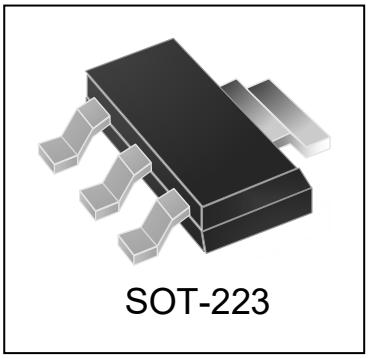
WT651N

NPN Silicon Transistor

Features

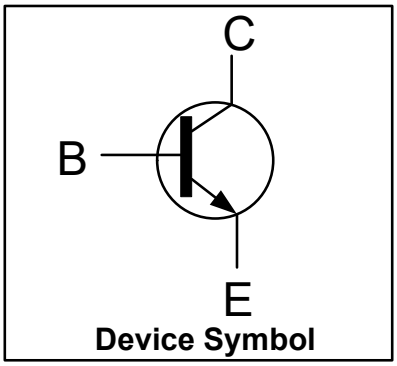
- 3 Amps Continuous Current
- Extremely Low Saturation Voltages
- P_{tot} = 2W

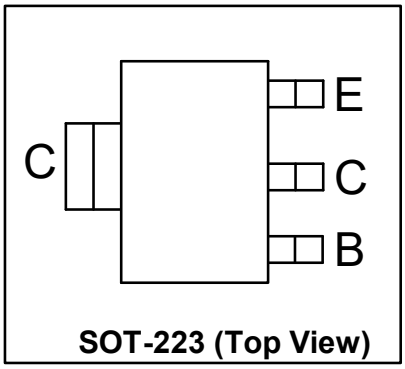


Mechanical Characteristics

- SOT-223 Package
- Marking : Marking Code
- RoHS Compliant & HF

Schematic & PIN Configuration





Absolute Maximum Rating (T_{amb}=25°C unless otherwise noted)

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
Continuous Collector Current	I_C	4	A
Peak Pulse Current	I_{CM}	7	A

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	62[1]	°C/ W
		41.7[2]	°C/ W
Power Dissipation	P_D	2[1]	W
		3[2]	W
Thermal Resistance from Junction to Leads	$R_{\theta JL}$	12.9[3]	°C/ W
Operating and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C

Notes:1.For a device mounted with the collector lead on 25mm x 25mm 2oz copper that is on a single-sided 1.6mm FR4 PCB; device is measured under still air conditions whilst operating in steady-state.

2.Same as Note 1, except the device is mounted on 50mm x 50mm 2oz copper.

3.Thermal resistance form junction to solder-point(at the end of the collector lead).

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	BV_{CBO}	I_C = 100μA, I_E=0	80	-	-	V
Collector-Emitter Breakdown Voltage	BV_{CEO}	I_C = 10mA, I_B=0	60	-	-	V
Emitter-Base Breakdown Voltage	BV_{EBO}	I_E = 100μA, I_C=0	5	-	-	V
Collector Cut-off Current	I_{CBO}	V_{CB} = 80V, V_{EB} = 0	-	-	100	nA
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, V_{EB} = 0	-	-	100	nA
Collector Cut-off Current	I_{CBO}	V_{CB} = 60V, V_{EB} = 0(Ta=125°C)	-	-	10	μA
Emitter Cu-toff Current	I_{EBO}	V_{EB} = 4V	-	-	100	nA
Static Forward Current Transfer ratio	$h_{FE(1)}$	I_C = 50mA, V_{CE} = 2V	70	290	-	
	$h_{FE(2)}$	I_C = 500mA, V_{CE} = 2V	100	280	-	
	$h_{FE(3)}$	I_C = 1A, V_{CE} = 2V	80	250	-	
	$h_{FE(4)}$	I_C = 2A, V_{CE} = 2V	40	190	-	
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	I_C = 1A, I_B = 100mA	-	100	300	mV
		I_C = 2A, I_B = 200mA	-	190	500	
		I_C = 3A, I_B = 300mA	-	280	600	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	I_C = 1A, I_B = 100mA	-	850	1250	mV
Base-Emitter Turn-on Voltage	$V_{BE(on)}$	I_C = 1A, V_{CE}= 2V	-	760	1000	mV
Transitional Frequency	f_T	I_C = 100mA, V_{CE} = 5V, f = 100MHz	75	100	-	MHz
Output Capacitance	C_{obo}	V_{CB} = 10V, f = 1MHz	-	20	35	pF
Switching Time	t_{ON}	V_{CC} = 10V, I_C = 0.5A, I_{B1} = 50mA, I_{B2} = 50mA	-	45	-	nS
	t_{OFF}		-	800	-	

