TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSB1412

Low Vcesat PNP Transistor

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
TSB1412CP ROG	TO-252	2.5Kpcs / 13" Reel

Note: "G" is denote Halogen Free Product.

Absolute Maximum Rating (T_A=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	DC	I_C	-5	A
	Pulse		-10 (note)	
Collector Power Dissipation	Ta=25ºC	P_D	1	W
	Tc=25ºC		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 (T_A=25°C unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	I_C = -50uA, 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 = -50uA, 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 ≤380uS, Duty Cycle≤2%

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

Figure 1. DC Current Gain

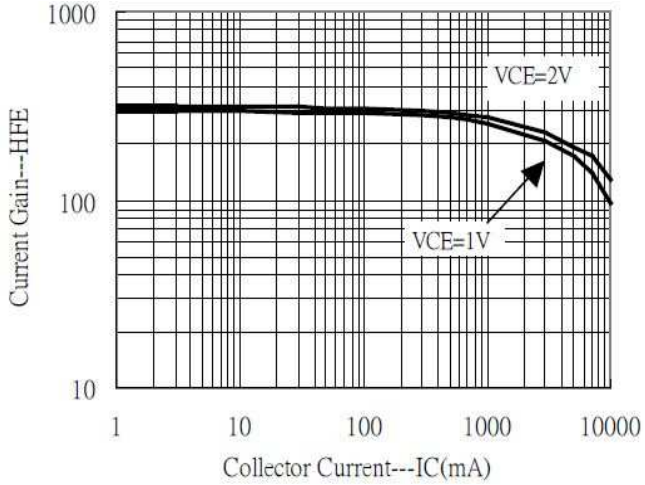


Figure 2. $V_{CE(SAT)}$ v.s. Ic

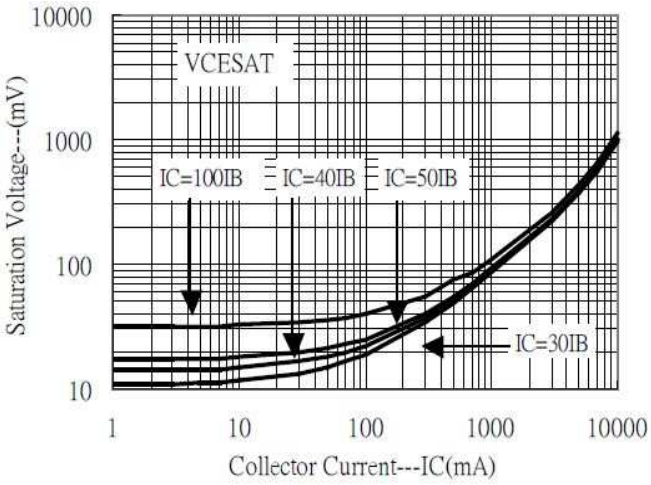


Figure 3. $V_{BE(SAT)}$ v.s. Ic

