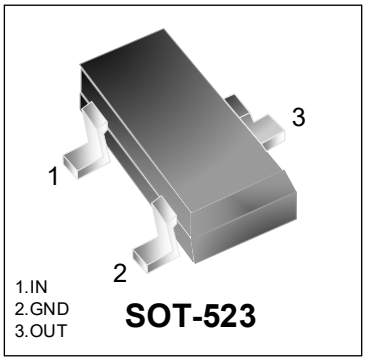
WTDTC144ET

NPN Digital Transistors

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 positive 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



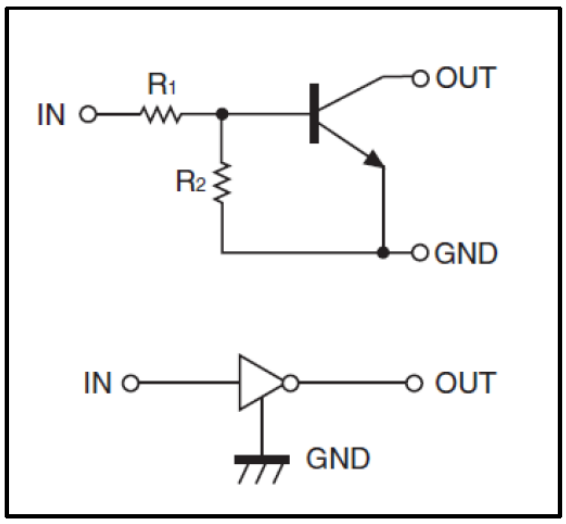
Mechanical Characteristics

- SOT-523 package
- Marking: Marking Code
- Packaging: Tape and Reel
- RoHS Compliant & HF
- Device meets MSL3 requirement

Applications

- Digital application
- Controlling IC inputs
- Switching loads

Equivalent Circuit



Absolute Maximum Rating(Ta=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-10 to +40	V
Output Current	I_O	100	mA
Power Dissipation	P_D	150	mW
Operating and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C

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

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input Voltage	$V_{I(off)}$	V_{CC} = 5V, I_O = 100μA	-	-	0.5	V
	$V_{I(on)}$	V_O = 0.3V, I_O = 2mA	3	-	-	V
Output Voltage	$V_{O(on)}$	I_O = 10mA, I_I = 0.5mA	-	-	0.3	V
Input Current	I_I	V_I = 5V	-	-	0.18	mA
Output Current	$I_{O(off)}$	V_{CC} = 50V, V_I = 0	-	-	0.5	μA
DC Current Gain	G_I	V_O = 5V, I_O = 5mA	68	-	-	
Input Resistance	R_1		32.9	47	61.1	kΩ
Resistance Ratio	R_2/R_1		0.8	1	1.2	
Transition Frequency	f_T	V_{CE} = 10V,I_C = 5mA,f = 100MHz	-	250	-	MHz

