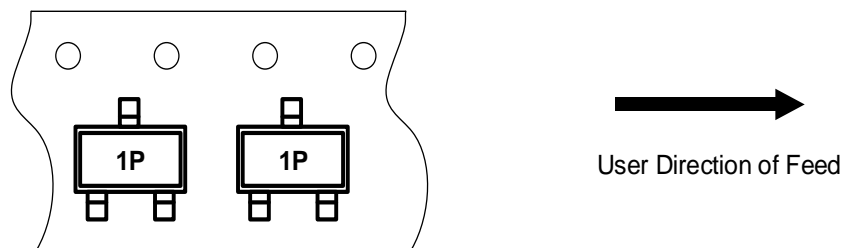
Reel Dimensions



Tape Dimensions

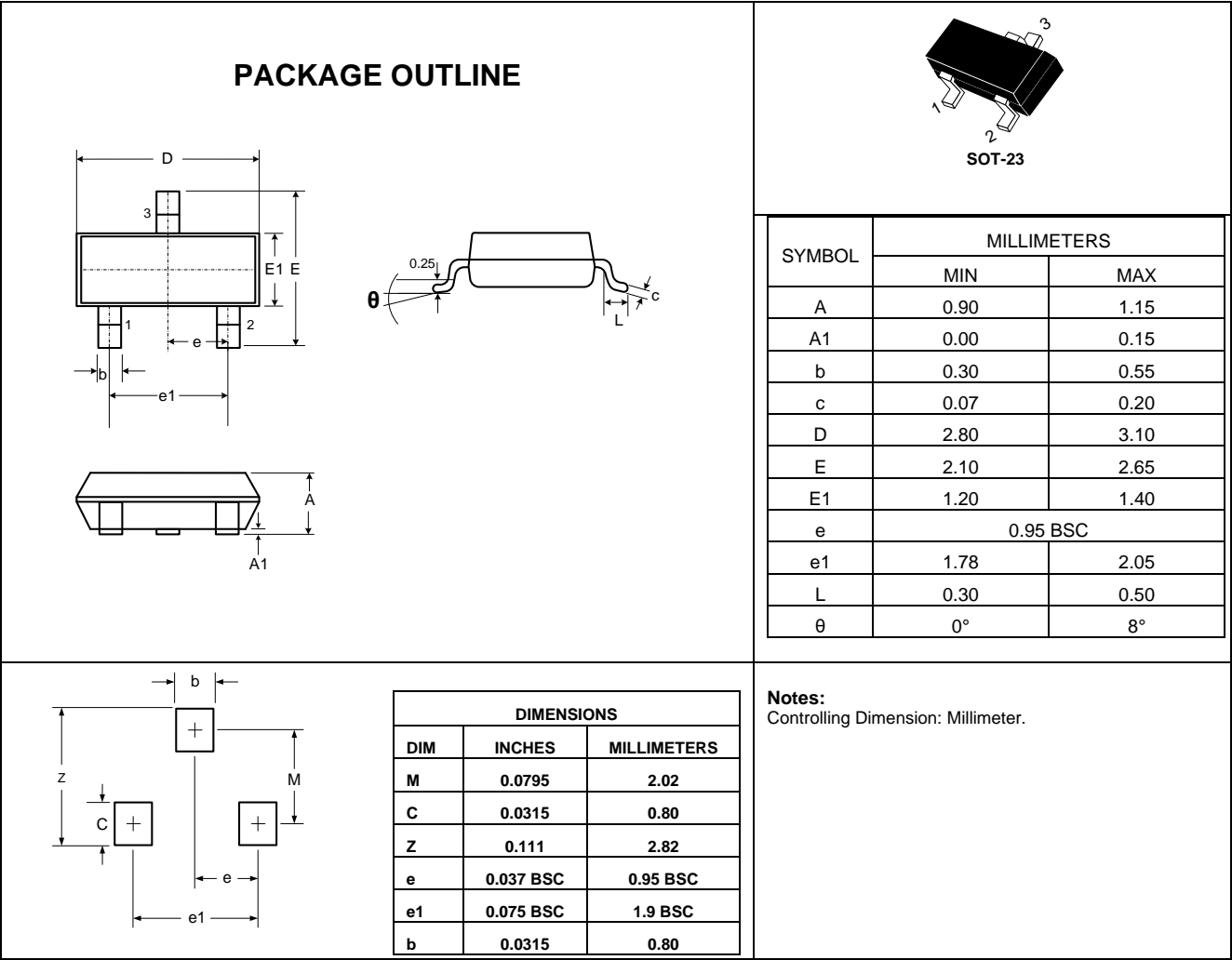


Quadrant Assignments For PIN1 Orientation In Tape



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



## Marking Codes

Part Number	WT2222A
Marking Code	

## Package Information

Qty: 3k/Reel

## CONTACT INFORMATION

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For additional information, please contact your local Sales Representative.

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**Product Specification Statement**

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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