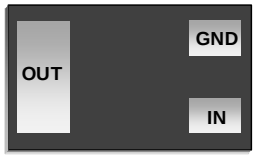
WTDTC124EF

NPN Digital Transistors

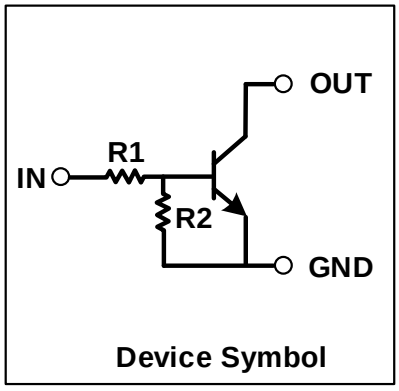
Features

- 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

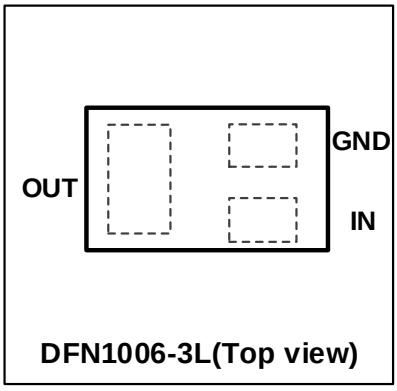


DFN1006-3L

Equivalent Circuit



Device Symbol



DFN1006-3L(Top view)

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	30	mA
Peak Collector Current	I_{CM}	100	mA
Power Dissipation	P_D	250	mW
Operating Junction and Storage Temperature Range	T_J ,T_{STG}	-55 to +150	°C

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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 = 0.2V, I_O = 5mA	3.0	-	-	V
Output Voltage	$V_{O(on)}$	I_O = 10mA, I_I = 0.5mA	-	-	0.3	V
Input Current	I_I	V_I = 5V	-	-	0.36	mA
Output Current	$I_{O(off)}$	V_{CC} = 50V, V_I = 0V	-	-	0.5	μA
DC Current Gain	G_I	V_O = 5V, I_O = 5mA	56	-	-	
Input Resistance	R_1		15.4	22	28.6	kΩ
Resistance Ratio	R_2/R_1		0.8	1.0	1.2	
Transition Frequency	f_T	V_O = 10V,I_O = 5mA,f = 100MHz	-	250	-	MHz

