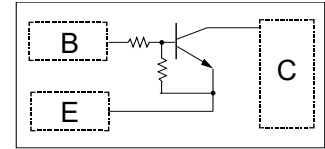


**Feature**

- 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 the device design easy.



Top view

**Applications**

- Inverter
- Interface
- Driver

**Mechanical Characteristics**

- Lead finish: 100% matte Sn(Tin)
- Mounting position: Any
- Qualified max reflow temperature: 260°C
- Device meets MSL 1 requirements
- Pure tin plating: 7 ~ 17 μm
- Pin flatness: ≤3mil

**Structure**

NPN epitaxial planar silicon transistor (Resistor built-in type)

**Electrical characteristics per line@25°C ( unless otherwise specified)**

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_o=100\mu A$	-	-	0.3	V
	$V_{I(on)}$	$V_o=0.3V, I_o=1mA$	1.4	-	-	V
Output voltage	$V_{O(off)}$	$I_o/I_i=5mA/0.25mA$	-	0.1	0.3	V
Input current	$I_i$	$V_i=5V$	-	-	0.88	mA
Output current	$I_{O(off)}$	$V_{CC}=50V, V_i=0V$	-	-	0.5	μA
DC current gain	$G_1$	$V_o=5V, I_o=5mA$	68	-	-	-
Input resistance	$R_1$	-	7	10	13	KΩ
Resistance ration	$R_2/R_1$	-	3.7	4.7	5.7	-
Transition frequency	$f_T$	$V_{CE}=10V, I_E=-5mA, f=100MHz$	-	250	-	MHz

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-6 to +40	V
Output current	$I_O$	70	mA
	$I_{C(MAX)}$	100	mA
Power dissipation	$P_d$	150	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55 to +150	°C

Typical Characteristics

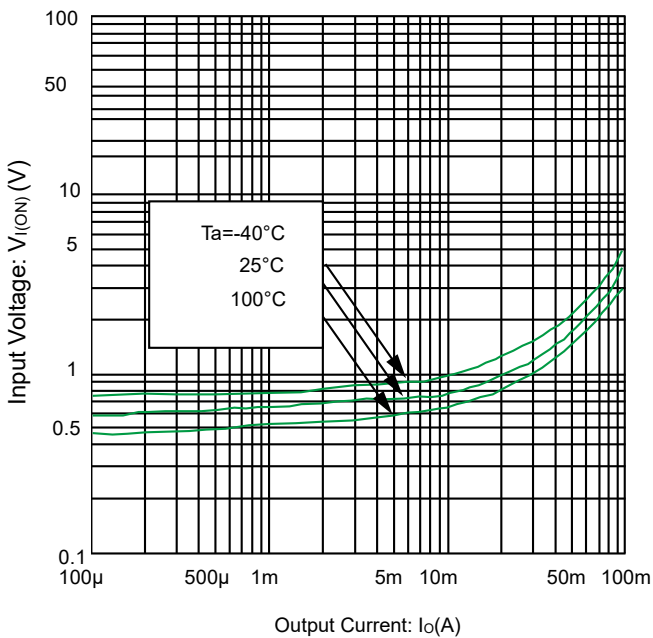


Fig 1. Input Voltage vs. output current  
@ $V_{CC}=0.3\text{V}$  (ON characteristics)

