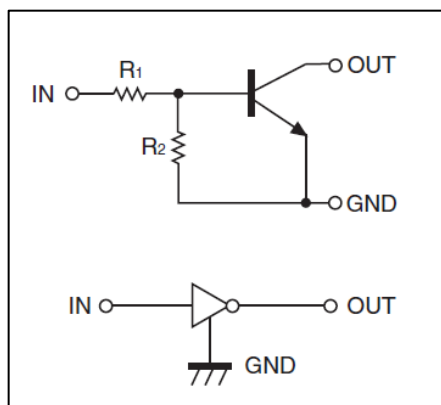
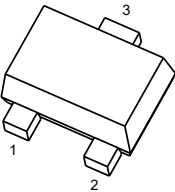
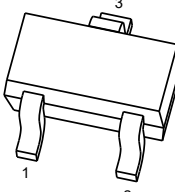
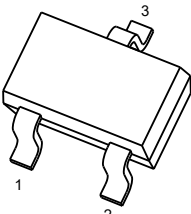
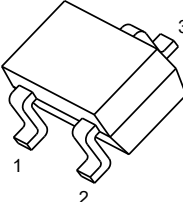
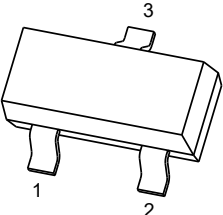
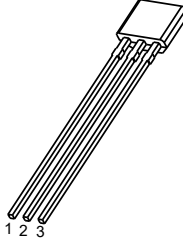


**FEATURES****NPN Digital Transistors (Built-in Resistors)**

- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- Only the on/off conditions need to be set for operation, making device design easy

• **Equivalent Circuit****PIN CONNENCTIONS and MARKING**

<b>DTC114YM</b> 	<b>SOT-723</b>  1. IN 2. GND 3. OUT	<b>DTC114YE</b> 	<b>SOT-523</b>  1. IN 2. GND 3. OUT
<b>DTC114YUA</b> 	<b>SOT-323</b>  1. IN 2. GND 3. OUT	<b>DTC114YKA</b> 	<b>SOT-23-3L</b>  1. IN 2. GND 3. OUT
<b>DTC114YCA</b> 	<b>SOT-23</b>  1. IN 2. GND 3. OUT	<b>DTC114YSA</b> 	<b>TO-92S</b>  1.GND 2.OUT 3.IN

## ORDERING INFORMATION

Part Number	Package	Packing Method	Pack Quantity
DTC114YE	SOT-523	Reel	3000pcs/Reel

