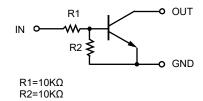
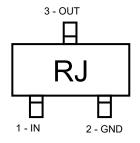


Digital Transistor(built-in resistors)

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 um
- ▶ Pin flatness:≤3mil

Structure

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

Electrical characteristics per line@25℃ (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Тур.	Max.	Units
Input voltage	$V_{I(off)}$	V _{CC} =5V,I _O =100μA	-	-	0.5	V
	$V_{I(on)}$	Vo=0.3V,lo=10mA	3	ı	Ī	V
Output voltage	$V_{O(off)}$	I _O /I _I =10mA/0. 5mA	ı	0.1	0.3	V
Input current	I _I	V _I =5V	ı	ı	0.88	mA
Output current	I _{O(off)}	V _{CC} =50V, V _I =0V	ı	ı	0.5	μA
DC current gain	G ₁	Vo=5V, Io=5mA	30	-	-	-
Input resistance	R ₁	-	7	10	13	ΚΩ
Resistance ration	R ₂ /R ₁	-	0.8	1	1.2	-
Transition frequency	f⊤	V _{CE} =10V, I _E = −5mA, f=100MHz	-	250	-	MHz

Absolute maximum rating@25℃

Rating	Symbol	Value	Units
Supply voltage	Vcc	50	V
Input voltage	V _{IN}	-10 to +40	V
Output ourrest	lo	50	mA
Output current	Ic(MAX.)	100	mA
Power dissipation	P _d	150	mW
Junction temperature	Tj	150	$^{\circ}$ C
Storage temperature	T _{stg}	-55 to +150	$^{\circ}$

Typical Characteristics

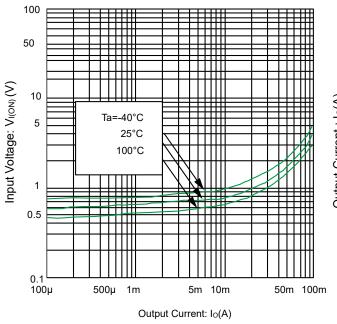


Fig 1.Input Voltage vs. output current @Vc=0.3V (ON characteristics)

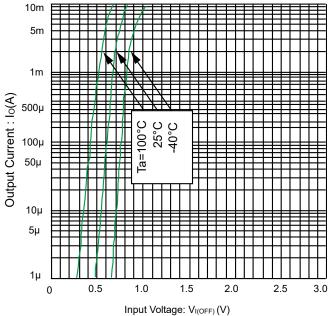
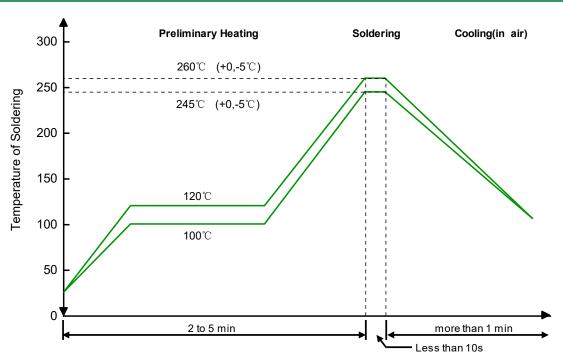


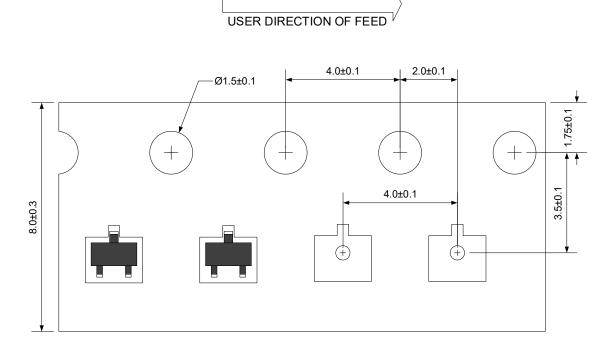
Fig 2.Output current vs. input voltage @Vcc=5V(OFF characteristics)

Solder Reflow Recommendation



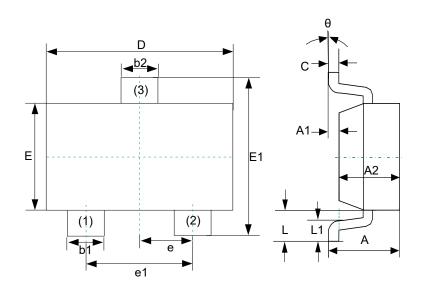
Remark: Pb free for 260°C; Pb for 245°C.

Load with information

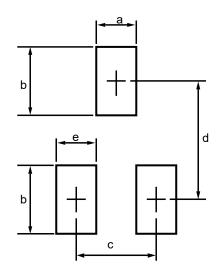


Unit:mm

Product dimension (SOT-523)



Dim	Millimeters		Inches		
	MIN	MAX	MIN	MAX	
Α	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	
С	0.100	0.200	0.004	0.008	
D	1.500	1.700	0.059	0.067	
Е	0.700	0.900	0.028	0.035	
E1	1.450	1.750	0.057	0.069	
е	0.500TYP		0.020TYP		
e1	0.900	1.100	0.035	0.043	
L	0.400REF		0.016REF		
L1	0.260	0.460	0.010	0.018	
θ	0°	8°	0°	8°	



Dim	Millimeters			
	MIN	MAX		
а		0.5		
b		0.6		
С		1.0		
d		1.24		
е		0.4		

Ordering information

Device	Package	Shipping
PDTC114EE	SOT-523 (Pb-Free)	3000 / Tape & Reel

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