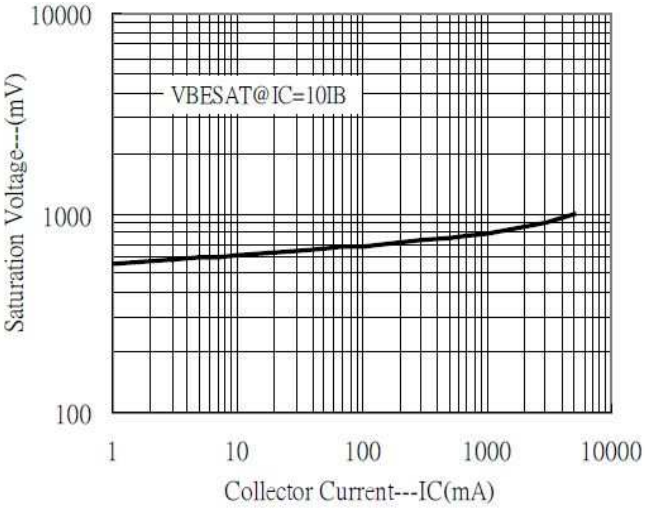


Figure 4. Output Characteristics

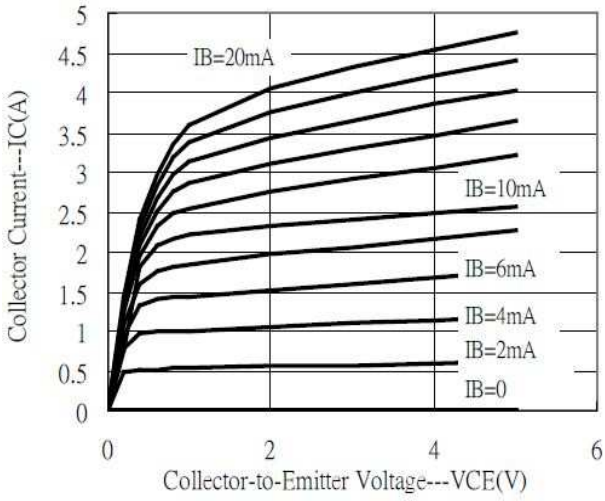


Figure 5. Output Characteristics

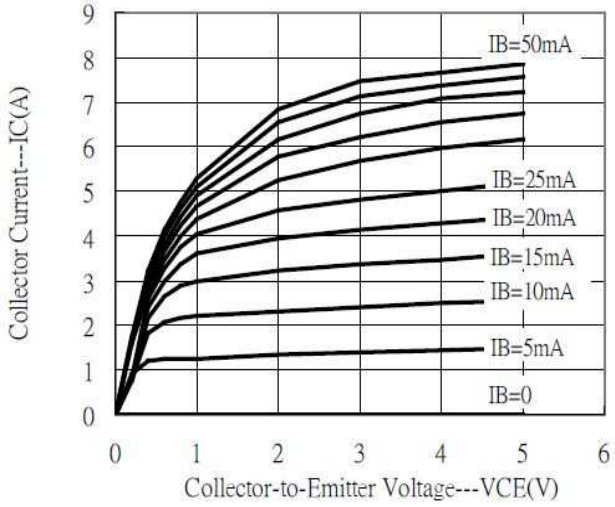
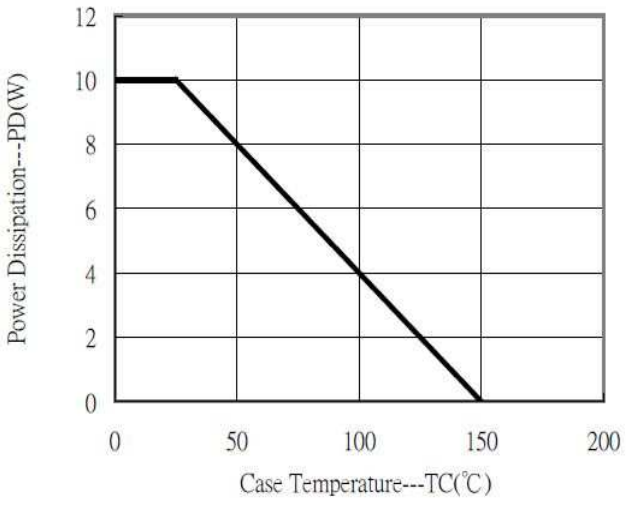


Figure 6. Power Derating Curve



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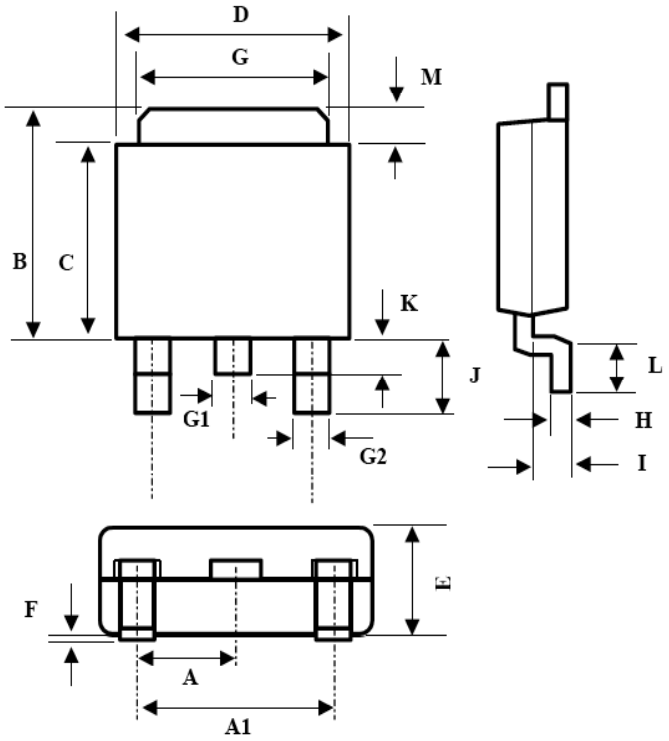
TO-252 Mechanical Drawing



TO-252 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	2.290 BSC		0.090 BSC	
A1	4.600 BSC		0.180 BSC	
B	7.000	7.200	0.275	0.283
C	6.000	6.200	0.236	0.244
D	6.400	6.604	0.252	0.260
E	2.210	2.387	0.087	0.094
F	0.010	0.127	0.000	0.005
G	5.232	5.436	0.206	0.214
G1	0.666	0.889	0.026	0.035
G2	0.633	0.889	0.025	0.035
H	0.508 REF		0.020 REF	
I	0.900	1.500	0.035	0.059
J	2.743 REF		0.108 REF	
K	0.660	0.940	0.026	0.037
L	1.397	1.651	0.055	0.065
M	1.100 REF		0.043 REF	

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