

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. "Green" Device (Note 1)
- 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)

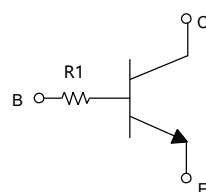
Maximum Ratings @ 25°C Unless Otherwise Specified

Parameter	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	50	V
Collector-Base Voltage	V_{CBO}	50	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current-Continuous	I_C	100	mA
Collector Dissipation	P_C	200	mW
Junction Temperature	T_J	150	°C
Storage Temperature Range	T_{STG}	-55 to +150	°C

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Device Marking: 03

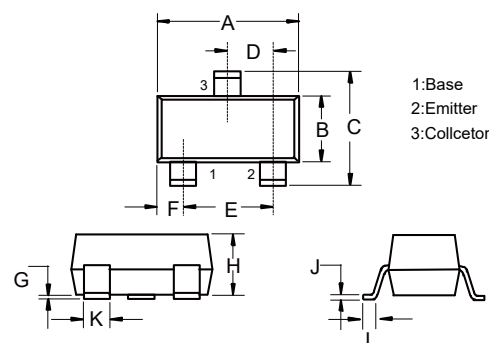
Internal Structure



B:Base
C:Collector
E:Emitter

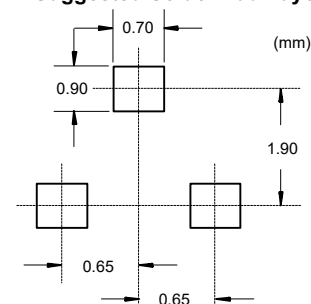
NPN Digital Transistor

SOT-323



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.071	0.087	1.80	2.20	
B	0.045	0.053	1.15	1.35	
C	0.083	0.096	2.10	2.45	
D	0.026		0.65		TYP.
E	0.047	0.055	1.20	1.40	
F	0.012	0.016	0.30	0.40	
G	0.000	0.004	0.00	0.10	
H	0.035	0.044	0.90	1.10	
J	0.002	0.010	0.05	0.25	
K	0.006	0.016	0.15	0.40	
L	0.010	0.018	0.26	0.46	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	50	---	---	V	$I_C=50\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	50	---	---	V	$I_C=1mA, I_B=0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	5	---	---	V	$I_E=50\mu A, I_C=0$
Collector Cut-off Current	I_{CBO}	---	---	0.5	μA	$V_{CB}=50V, I_E=0$
Emitter Cut-off Current	I_{EBO}	---	---	0.5	μA	$V_{EB}=4V, I_C=0$
DC Current Gain	h_{FE}	100	300	600	---	$I_C=1mA, V_{CE}=5V$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	---	---	0.3	V	$I_C=10mA, I_B=1mA$
Input Resistance	R_1	3.29	4.7	6.11	K Ω	
Transition Frequency	f_T	---	250	---	MHz	$V_{CE}=10.0V, I_E=-5mA, f=100MHz$

Curve Characteristics

Fig. 1 - Static Characteristics

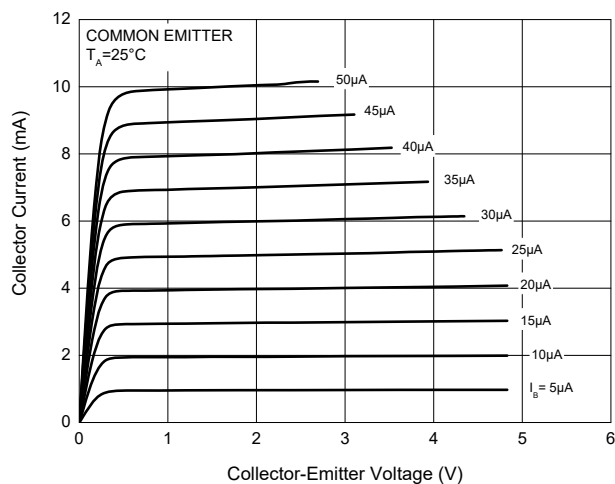


Fig. 2 - DC Current Gain Characteristics

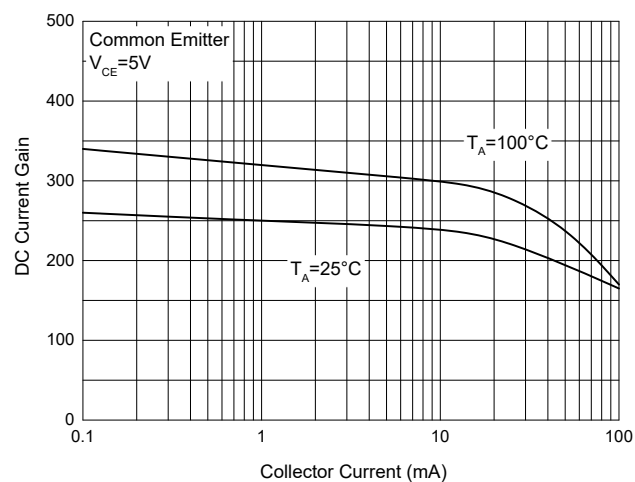


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

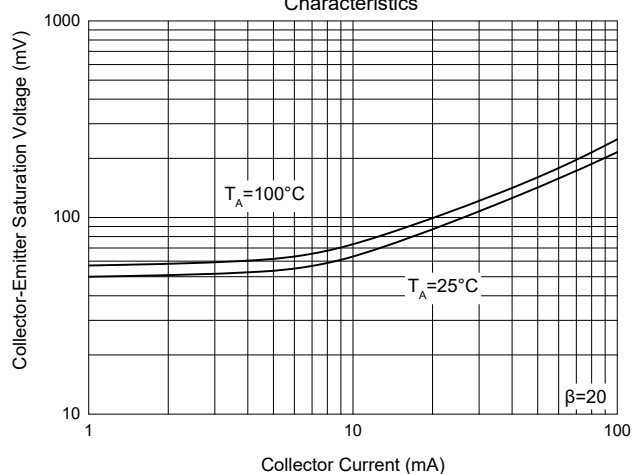
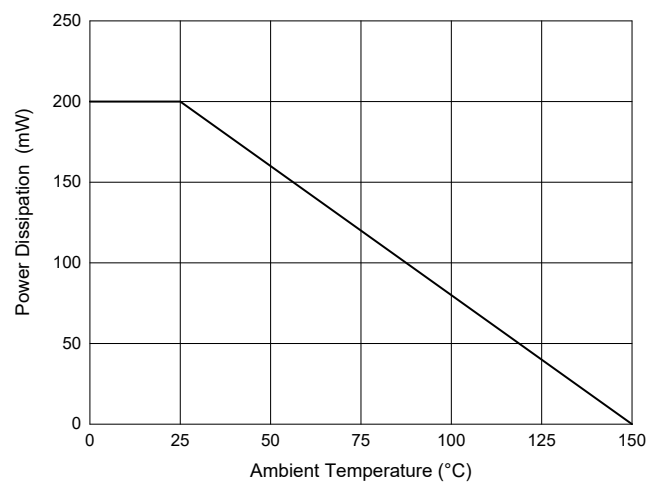


Fig. 4 - Power Derating Curve



Ordering Information

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

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