

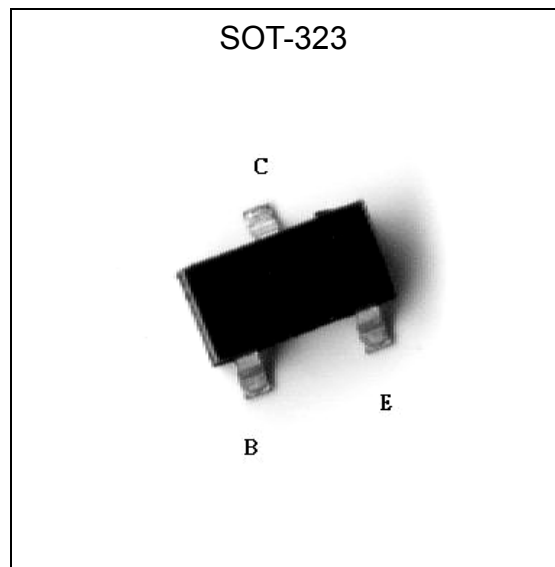
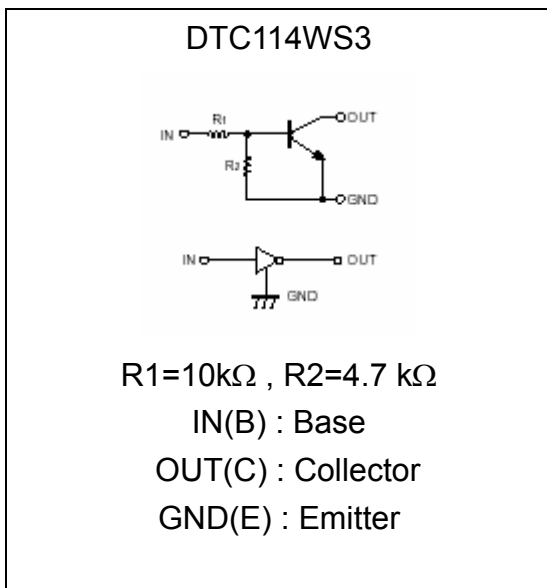
**General Purpose NPN Digital Transistors (Built-in Resistors)**

# DTC114WS3

**Features**

- 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.
- Complements the DTA114WS3

**Equivalent Circuit**



**Absolute Maximum Ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Supply Voltage	Vcc	50	V
Input Voltage	Vin	-10~+30	V
Output Current	Io	100	mA
	Io(max.)	100	mA
Power Dissipation	Pd	200	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55~+150	°C



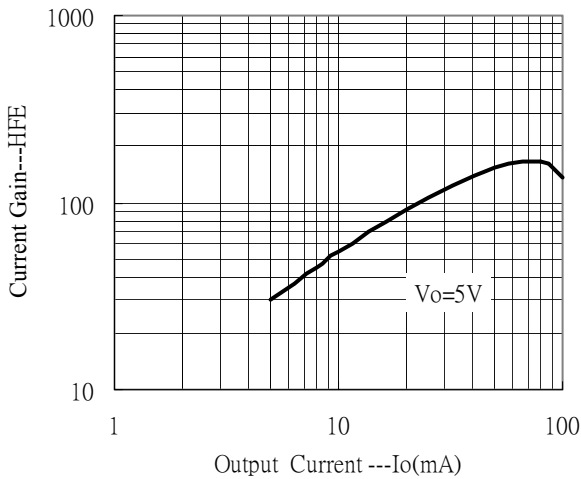
**Electrical Characteristics (Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Input Voltage	Vi(off)	-	-	0.8	V	Vcc=5V, Io=100uA
	Vi(on)	3	-	-	V	Vo=0.3V, Io=2mA
Output Voltage	Vo(on)	-	0.1	0.3	V	Io/Ii=10mA/0.5mA
Input Current	Ii	-	-	0.88	mA	Vi=5V
Output Current	Io(off)	-	0	0.5	uA	Vcc=50V, Vi=0V
DC Current Gain	Gi	24	-	-	-	Vo=5V, Io=10mA
Input Resistance	R1	7	10	13	kΩ	-
Resistance Ratio	R2/R1	0.37	0.47	0.57	-	-
Transition Frequency	fT	-	250	-	MHz	Vce=10V, Ie=5mA, f=100MHz*

