



TO-252  
(DPAK)



Pin Definition:

1. Base
2. Collector
3. Emitter

### PRODUCT SUMMARY

$BV_{CBO}$	-40V
$BV_{CEO}$	-30V
$I_C$	-5A
$V_{CE(SAT)}$	-0.5V @ $I_C / I_B = -4A / -100mA$

### Features

- Low  $V_{CE(SAT)}$  -0.36 @  $I_C / I_B = -4A / -100mA$  (Typ.)
- Complementary part with TSD2118

### Structure

- Epitaxial Planar Type
- PNP Silicon Transistor

### Ordering Information

Part No.	Package	Packing
TSB1412CP RO	TO-252	2.5Kpcs / 13" Reel

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	-40	V
Collector-Emitter Voltage	$V_{CEO}$	-30	V
Emitter-Base Voltage	$V_{EBO}$	-6	V
Collector Current	$I_C$	DC	-5
		Pulse	-10 (note)
Collector Power Dissipation	$P_D$	Ta=25°C	1
		Tc=25°C	10
Operating Junction Temperature	$T_J$	+150	°C
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	°C

Note: Single pulse, Pw=10ms

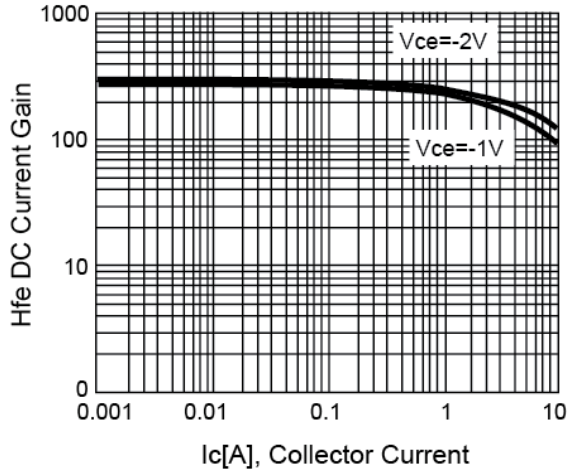
### Electrical Specifications (Ta = 25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = -50\mu A, I_E = 0$	$BV_{CBO}$	-40	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = -1mA, I_B = 0$	$BV_{CEO}$	-30	--	--	V
Emitter-Base Breakdown Voltage	$I_E = -50\mu A, I_C = 0$	$BV_{EBO}$	-6	--	--	V
Collector Cutoff Current	$V_{CB} = -25V, I_E = 0$	$I_{CBO}$	--	--	-0.5	uA
Emitter Cutoff Current	$V_{EB} = -5V, I_C = 0$	$I_{EBO}$	--	--	-0.5	uA
Collector-Emitter Saturation Voltage	$I_C / I_B = -4A / -100mA$	$*V_{CE(SAT)}$	--	-0.36	-0.5	V
DC Current Transfer Ratio	$V_{CE} = -2V, I_C = -500mA$	$*h_{FE}$	180	--	390	
Transition Frequency	$V_{CE} = -6V, I_C = -50mA, f = 30MHz$	$f_T$	--	120	--	MHz
Output Capacitance	$V_{CB} = -20V, f = 1MHz$	Cob	--	60	--	pF

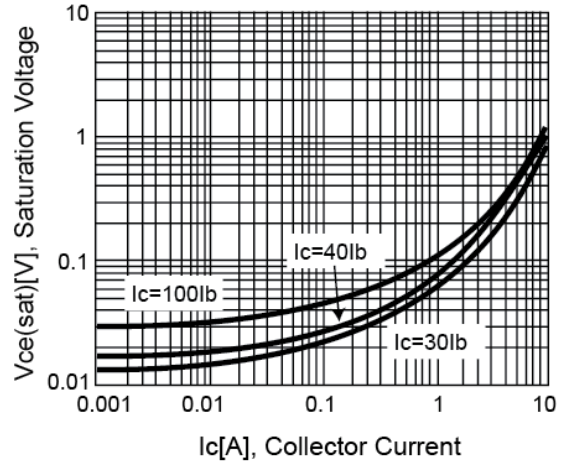
\* Pulse Test: Pulse Width  $\leq 380\mu s$ , Duty Cycle  $\leq 2\%$

