TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSD1760

Low Vcesat NPN Transistor

TO-252 (DPAK)

Pin Definition:
1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	50V
BV_{CEO}	50V
I_C	3A
$V_{CE(SAT)}$	0.5V @ I_C / I_B = 2A / 200mA

Features

- Low $V_{CE(SAT)}$ 0.25 @ I_C / I_B = 2A / 200mA (Typ.)
- Complementary part with TSB1184CP

Ordering Information

Part No.	Package	Packing
TSD1760CP RO	TO-252	2.5Kpcs / 13” Reel

Structure

- Epitaxial Planar Type
- NPN Silicon Transistor

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

Parameter		Symbol	Limit	Unit
Collector-Base Voltage		V_{CBO}	50	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	5	V
Collector Current	DC	I_C	3	A
	Pulse		7 (note 1)	
Power Dissipation	Ta=25ºC	P_D	1 (note 2)	W
	Tc=25ºC		15	
Operating Junction Temperature		T_J	+150	°C
Operating Junction and Storage Temperature Range		T_{STG}	- 55 to +150	°C

Note: 1. Single pulse, Pw=10mS, Duty≤2%
2. PCB 1.7mm thick, collector copper plating 10mm x 10mm or larger.

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

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	I_C = 50uA, I_E = 0	BV_{CBO}	50	--	--	V
Collector-Emitter Breakdown Voltage	I_C = 1mA, I_B = 0	BV_{CEO}	50	--	--	V
Emitter-Base Breakdown Voltage	I_E = 50uA, I_C = 0	BV_{EBO}	5	--	--	V
Collector Cutoff Current	V_{CB} = 30V, I_E = 0	I_{CBO}	--	--	1	uA
Emitter Cutoff Current	V_{EB} = 4V, I_C = 0	I_{EBO}	--	--	1	uA
Collector-Emitter Saturation Voltage	I_C / I_B = 2A / 200mA	*$V_{CE(SAT)}$	--	0.25	0.5	V
DC Current Transfer Ratio	V_{CE} = 2V, I_C = 100mA	*h_{FE}	82	--	560	
Transition Frequency	V_{CE} =5V, I_C=50mA, f=100MHz	f_T	--	90	--	MHz
Output Capacitance	V_{CB} = 10V, f=1MHz	Cob	--	45	--	pF