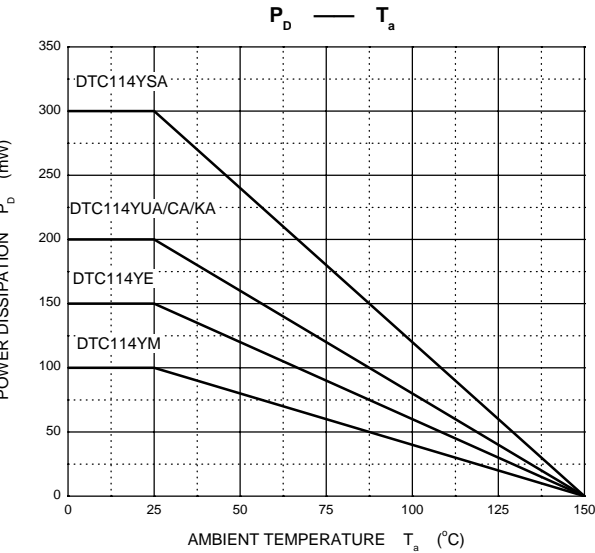
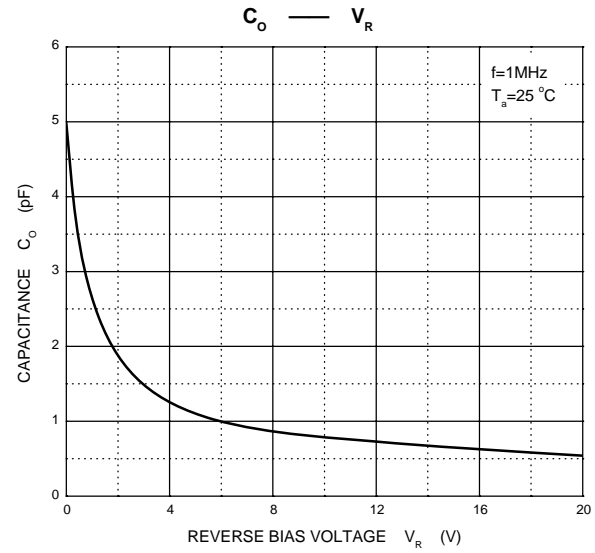
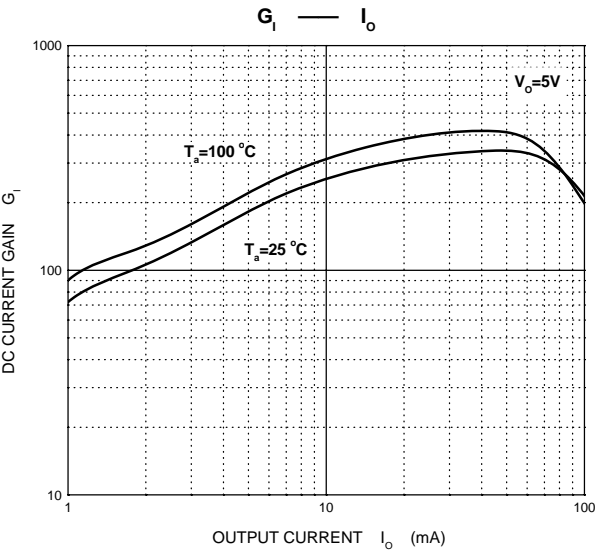
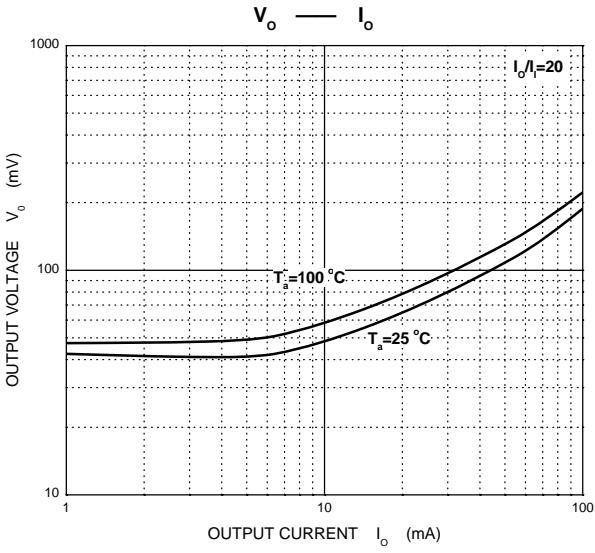
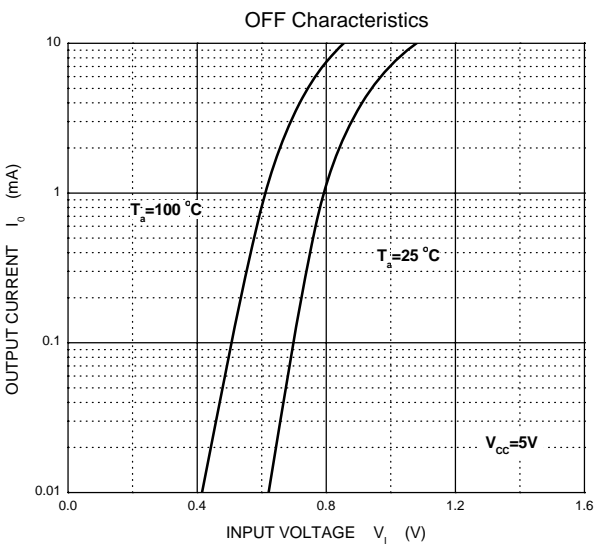
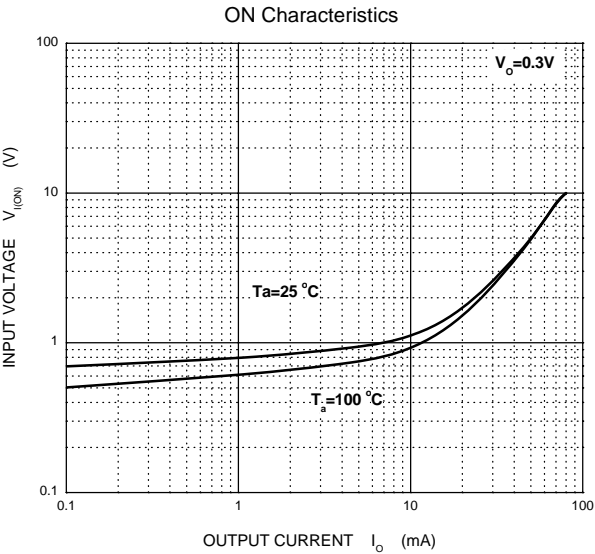
## MAXIMUM RATINGS(Ta=25°C unless otherwise noted)