Typical Characteristics

Figure 1. ON Characteristics

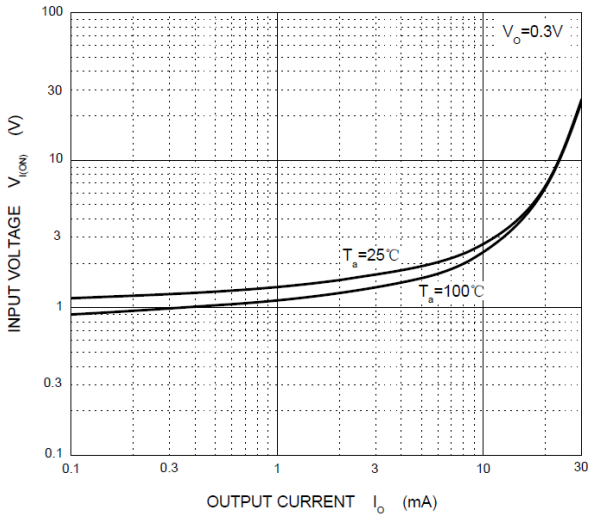


Figure 2. OFF Characteristics

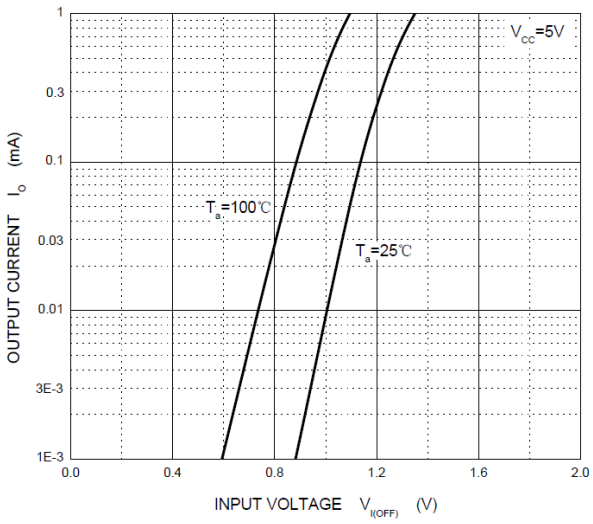


Figure 3. G_I - I_O

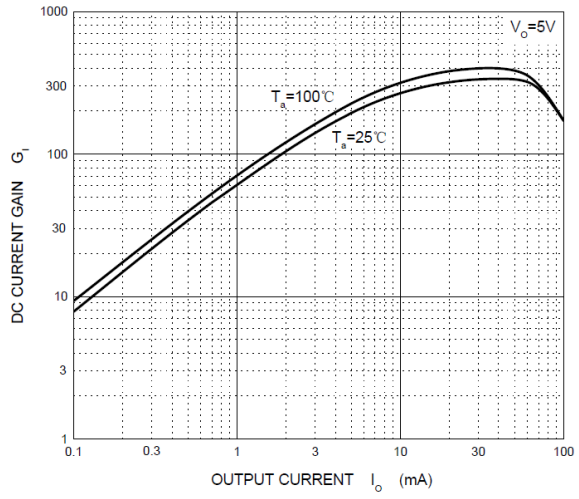
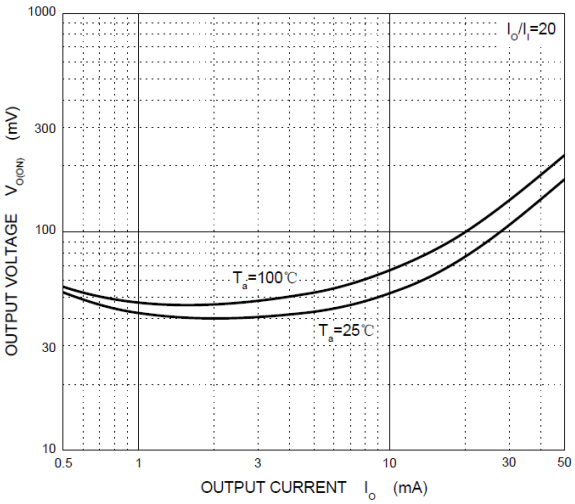
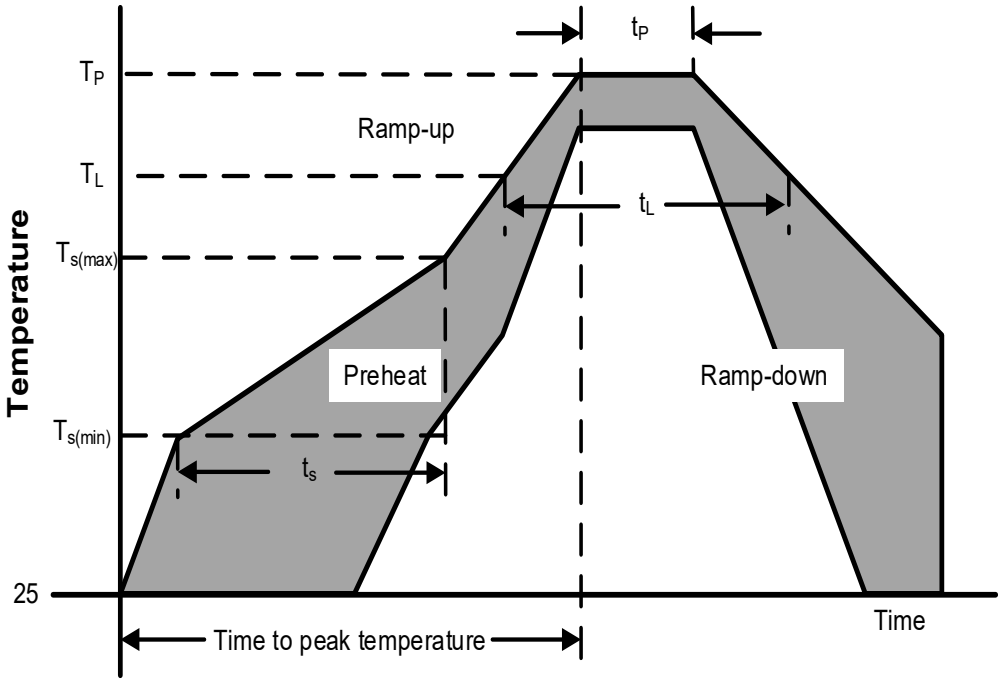


