



# TSB1424A

## Low $V_{CE(sat)}$ PNP Transistor

SOT-89



SOT-223



Pin assignment:

1. Base
2. Collector
3. Emitter

 $BV_{CEO} = - 50V$  $I_C = - 3A$  $V_{CE(SAT)}, = - 0.35V(\text{typ.}) @ I_C / I_B = - 2A / - 0.1A$ **Features**

- ◇ Low  $V_{CE(SAT)}$ .
- ◇ Excellent DC current gain characteristics

**Structure**

- ◇ Epitaxial planar type.
- ◇ Complementary to TSD2150A

**Ordering Information**

Part No.	Packing	Package	Marking
TSB1424ACW	2.5k per reel	SOT-223	AE
TSB1424ACY	1k per reel	SOT-89	AE

**Absolute Maximum Rating** ( $T_a = 25^\circ\text{C}$  unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	- 50V	V
Collector-Emitter Voltage	$V_{CEO}$	- 50V	V
Emitter-Base Voltage	$V_{EBO}$	- 6	V
Collector Current	DC	$I_C$	- 3
	Pulse		- 5
Collector Power Dissipation	SOT-89	$P_D$	0.5
	SOT-223		1.5
Operating Junction Temperature	$T_J$	+150	$^\circ\text{C}$
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	$^\circ\text{C}$

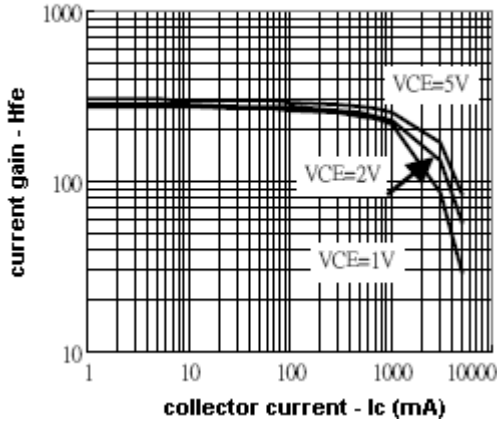
Note: 1. Single pulse,  $P_w = 10\text{mS}$ , Duty  $\leq 30\%$ **Electrical Characteristics** $T_a = 25^\circ\text{C}$  unless otherwise noted

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
<b>Static</b>						
Collector-Base Voltage	$I_C = - 50\mu\text{A}$	$BV_{CBO}$	- 50	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = - 1\text{mA}$	$BV_{CEO}$	- 50	--	--	V
Emitter-Base Breakdown Voltage	$I_E = - 50\mu\text{A}$	$BV_{EBO}$	- 6	--	--	V
Collector Cutoff Current	$V_{CB} = - 20V$	$I_{CBO}$	--	--	- 0.1	$\mu\text{A}$
Emitter Cutoff Current	$V_{EB} = - 5V$	$I_{EBO}$	--	--	-0.1	$\mu\text{A}$
Collector-Emitter Saturation Voltage	$I_C / I_B = - 2A / - 0.1A$	$V_{CE(SAT)}$	--	-0.35	- 0.5	V
DC Current Transfer Ratio	$V_{CE} = 2V, I_C = 100\text{mA}$	$h_{FE}$	180	--	--	
	$V_{CE} = 2V, I_C = 1A$	$h_{FE}$	180	--	560	
	$V_{CE} = 2V, I_C = 2A$	$h_{FE}$	180	--	--	
Transition Frequency	$V_{CE} = - 2V, I_C = - 500\text{mA}$ , $f = 100\text{MHz}$	$f_T$	--	240	--	MHz
Output Capacitance	$V_{CB} = - 10V, f = 1\text{MHz}$	$C_{ob}$	--	35	--	pF

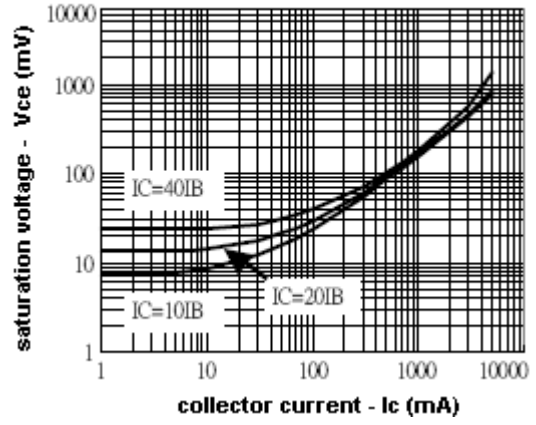
Note : pulse test: pulse width  $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$