Typical Characteristics

Figure 1. ON Characteristics

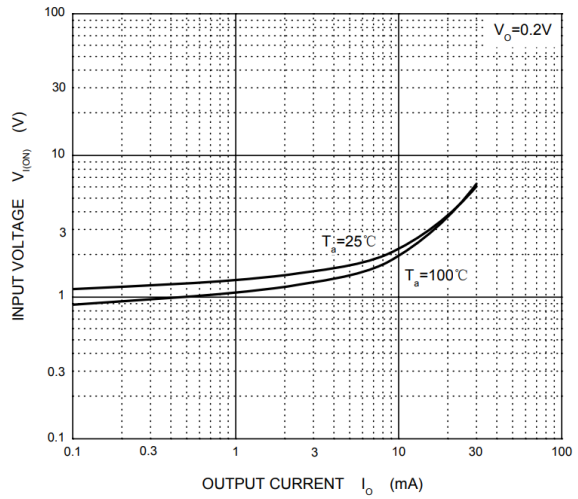


Figure 2. OFF Characteristics

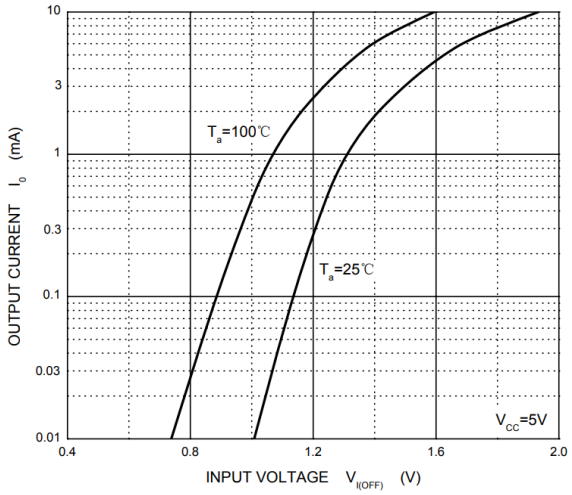


Figure 3. G_I- I_O

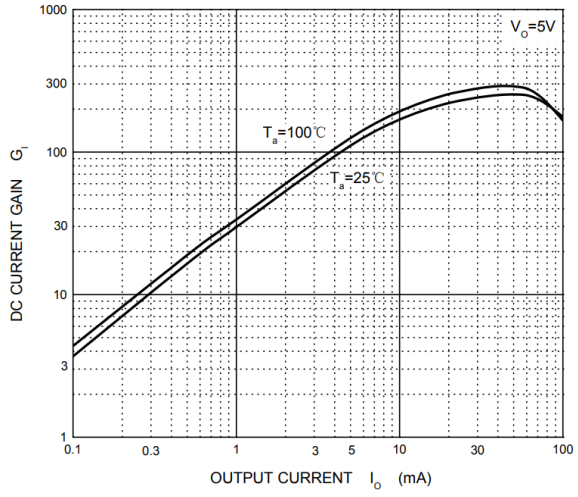
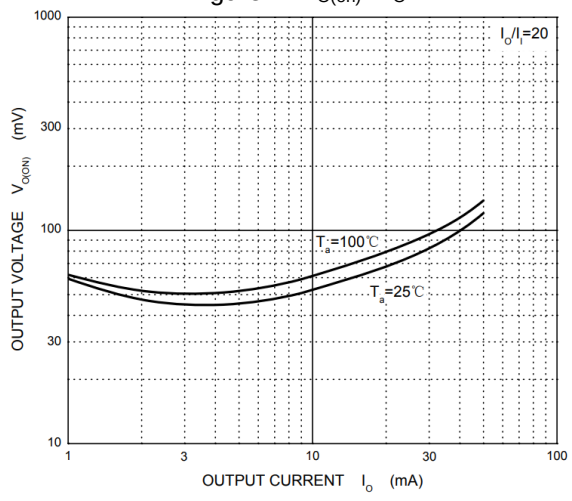
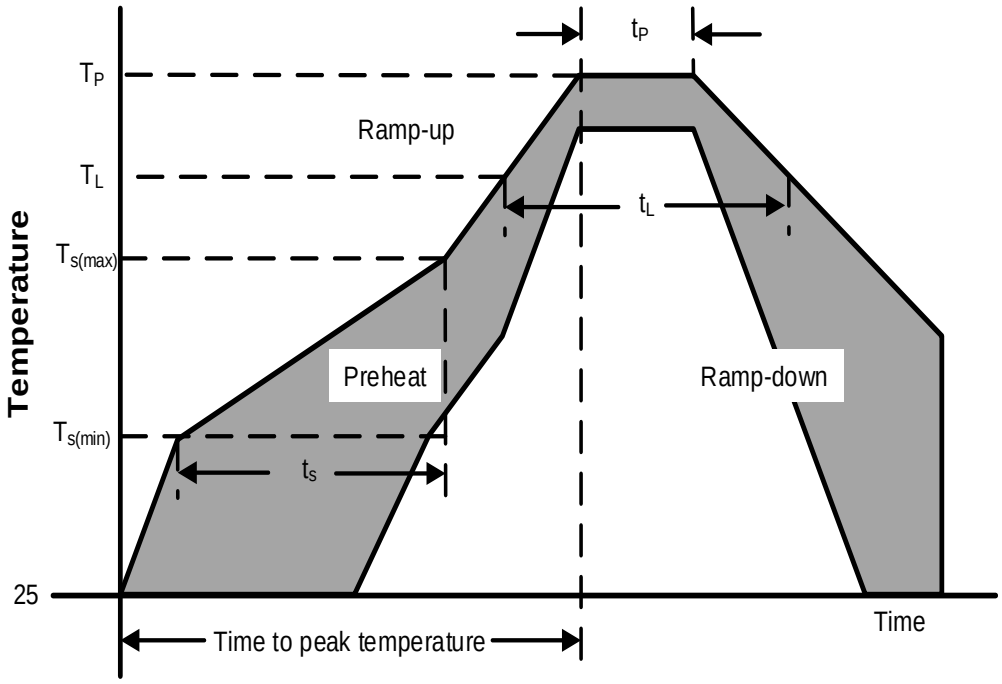


Figure 4. $V_{O(on)}$ - I_O

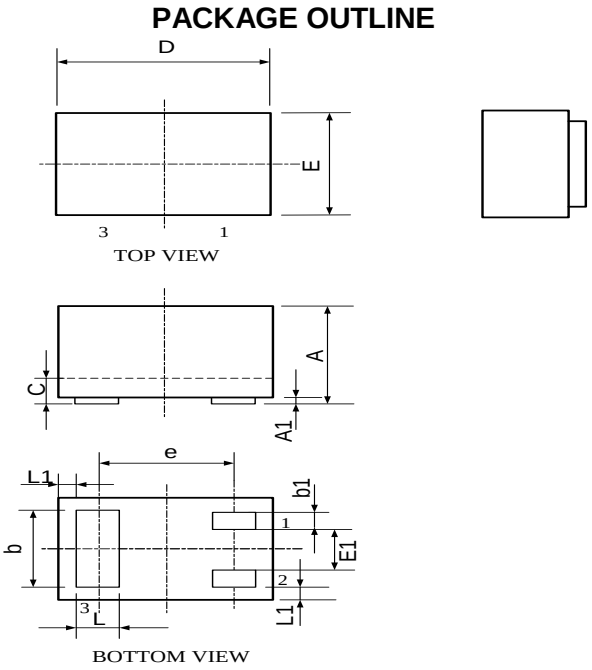


Soldering Parameters

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



Outline Drawing – DFN1006-3L

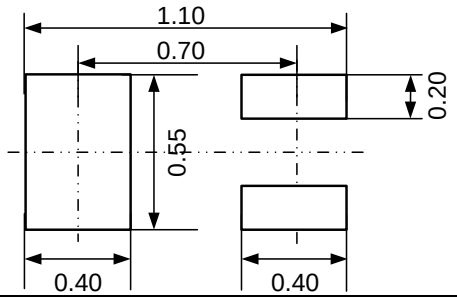




DFN1006-3L

SYMBOL	MILIMETER		
	MIN	NOM	MAX
A	0.45	0.50	0.60
A1	0.00	0.02	0.05
b	0.45	0.50	0.55
b1	0.10	0.15	0.20
C	0.12	0.15	0.18
D	0.95	1.00	1.05
e	0.65BSC		
E	0.55	0.60	0.65
E1	0.15	0.20	0.25
L	0.20	0.25	0.30
L1	0.05REF		

Land Pattern



Marking Codes

Part Number	WTDTC124EF
Marking Code	25

Package Information

Qty：10k/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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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.

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