



TSA144C

PNP Digital Transistor

SOT-23



SOT-323



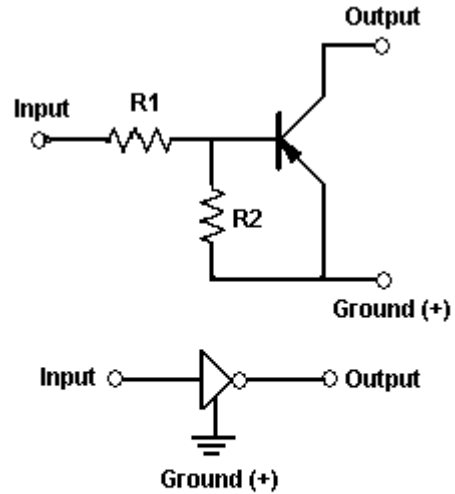
- Pin assignment:
1. Input (Base)
 2. Gnd (Emitter)
 3. Output (Collector)

V_{cc} = - 50V
V_{in} = - 40V ~ +10V
I_o = - 100mA(max.)

Features

- ◇ Build-in bias resistor 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. The 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.
- ◇ Complements the TSC144C

Equivalent Circuit



Input : Base
Output : Collector
Ground : Emitter

Ordering Information

Part No.	Packing	Package
TSA144CCX	Tape & Reel	SOT-23
TSA144CCU		SOT-323

Note: **x** is the build-in resistor value type, option as

Code	R1 (KΩ)	R2 (KΩ)	Marking
C	47	47	6C

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

Parameter	Symbol	Limit	Unit
Supply Voltage	V _{cc}	- 50	V
Input Voltage	V _{in}	- 40 ~ +10	V
Output Current	I _o	DC	-30
		Pulse	- 100
Power Dissipation	P _D	SOT-23	250
		SOT-323	200
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _{STG}	- 55 to +150	°C

Note: 1. Single pulse, P_w = 300uS, Duty <= 2%
 2. When mounted on an FR-4 PCB



Electrical Characteristics						
Ta = 25 °C unless otherwise noted						
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Input Voltage	Vcc= -5V, Io= -100uA	Vin(off)	--	--	- 0.5	V
	Vo= -0.3V, Io= -2mA	Vin(on)	- 3	--	--	V
Output Voltage	Io/Iin= -10mA/ -0.5mA	Vo(on)	--	- 0.1	- 0.3	V
Input Current	Vin= -5V	Iin	--	--	- 0.18	mA
Output Current	Vcc= -50V, Vin= 0V	Io(off)	--	--	- 0.5	uA
DC Current Gain	Vo= -5V, Io= -5mA	Gi	56	--	--	
Input Resistance		R1	0.7		1.3	KΩ
Resistance Ratio		R2/R1	0.8		1.2	
Transition Frequency	Vce= -10V, Ie= -5mA, f= 100MHz (note 1)	ft	--	250	--	MHz

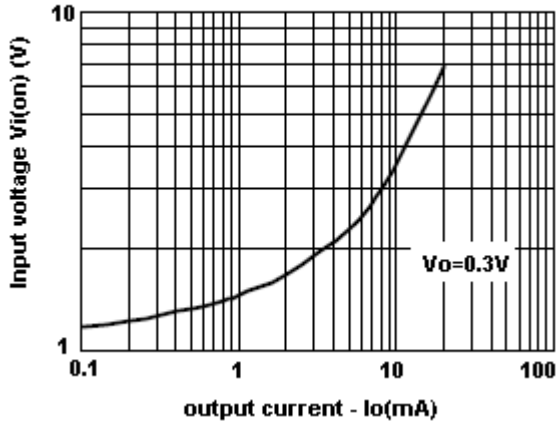
Note : 1. Transition frequency of the device.

2. Pulse test: pulse width $\leq 380\mu\text{s}$, duty cycle $\leq 2\%$

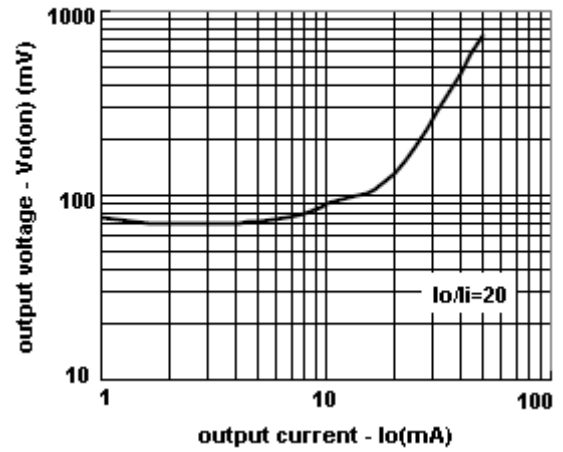


Electrical Characteristics Curve

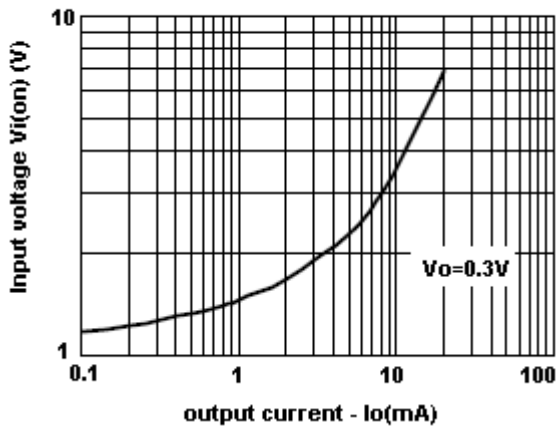
input voltage vs output current (on)



