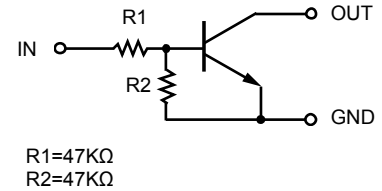


Feature

- 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.


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°C (unless otherwise specified)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Input voltage	$V_{I(off)}$	$V_{CC}=5V, I_O=100\mu A$	-	-	0.5	V
	$V_{I(on)}$	$V_O=0.3V, I_O=2mA$	3	-	-	V
Output voltage	$V_{O(off)}$	$I_O/I_I=10mA/0.5mA$	-	0.1	0.3	V
Input current	I_I	$V_I=5V$	-	-	0.18	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	-	32.9	47	61.1	KΩ
Resistance ration	R_2/R_1	-	0.8	1.0	1.2	-
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}	-10 to +40	V
Output current	I_o	100	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

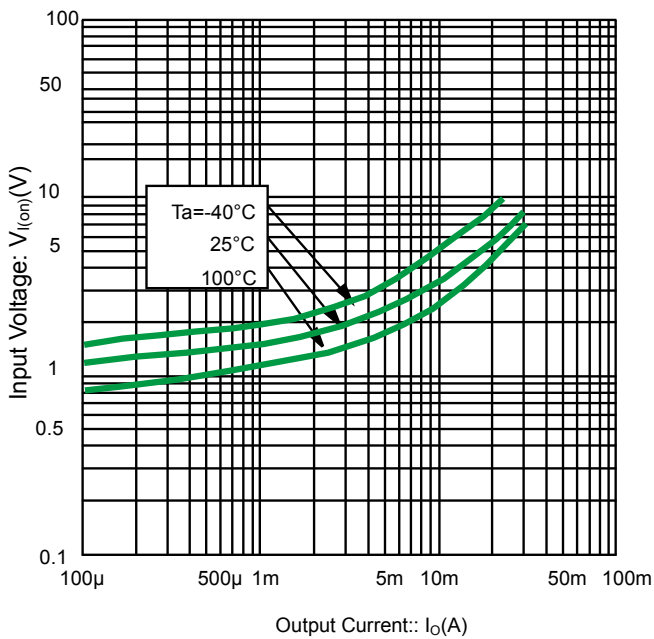


Fig 1. Input Voltage vs. output current
@ $V_C=0.3V$ (ON characteristics)

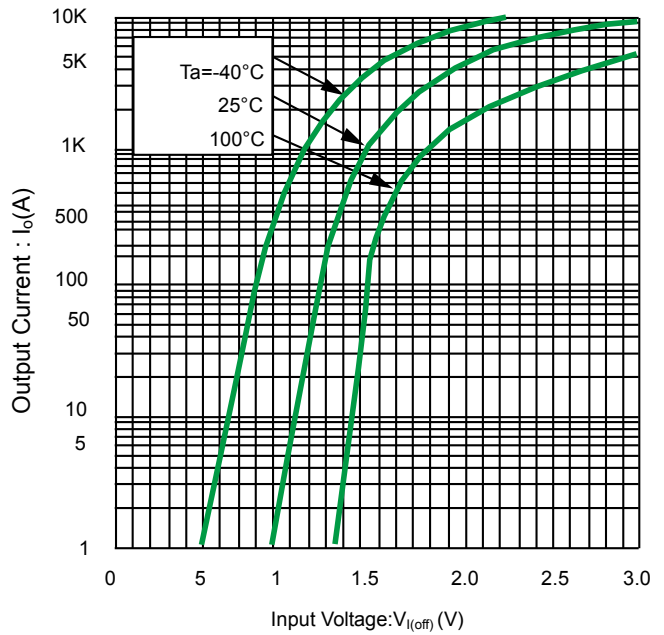
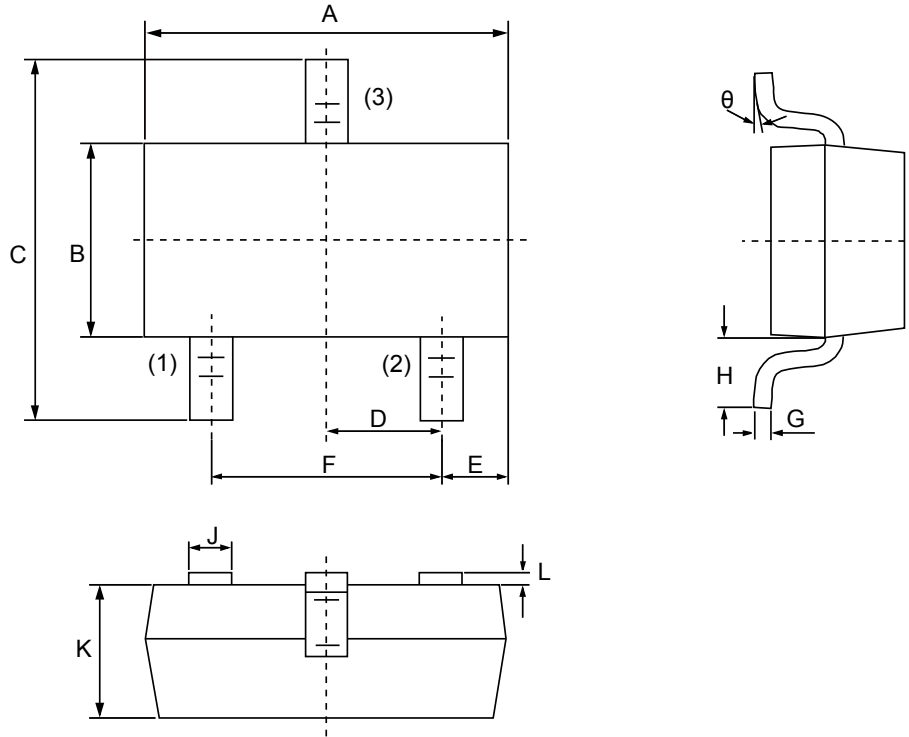
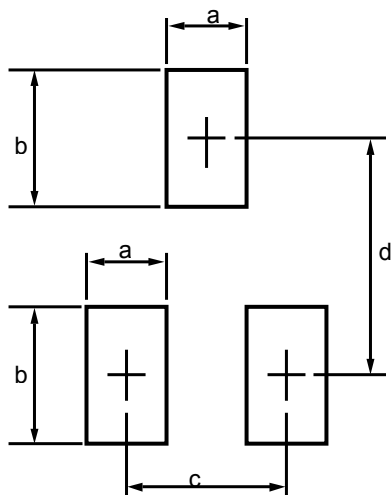


Fig 2. Output current vs. input voltage
@ $V_{CC}=5V$ (OFF characteristics)

Product dimension (SOT-523)



Dim	Millimeters		Inches	
	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	0.75	0.85	0.030	0.033
C	1.450	1.750	0.057	0.069
D	0.50BSC		0.020BSC	
E	0.30	0.33	0.012	0.015
F	0.900	1.100	0.035	0.043
G	0.100	0.200	0.004	0.008
H	0.550		0.022	
J	0.150	0.250	0.006	0.010
K	0.700	0.900	0.028	0.038
L	0.024	0.027	0.600	0.700
θ	0°	4°	0°	4°




Dim	Millimeters	
	MIN	MAX
a	--	0.4
b	--	0.6
c	--	1.0
d	--	1.24

Ordering information

Device	Package	Shipping
PDTC144EE	SOT-523 (Pb-Free)	3000 / Tape & Reel


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