

**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)

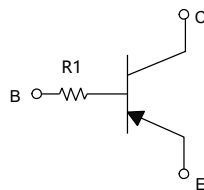
**Maximum Ratings @ 25°C Unless Otherwise Specified**

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	$T_J$	-55 ~150	°C
Storage Temperature Range	$T_{STG}$	-55 ~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: 94**

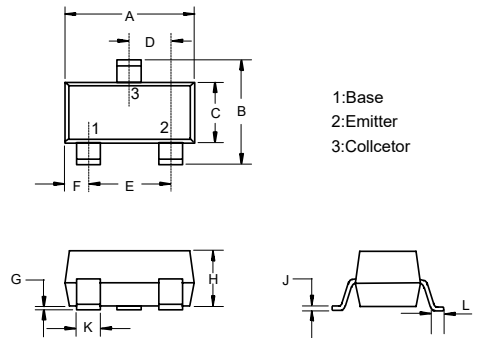
**Internal Structure**



B:Base  
C:Collector  
E:Emitter

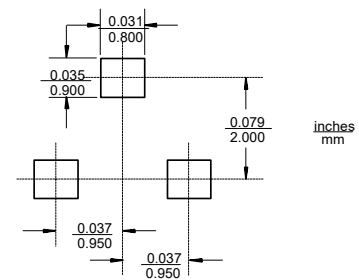
**PNP  
Digital Transistor**

**SOT-23**



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.012	0.020	0.30	0.51	
L	0.007	0.020	0.20	0.50	

**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	$\mu A$	$V_{CB} = -50V, I_E = 0$
Emitter Cut-off Current	$I_{EBO}$	---	---	-0.5	$\mu A$	$V_{EB} = -4V, I_C = 0$
DC Current Gain	$h_{FE}$	100	250	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	$R_1$	7	10	13	K $\Omega$	
Transition Frequency	$f_T$	---	250	---	MHz	$V_{CE} = -10.0V, I_E = 5mA, f = 100MHz$

Curve Characteristics

Fig. 1 - Static Characteristics

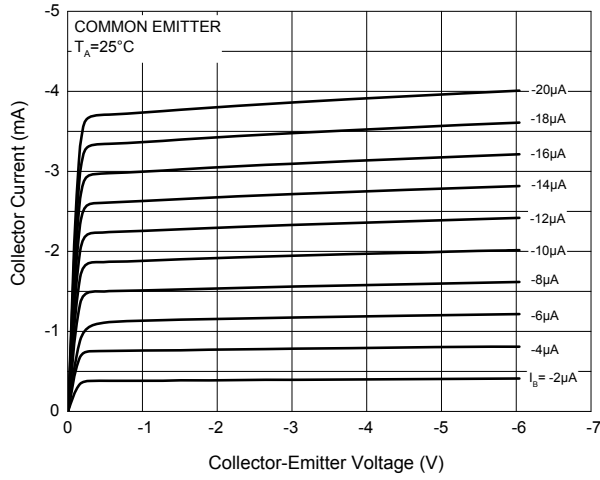


Fig. 2 - DC Current Gain Characteristics

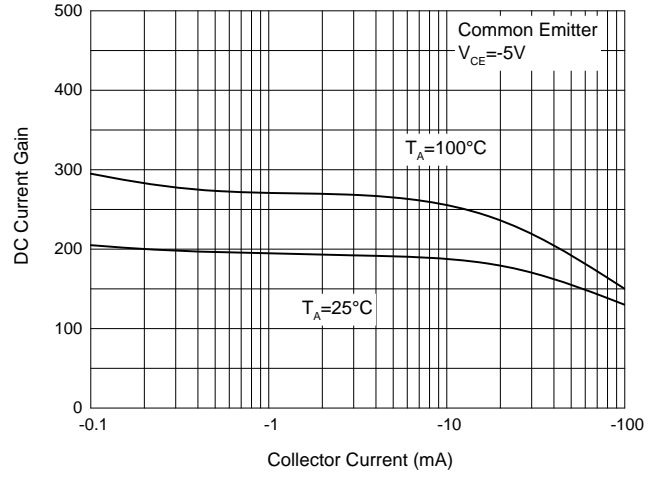


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

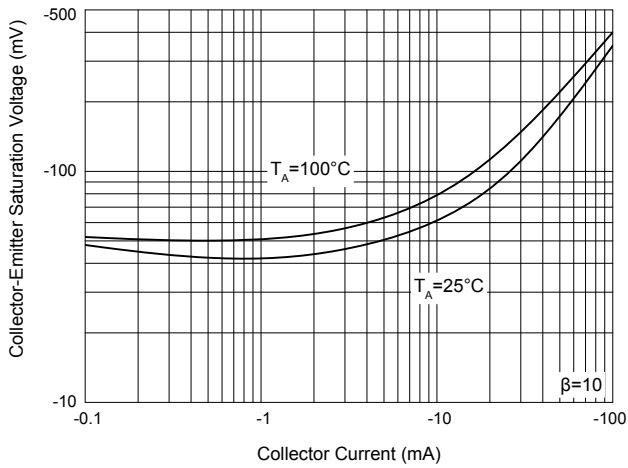


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

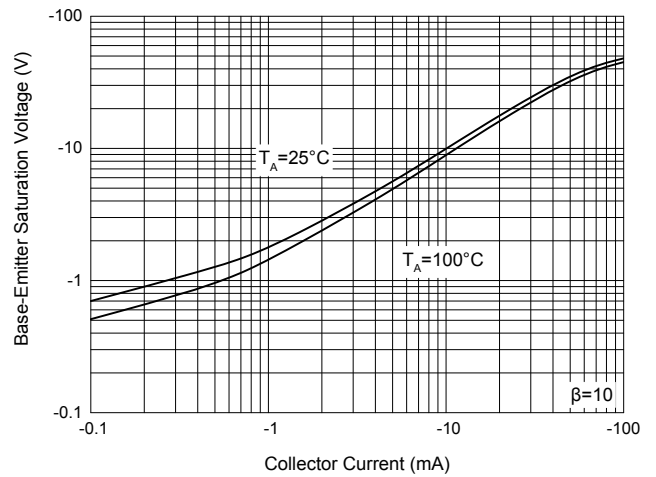
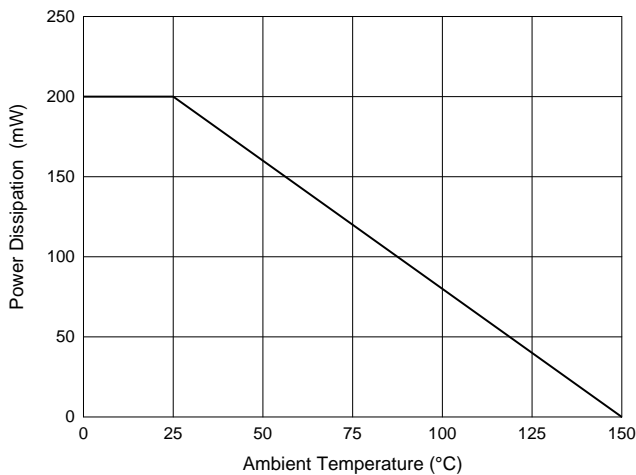


Fig. 5 - Power Derating Curve



## Ordering Information

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

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