

## Features

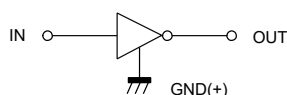
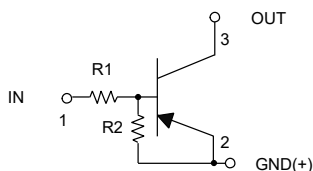
- Built-In Bias Resistors Enable the Configuration of an Inverter Circuit Without Connecting External Input Resistors
- The Bias Resistors Consist of Thin-Film Resistors With Complete Isolation to Allow Negative Biasing of the Input. They Also Have the Advantage of Almost Completely Eliminating Parasitic Effects
- Only the On/Off Conditions Need to Be Set For Operation, Making Device Design Easy
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

## Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Unit
Supply Voltage	$V_{CC}$	---	-50	---	V
Input Voltage	$V_{IN}$	-30	---	5.0	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	---	150	°C

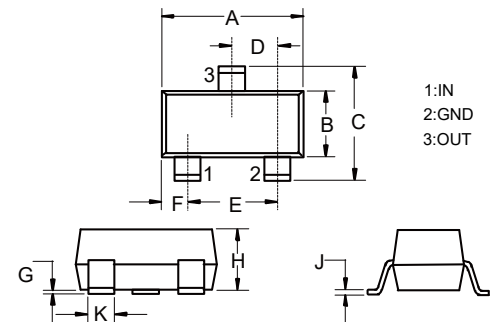
## Device Marking: E13

### Internal Structure



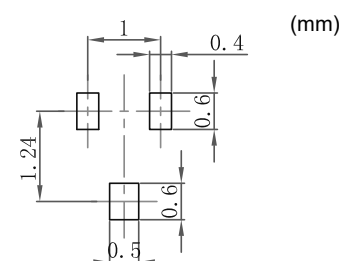
# PNP Digital Transistor

## SOT-523



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

### Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Unit	Conditions
Input Voltage	$V_{I(off)}$	-0.5	---	---	V	$V_{CC}=-5V, I_O=-100\mu A$
	$V_{I(on)}$	---	---	-1.3	V	$V_O=-0.3V, I_O=-5mA$
Output Voltage	$V_{O(on)}$	---	---	-0.3	V	$I_O=-5mA, I_I=-0.25mA$
Input Current	$I_I$	---	---	-1.8	mA	$V_I=-5V$
Output Current	$I_{O(off)}$	---	---	-0.5	$\mu A$	$V_{CC}=-50V, V_I=0$
DC Current Gain	$G_1$	80	---	---		$V_O=-5V, I_O=-10mA$
Input Resistance	$R_1$	3.29	4.7	6.11	K $\Omega$	
Resistance Ratio	$R_2/R_1$	8.0	10	12		
Transition Frequency	$f_T$	---	250	---	MHz	$V_{CE}=-10V, I_E=5mA, f=100MHz$