## Electrical Characteristics Curve

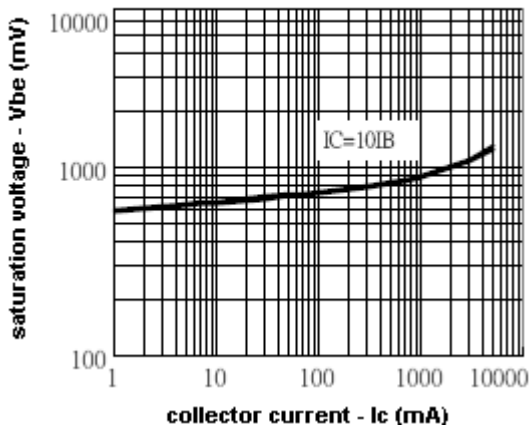
**Figure 1. Current Gain vs Collector Current**



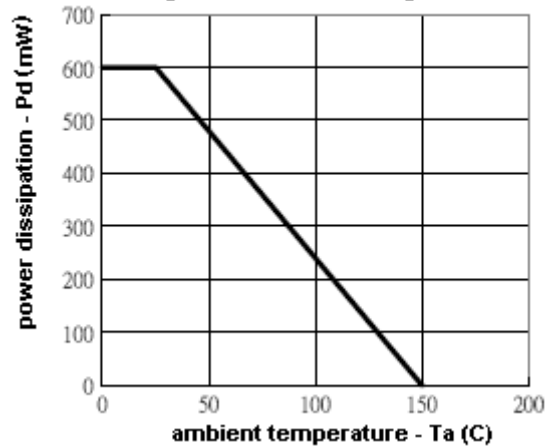
**Figure 2. Saturation Voltage vs Collector Current**



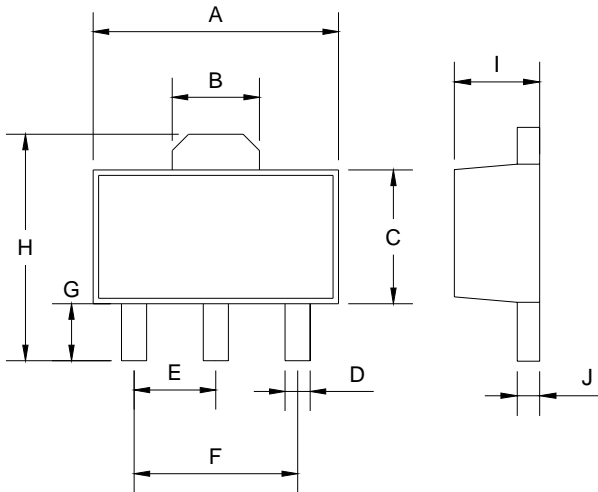
**Figure 3. Saturation Voltage vs Collector Current**



**Figure 4. Power Derating Curves**

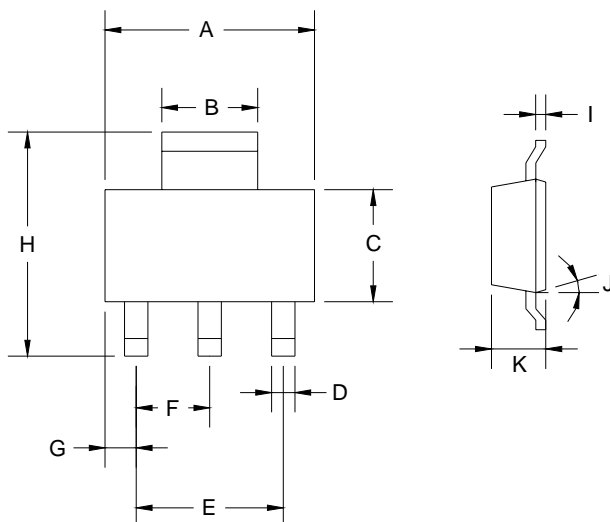


## SOT-89 Mechanical Drawing



SOT-89 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.40	4.60	0.173	0.181
B	1.50	1.7	0.059	0.070
C	2.30	2.60	0.090	0.102
D	0.40	0.52	0.016	0.020
E	1.50	1.50	0.059	0.059
F	3.00	3.00	0.118	0.118
G	0.89	1.20	0.035	0.047
H	4.05	4.25	0.159	0.167
I	1.4	1.6	0.055	0.068
J	0.35	0.44	0.014	0.017

## SOT-223 Mechanical Drawing



SOT-223 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	6.350	6.850	0.250	0.270
B	2.900	3.100	0.114	0.122
C	3.450	3.750	0.136	0.148
D	0.595	0.635	0.023	0.025
E	4.550	4.650	0.179	0.183
F	2.250	2.350	0.088	0.093
G	0.835	1.035	0.032	0.041
H	6.700	7.300	0.263	0.287
I	0.250	0.355	0.010	0.014
J	10°	16°	10°	16°
K	1.550	1.800	0.061	0.071