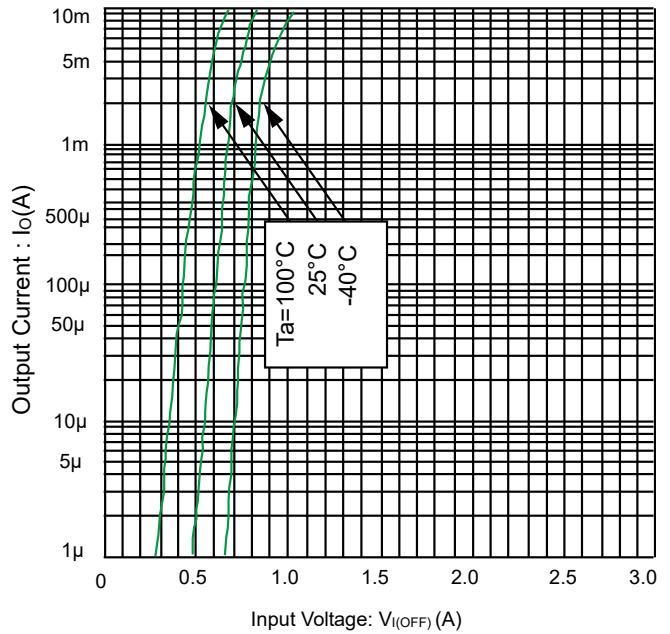
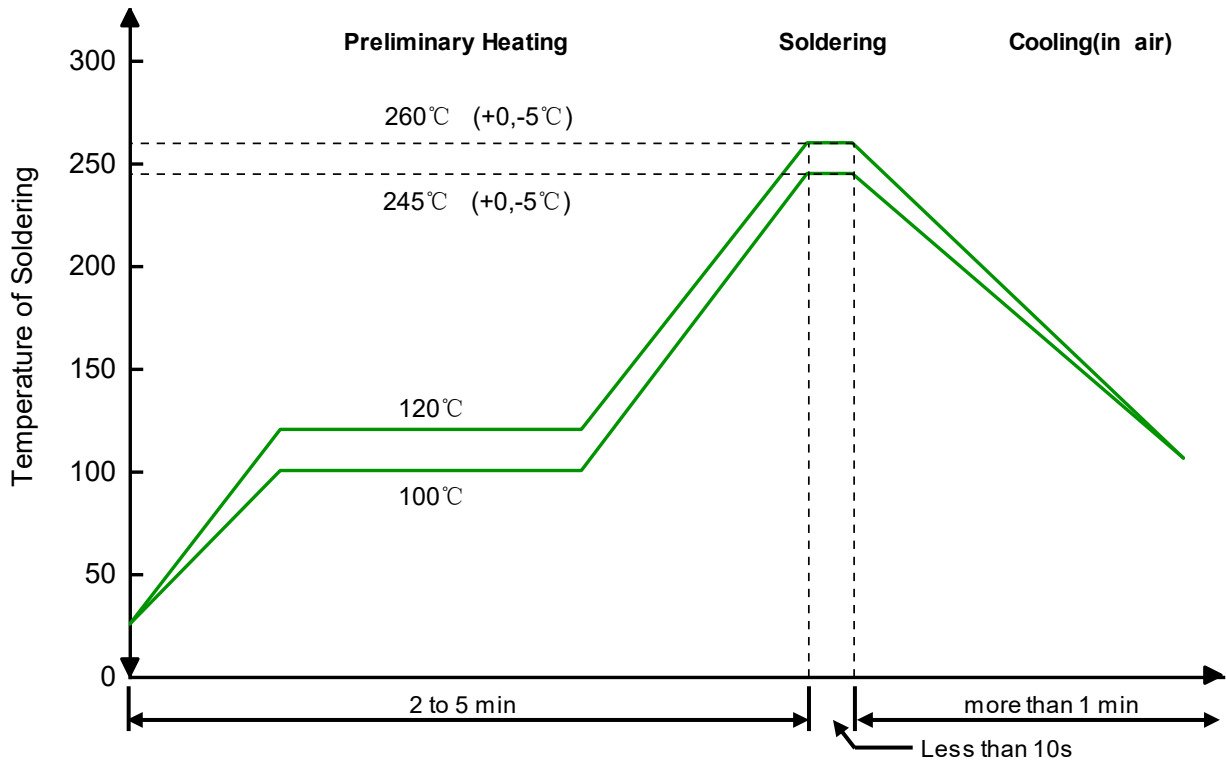