Typical Characteristics

Fig. 1 Output Characteristics Curve

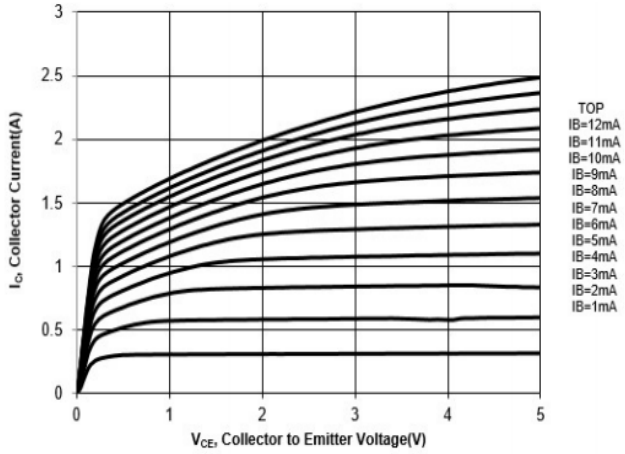


Fig. 2 Collector Current vs. Base to Emitter Voltage

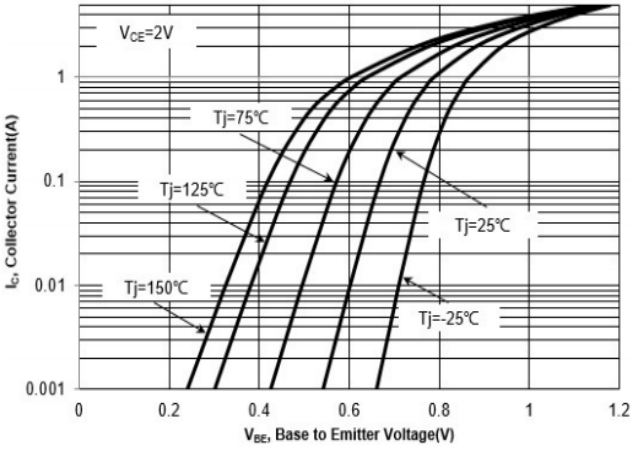


Fig. 3 DC Current Gain vs. Collector Current

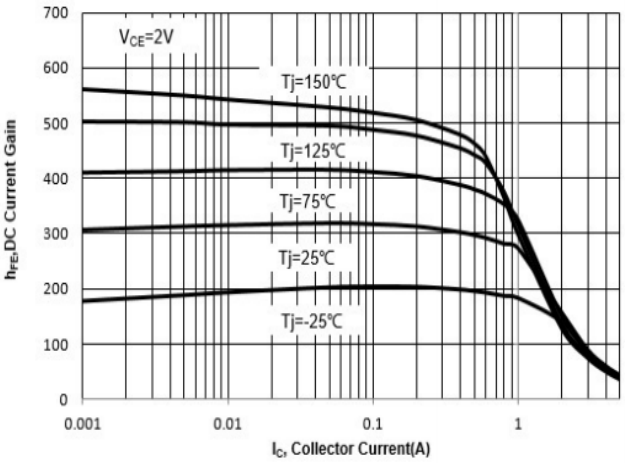
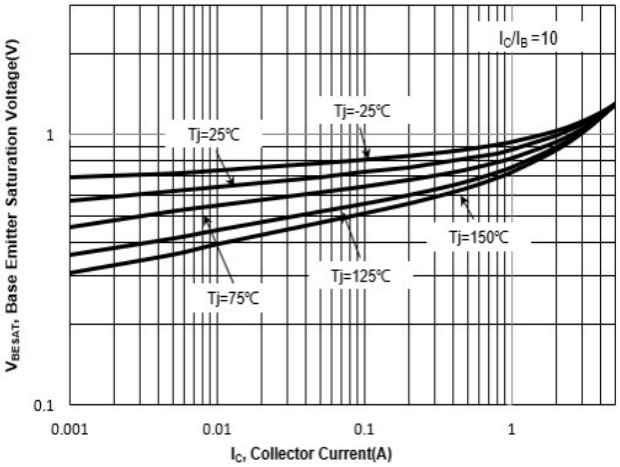
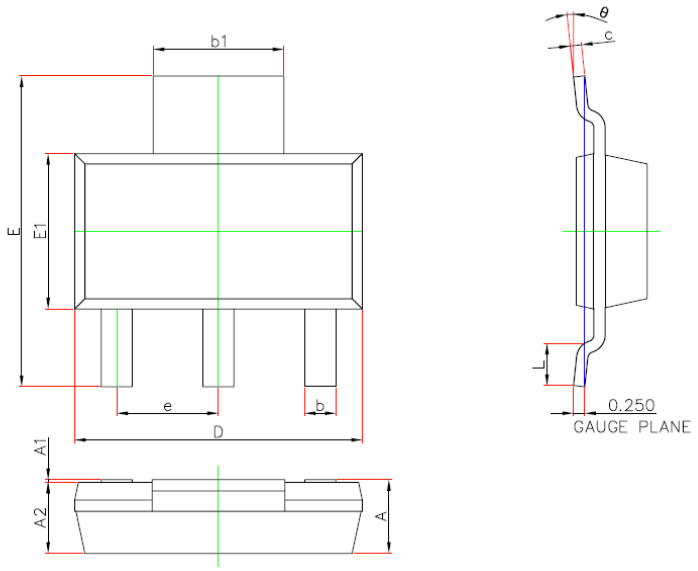