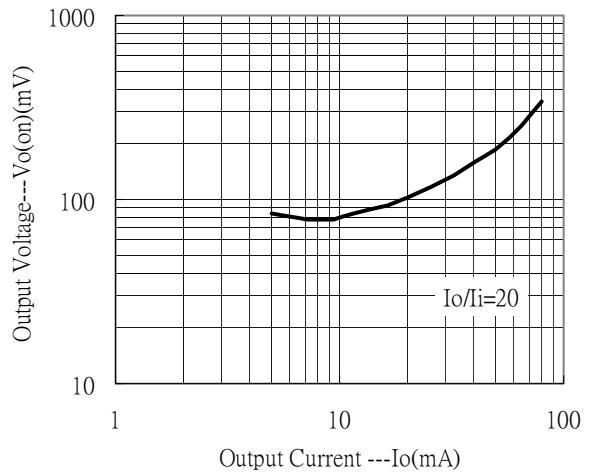
\* Transition frequency of the device

**Characteristic Curves**

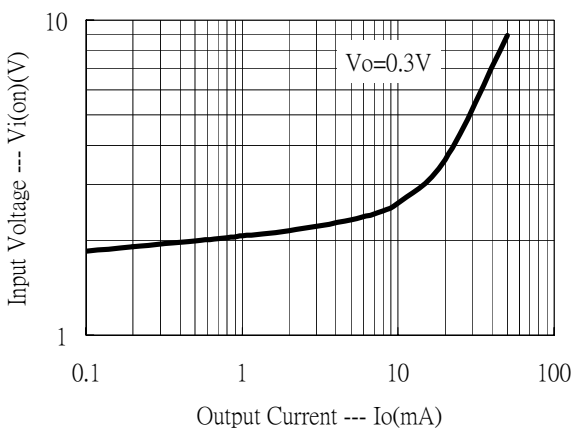
DC Current Gain vs Output Current



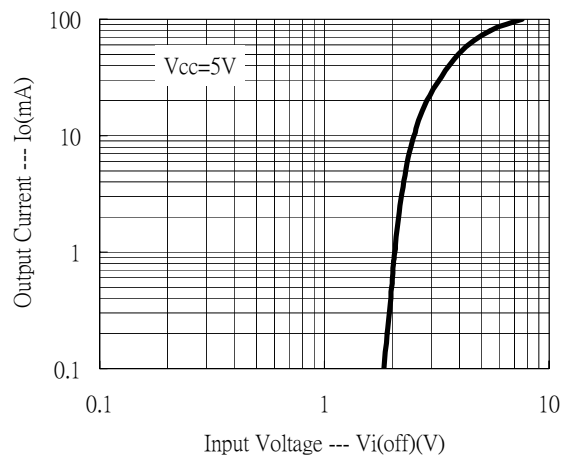
Output Voltage vs Output Current



Input Voltage vs Output Current (ON Characteristics)

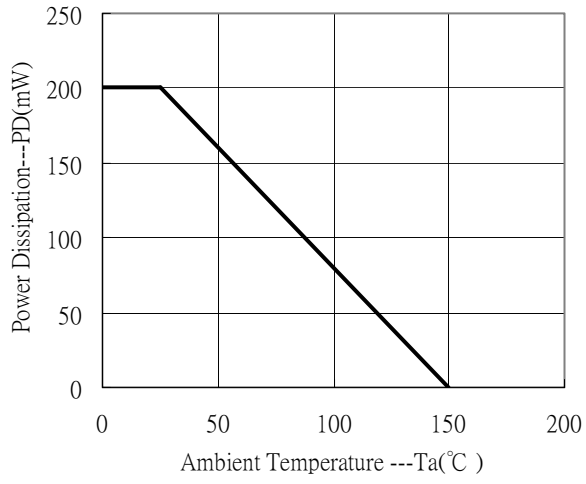


Output Current vs Input Voltage (OFF Characteristics)