Symbol	Parameter	Limits(DTC114Y□)						Unit
		M	E	UA	KA	CA	SA	
V <sub>CC</sub>	Supply Voltage	50						V
V <sub>IN</sub>	Input Voltage	-6~+40						V
I <sub>O</sub>	Output Current	70						mA
I <sub>CM</sub>	Peak Collector Current	100						mA
P <sub>D</sub>	Power Dissipation	100	150	200	200	200	300	mW
T <sub>J</sub> , T <sub>stg</sub>	Operation Junction and Storage Temperature Range	-55~+150						°C

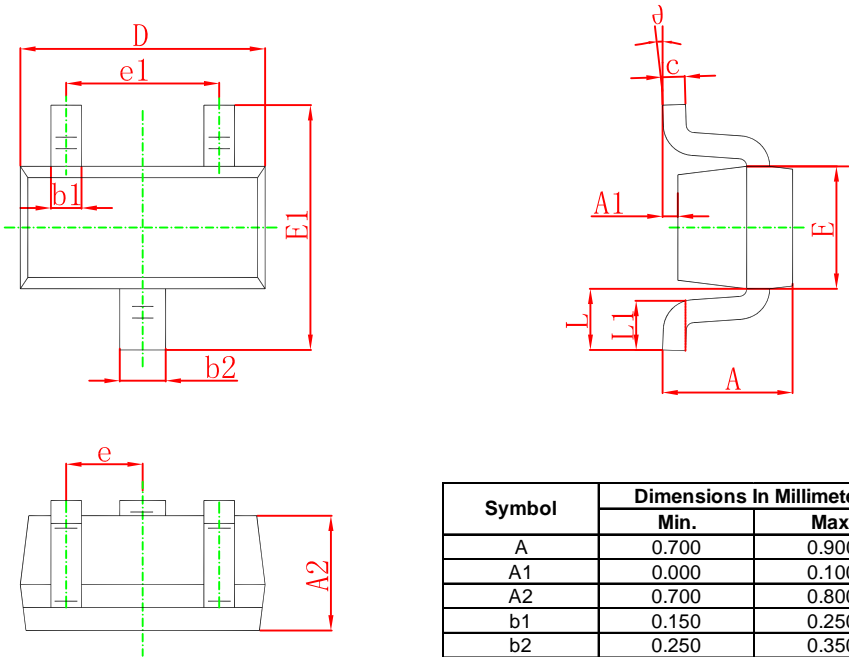
## ELECTRICAL CHARACTERISTICS (Ta=25°C unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Input voltage	V <sub>I(off)</sub>	V <sub>CC</sub> =5V, I <sub>O</sub> =100μA	0.3			V
	V <sub>I(on)</sub>	V <sub>O</sub> =0.3V, I <sub>O</sub> =1mA			1.4	V
Output voltage	V <sub>O(on)</sub>	I <sub>O</sub> /I <sub>I</sub> =5mA/0.25mA			0.3	V
Input current	I <sub>I</sub>	V <sub>I</sub> =5V			0.88	mA
Output current	I <sub>O(off)</sub>	V <sub>CC</sub> =50V, V <sub>I</sub> =0			0.5	μA
DC current gain	G <sub>I</sub>	V <sub>O</sub> =5V, I <sub>O</sub> =5mA	68			
Input resistance	R <sub>1</sub>		7	10	13	kΩ
Resistance ratio	R <sub>2</sub> /R <sub>1</sub>		3.7	4.7	5.7	
Transition frequency	f <sub>T</sub>	V <sub>O</sub> =10V, I <sub>O</sub> =5mA, f=100MHz		250		MHz

Typical Characteristics

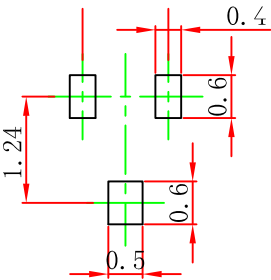


SOT-523 Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	0.700	0.900	0.028	0.035
A1	0.000	0.100	0.000	0.004
A2	0.700	0.800	0.028	0.031
b1	0.150	0.250	0.006	0.010
b2	0.250	0.350	0.010	0.014
c	0.100	0.200	0.004	0.008
D	1.500	1.700	0.059	0.067
E	0.700	0.900	0.028	0.035
E1	1.450	1.750	0.057	0.069
e	0.500 TYP.		0.020 TYP.	
e1	0.900	1.100	0.035	0.043
L	0.400 REF.		0.016 REF.	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°

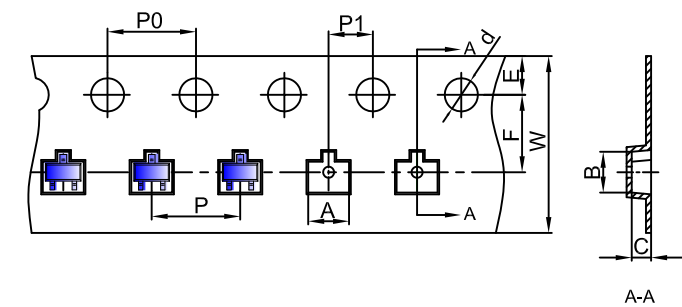
SOT-523 Suggested Pad Layout



- Note:
- 1. Controlling dimension: in millimeters.
  - 2. General tolerance:  $\pm 0.05\text{mm}$ .
  - 3. The pad layout is for reference purposes only.