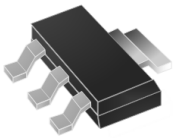
Fig. 4 V_{BESAT} vs. Collector Current



Outline Drawing – SOT-223

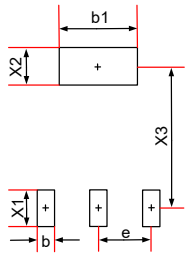
PACKAGE OUTLINE





SOT-223

DIMENSIONS				
SYMBOL	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.51	1.81	0.059	0.071
A1	0	0.14	0	0.006
A2	1.45	1.75	0.057	0.069
b	0.66	0.84	0.026	0.033
b1	2.90	3.10	0.114	0.122
c	0.20	0.35	0.008	0.014
D	6.20	6.60	0.244	0.260
e	2.30 BSC		0.091 BSC	
E	6.70	7.20	0.264	0.283
E1	3.30	3.70	0.130	0.146
L	0.75	-	0.030	-
θ	0	10°	0	10°

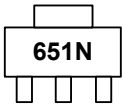


DIMENSIONS		
DIM	MILLIMETERS	INCHES
b1	3.30	0.130
b	1.20	0.047
e	2.30	0.091
X1	1.60	0.063
X2	1.60	0.063
X3	6.40	0.252

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. The pad layout is for reference purposes only.
4. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

Part Number	WT651N
Marking Code	

Package Information

Qty：2.5k/Reel

CONTACT INFORMATION

No.1001, Shiwan (7) Road, Pudong District, Shanghai, P.R.China.201207
Tel: 86-21-68969993 Fax: 86-21-50757680 Email: market@way-on.com
WAYON website: **http://www.way-on.com**
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.

3. WAYON strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, WAYON cannot guarantee that the information provided in the product specification is entirely accurate and error-free. WAYON shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications. WAYON reserves the right to revise or update the product specification and the products at any time without prior notice, and the user's continued use of the product specification is considered an acceptance of these revisions and updates. Prior to purchasing and using the product, users should verify the above information with WAYON to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult WAYON in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

4. Users are advised to pay attention to the parameter limit values specified in the product specification and maintain a certain margin in design or application to ensure that the product does not exceed the parameter limit values defined in the product specification. This precaution should be taken to avoid exceeding one or more of the limit values, which may result in permanent irreversible damage to the product, ultimately affecting the quality and reliability of the system or equipment.

5. The design of the product is intended to meet civilian needs and is not guaranteed for use in harsh environments or precision equipment. It is not recommended for use in systems or equipment such as medical devices, aircraft, nuclear power, and similar systems, where failures in these systems or equipment could reasonably be expected to result in personal injury. WAYON shall assume no responsibility for any consequences resulting from such usage.

6. Users should also comply with relevant laws, regulations, policies, and standards when using the product specification. Users are responsible for the risks and liabilities arising from the use of the product specification and must ensure that it is not used for illegal purposes. Additionally, users should respect the intellectual property rights related to the product specification and refrain from infringing upon any third-party legal rights. WAYON shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.