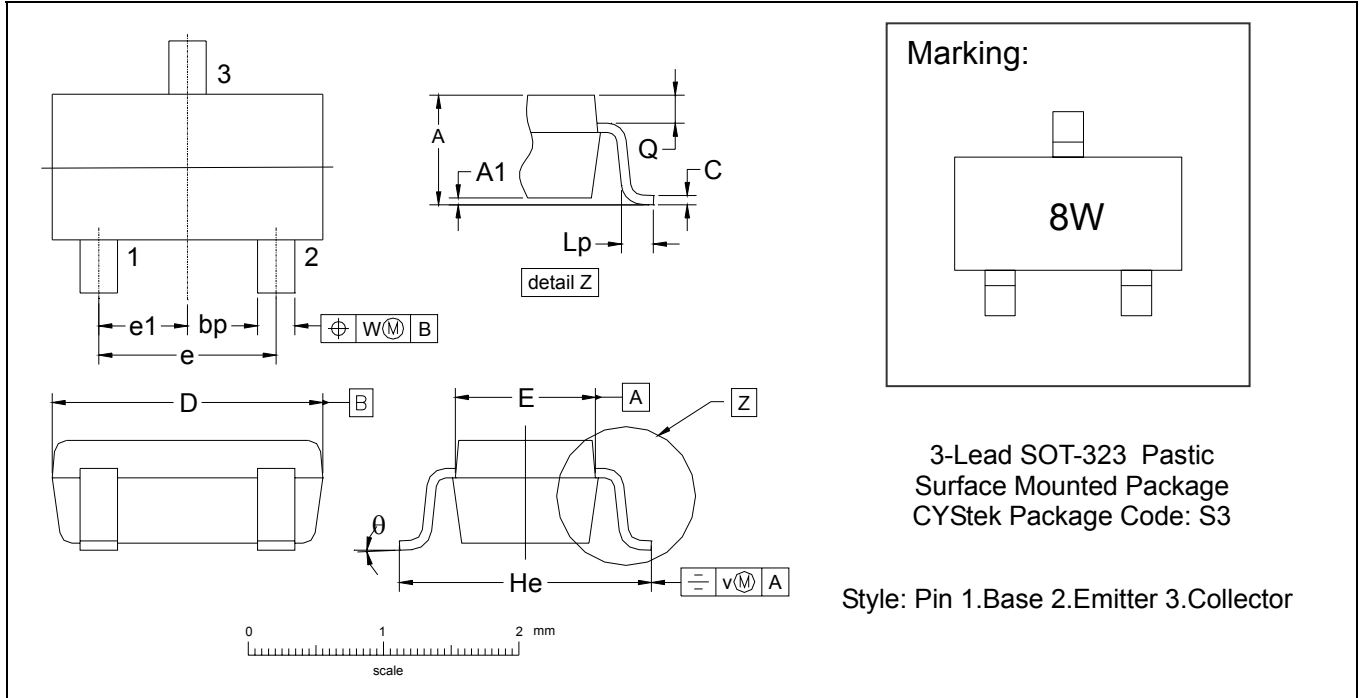




PD - Ta



**SOT-323 Dimension**



\*: Typical

DIM	Inches		Millimeters		DIM	Inches		Millimeters	
	Min.	Max.	Min.	Max.		Min.	Max.	Min.	Max.
A	0.0315	0.0433	0.80	1.10	e1	0.0256	-	0.65	-
A1	0.0000	0.0039	0.00	0.10	He	0.0787	0.0886	2.00	2.25
bp	0.0118	0.0157	0.30	0.40	Lp	0.0059	0.0177	0.15	0.45
C	0.0039	0.0098	0.10	0.25	Q	0.0051	0.0091	0.13	0.23
D	0.0709	0.0866	1.80	2.20	v	0.0079	-	0.2	-
E	0.0453	0.0531	1.15	1.35	w	0.0079	-	0.2	-
e	0.0512	-	1.3	-	θ	-	-	10°	0°

Notes: 1.Dimension and tolerance based on our Spec. dated Feb. 27.002.  
 2.Controlling dimension: millimeters.  
 3.Maximum lead thickness includes lead finish thickness, and minimum lead thickness is the minimum thickness of base material.  
 4.If there is any question with packing specification or packing method, please contact your local CYStek sales office.

**Material:**

- Lead: 42 Alloy ; solder plating
- Mold Compound: Epoxy resin family, flammability solid burning class: UL94V-0

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