* Pulse Test: Pulse Width ≤380uS, Duty Cycle≤2%

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

Figure 1. DC Current Gain

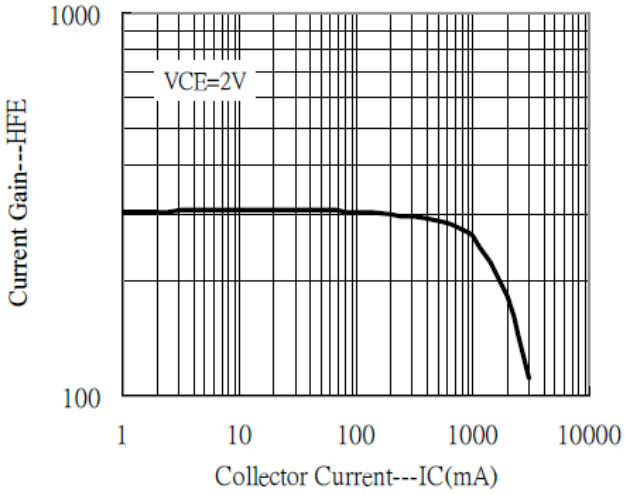


Figure 2. $V_{CE(SAT)}$ v.s. Ic

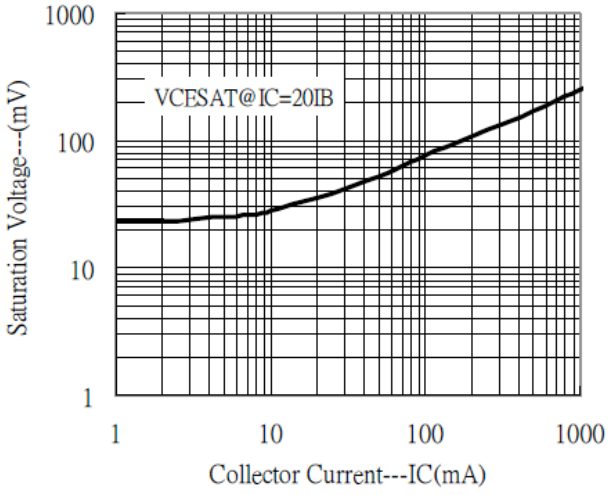


Figure 3. $V_{BE(SAT)}$ v.s. Ic

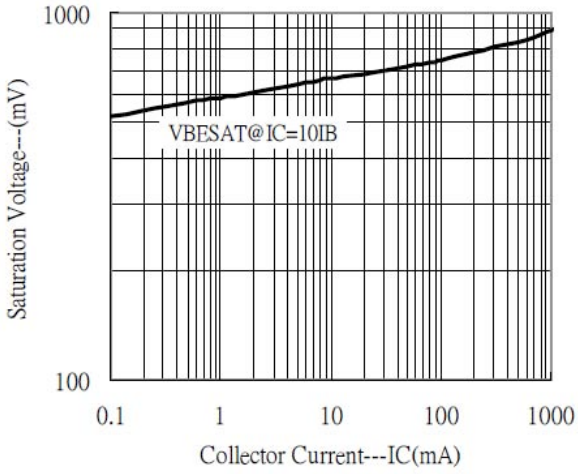
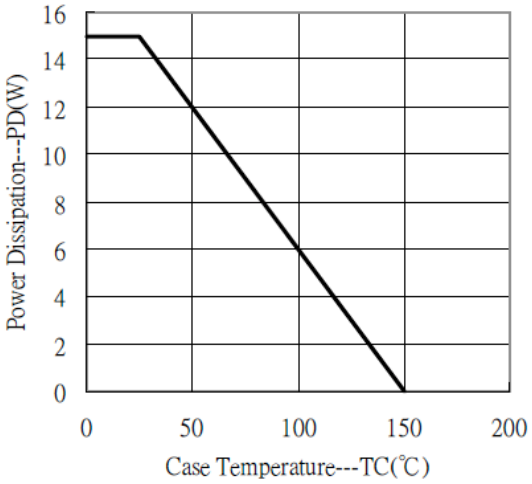


Figure 4. Power Derating Curve



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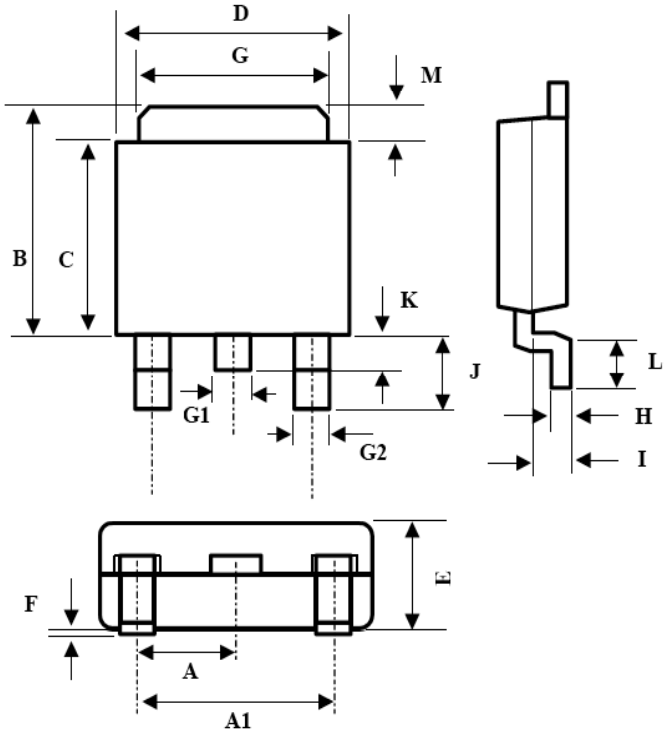
TO-252 Mechanical Drawing



TO-252 DIMENSION				
DIM	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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