Curve Characteristics

Fig. 1 - DC Current Gain Characteristics

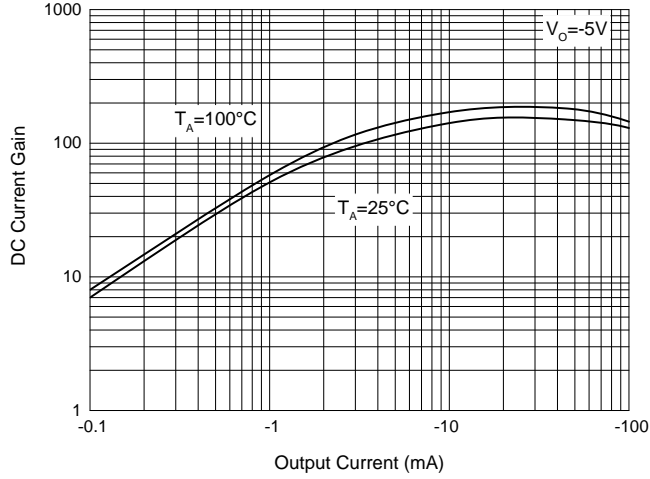


Fig. 2 - Input Voltage (on) Characteristics

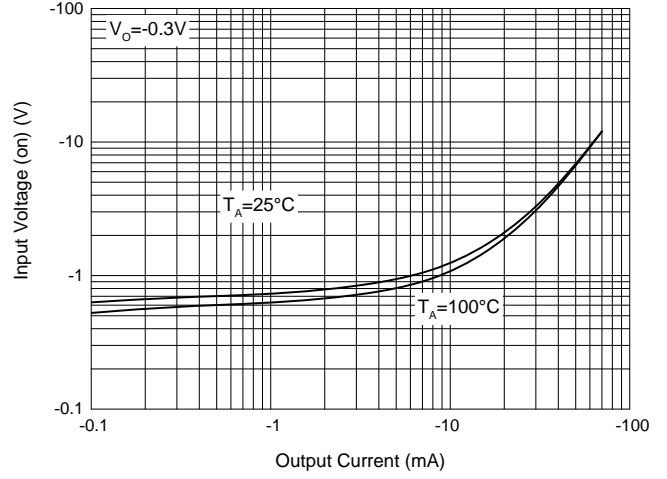


Fig. 3 - Input Voltage (off) Characteristics

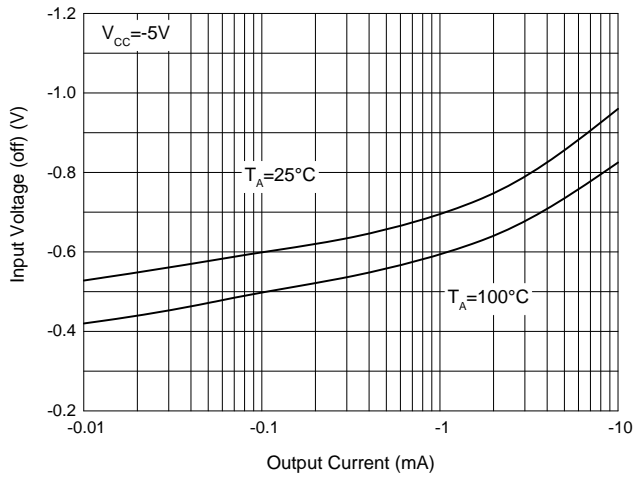


Fig. 4 - Output Voltage Characteristics

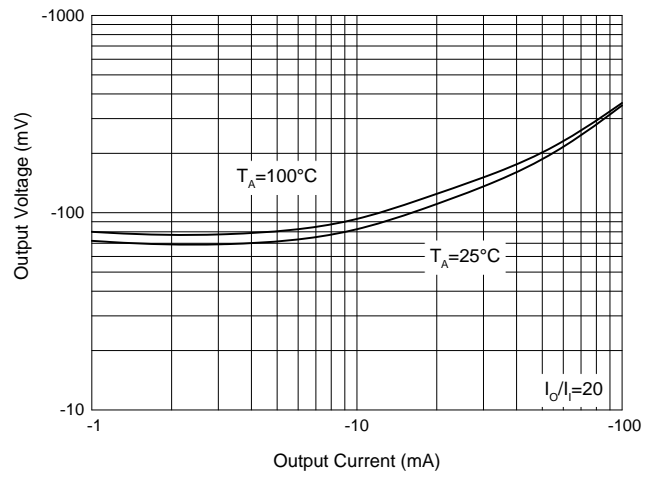
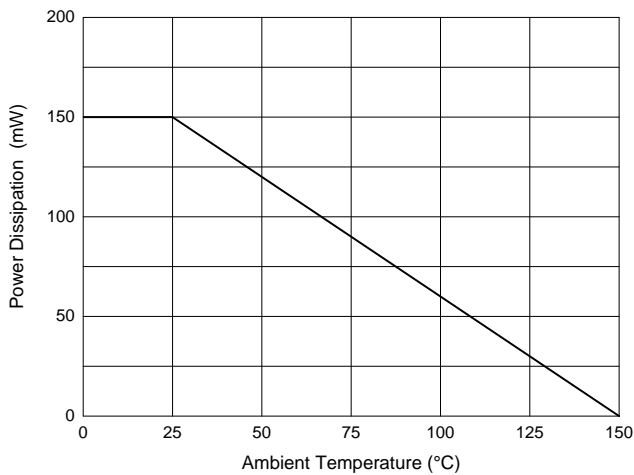


Fig. 5 - Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel:3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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