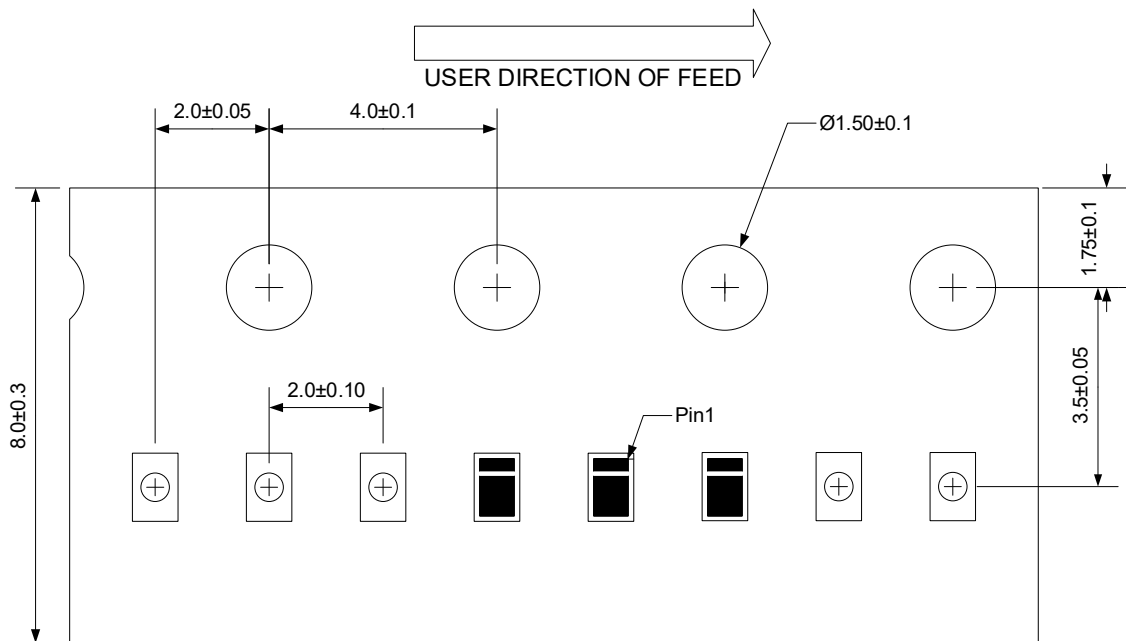
Fig 2. Output current vs. input voltage  
@ $V_{CC}=5\text{V}$  (OFF characteristics)

Solder Reflow Recommendation



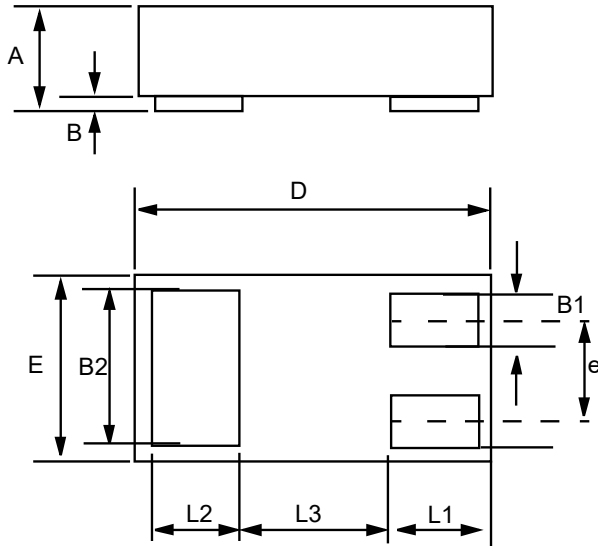
Remark: Pb free for 260°C; Pb for 245°C.

Load with information

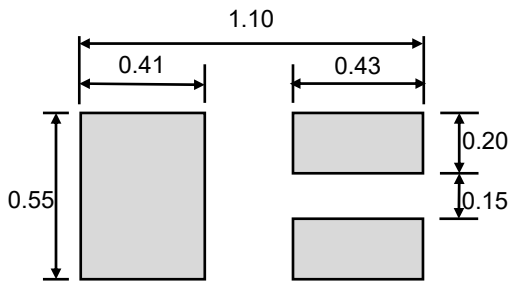


Unit:mm

Product dimension (DFN1006-3L)



Dim	Millimeters		
	MIN	Typ	MAX
A	0.44	0.47	0.498
B	0.0	--	0.05
B1	0.10	0.15	0.20
B2	0.45	0.50	0.55
D	0.90	1.00	1.10
E	0.50	0.60	0.70
e	--	0.35	--
L1	0.25	0.30	0.35
L2	0.20	0.25	0.30
L3	--	0.40	--



Unit: mm

Suggested PCB Layout


Marking information



Ordering information

Device	Package	Shipping
PDTC114YN	DFN1006-3L(Pb-Free)	10000 / Tape & Reel


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