SOT-523 Tape and Reel

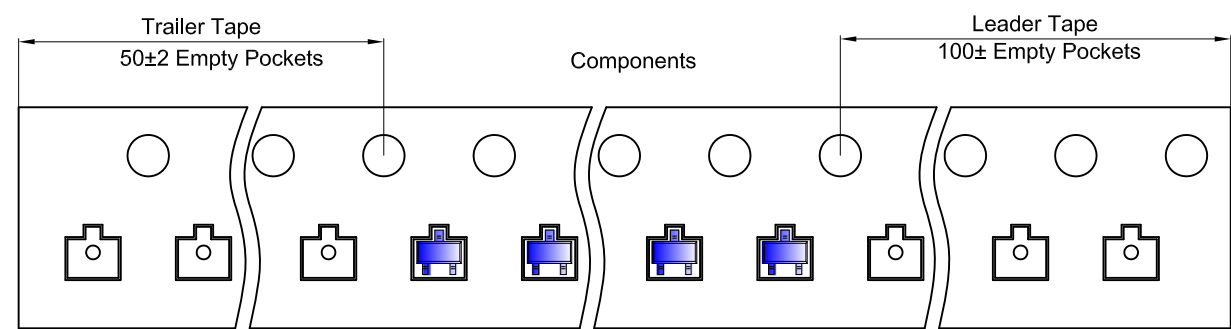
SOT-523 Embossed Carrier Tape



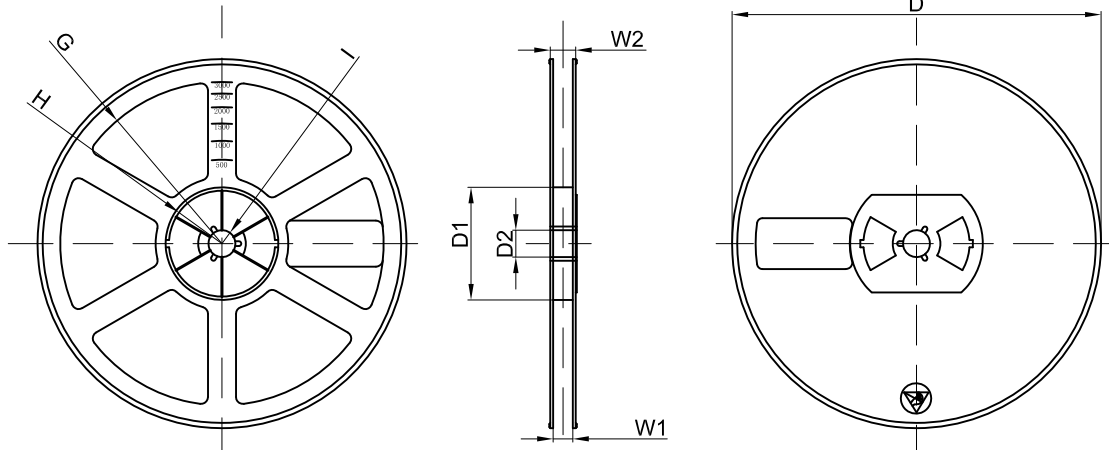
**Packaging Description:**  
SOT-523 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed 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).

Dimensions are in millimeter										
Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-523	1.85	1.85	0.875	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

SOT-523 Tape Leader and Trailer



SOT-523 Reel




Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	45,000 pcs	203×203×195	180,000 pcs	438×438×220	

## Contact Information

TANI website: <http://www.tanisemi.com> Email: [tani@tanisemi.com](mailto:tani@tanisemi.com) For additional information, please contact your local Sales Representative.

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### Product Specification Statement

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.

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. TANI 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 TANI assumes no responsibility for the application of the product. TANI strives to provide accurate and up-to-date information to the best of our ability. However, due to technical, human, or other reasons, TANI cannot guarantee that the information provided in the product specification is entirely accurate and error-free. TANI shall not be held responsible for any losses or damages resulting from the use or reliance on any information in these product specifications.

TANI 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 TANI to ensure that the product specification is the most current, effective, and complete. If users are particularly concerned about product parameters, please consult TANI in detail or request relevant product test reports. Any data not explicitly mentioned in the product specification shall be subject to separate agreement.

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.

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. TANI shall assume no responsibility for any consequences resulting from such usage.

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. TANI shall assume no responsibility for any disputes or controversies arising from the above-mentioned issues in any form.