Figure 4. V_O - I_O



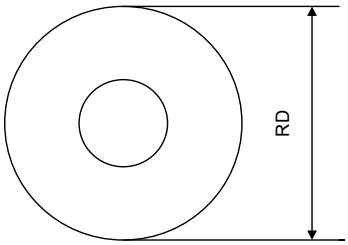
Soldering Parameters

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

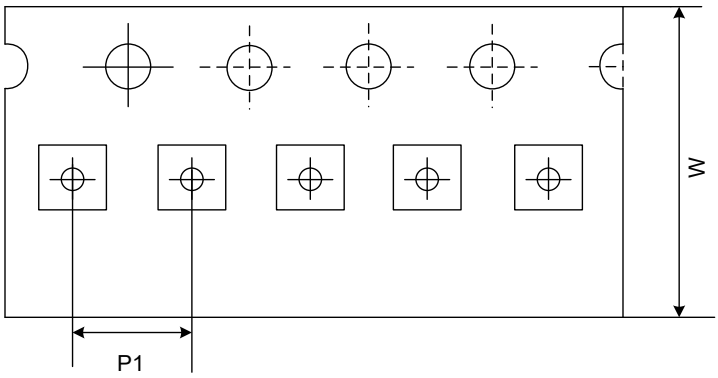


Tape And Reel Information

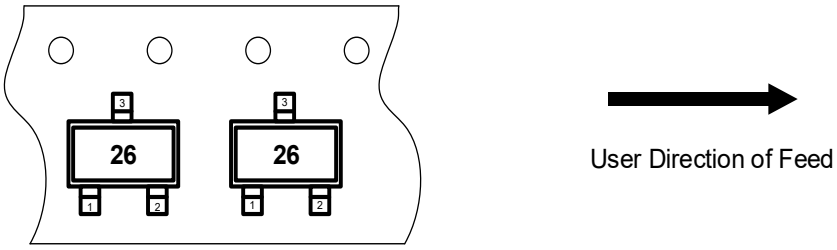
Reel Dimensions



Tape Dimensions



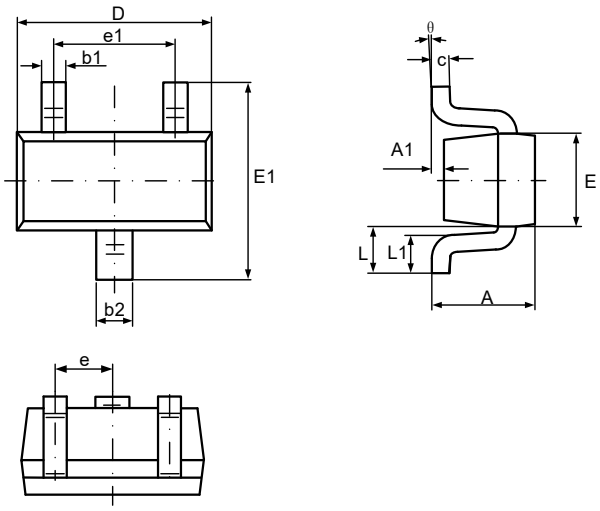
Quadrant Assignments For PIN1 Orientation In Tape

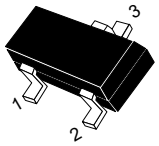


RD	Reel Dimensions	7 inch
W	Overall width of the carrier tape	8 mm
P1	Pitch between successive cavity centers	4mm

Outline Drawing – SOT-523

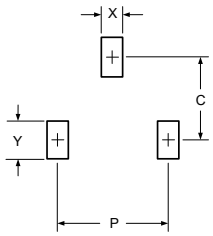
PACKAGE OUTLINE





SOT-523

SYMBOL	MILIMETER	
	MIN	MAX
A	0.65	0.90
A1	0.00	0.10
b1	0.10	0.30
b2	0.20	0.40
c	0.10	0.20
D	1.45	1.70
E	0.60	0.90
E1	1.45	1.85
e1	0.90	1.10
e	0.45	0.55
L	0.30	0.50
L1	0.20	0.46
θ	0°	8°

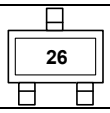


DIM	MILLIMETERS
C	1.30
P	1.00
X	0.50
Y	0.60

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Pin 3 is the cathode (Unidirectional Only).
4. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

Part Number	WTDTC144ET
Marking Code	

Package Information

Qty：3k/Reel

CONTACT INFORMATION

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WAYON website: **http://www.way-on.com**
For additional information, please contact your local Sales Representative.

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Specifications are subject to change without notice.
The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
Users should verify actual device performance in their specific applications.