**Electrical Characteristics Curve** (Ta = 25°C, unless otherwise noted)

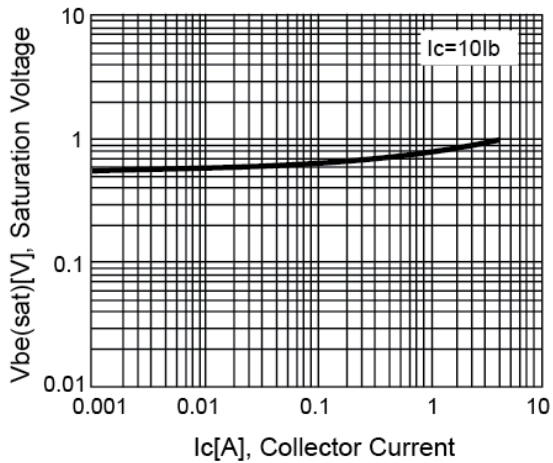
**Figure 1. DC Current Gain**



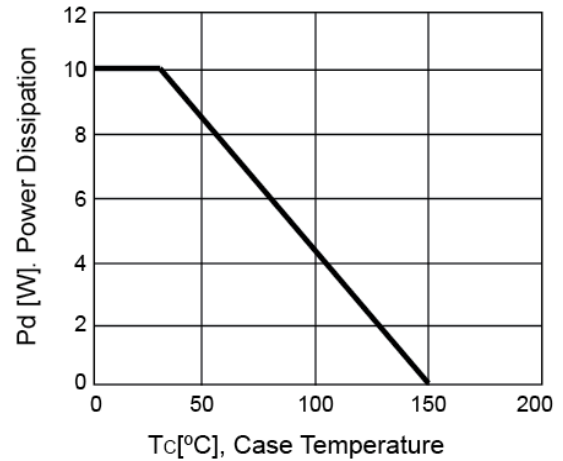
**Figure 2. V<sub>CE(SAT)</sub> v.s. Ic**



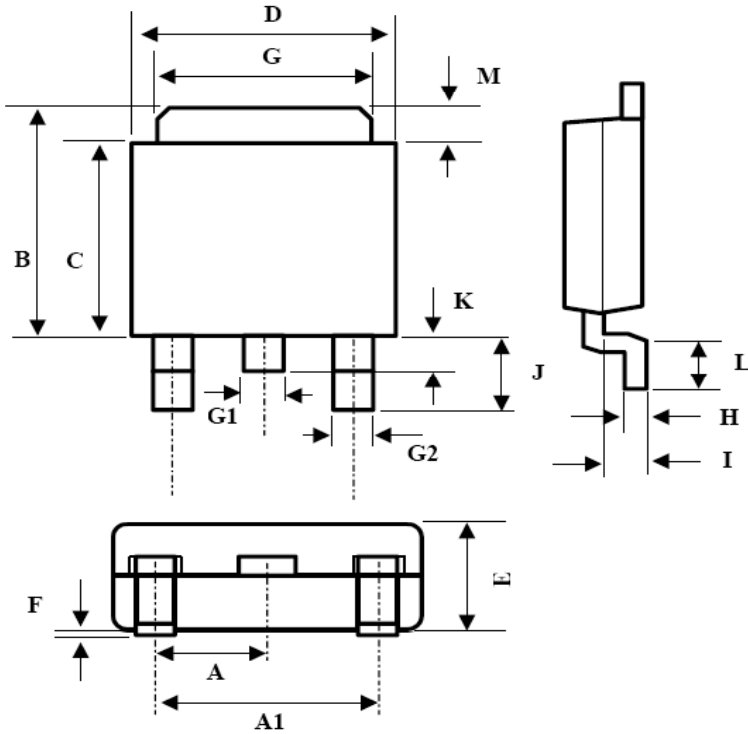
**Figure 3. V<sub>BE(SAT)</sub> v.s. Ic**



**Figure 4. Power Derating Curve**



**TO-252 Mechanical Drawing**



DIM	TO-252 DIMENSION			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.3BSC		0.09BSC	
A1	4.6BSC		0.18BSC	
B	6.80	7.20	0.268	0.283
C	5.40	5.60	0.213	0.220
D	6.40	6.65	0.252	0.262
E	2.20	2.40	0.087	0.094
F	0.00	0.20	0.000	0.008
G	5.20	5.40	0.205	0.213
G1	0.75	0.85	0.030	0.033
G2	0.55	0.65	0.022	0.026
H	0.35	0.65	0.014	0.026
I	0.90	1.50	0.035	0.059
J	2.20	2.80	0.087	0.110
K	0.50	1.10	0.020	0.043
L	0.90	1.50	0.035	0.059
M	1.30	1.70	0.051	0.67

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