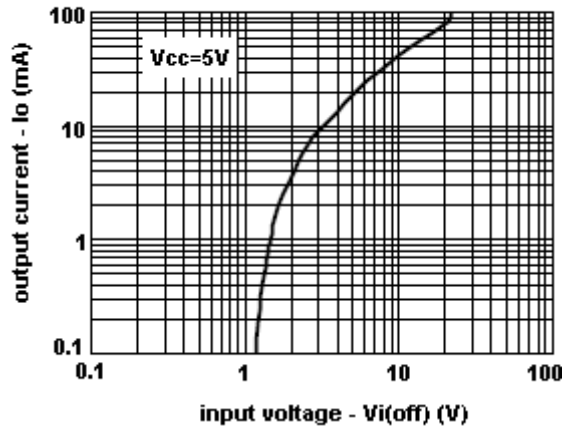
output voltage vs output current



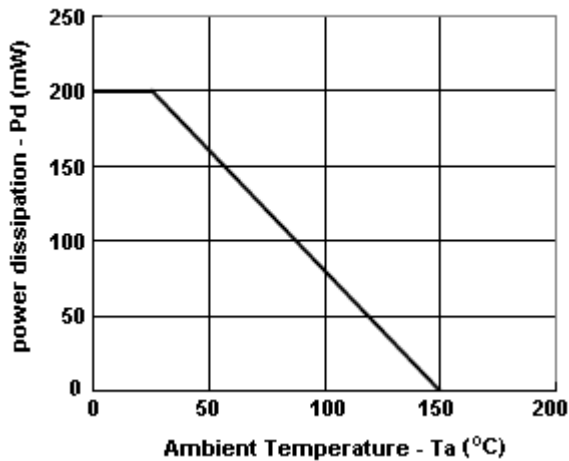
input voltage vs output current (on)



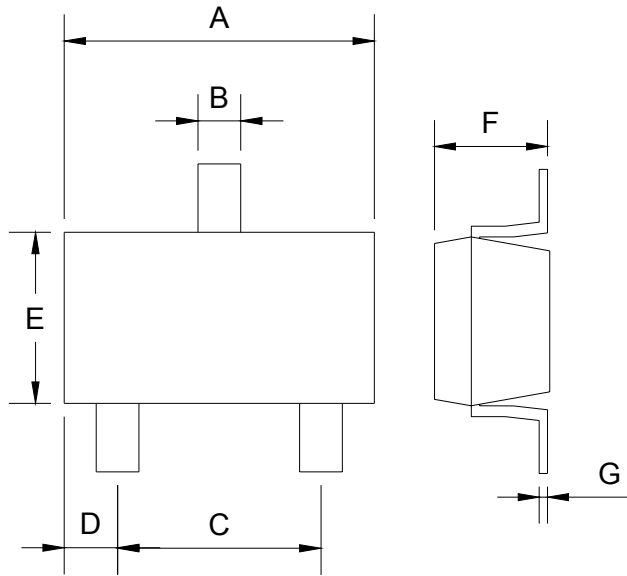
output current vs input voltage (off)



power dissipation vs temperature

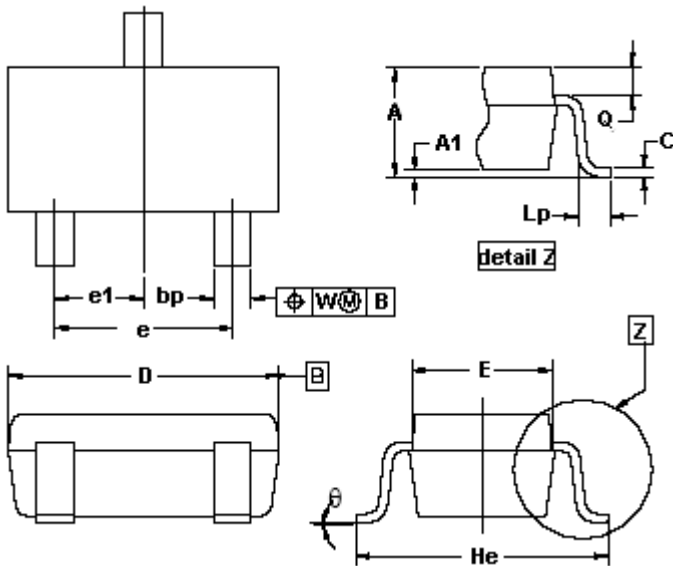


SOT-23 Mechanical Drawing



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.88	2.91	0.113	0.115
B	0.39	0.42	0.015	0.017
C	1.78	2.03	0.070	0.080
D	0.51	0.61	0.020	0.024
E	1.59	1.66	0.063	0.065
F	1.04	1.08	0.041	0.043
G	0.07	0.09	0.003	0.004

SOT-323 Mechanical Drawing



SOT-323 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.10	0.0315	0.0433
A1	--	0.10	--	0.0039
bp	0.30	0.40	0.0118	0.0157
C	0.10	0.25	0.0039	0.0098
D	1.80	2.20	0.0709	0.0866
E	1.15	1.35	0.0453	0.0531
e	1.30	--	0.0512	--
e1	0.65	--	0.0256	--
He	2.00	2.20	0.0787	0.0866
Lp	0.15	0.45	0.0059	0.0177
Q	0.13	0.23	0.0051	0.0091
W	0.20	--	0.0079	--
theta	10°	--	10°	--