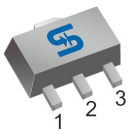
TAIWAN SEMICONDUCTOR

RoHS COMPLIANCE

TSD2150A

Low Vcesat NPN Transistor

SOT-89



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

PRODUCT SUMMARY

BV_{CBO}	80V
BV_{CEO}	50V
I_C	3A
$V_{CE(SAT)}$	0.5V @ I_C / I_B = 2A / 200mA

Features

- Low $V_{CE(SAT)}$ 0.1 @ I_C / I_B = 1A / 50mA (Typ.)
- Complementary part with TSB1424A

Ordering Information

Part No.	Package	Packing
TSD2150ACY RM	SOT-89	1Kpcs / 7” Reel

Structure

- Epitaxial Planar Type
- NPN Silicon Transistor

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

Parameter		Symbol	Limit	Unit
Collector-Base Voltage		V_{CBO}	80	V
Collector-Emitter Voltage		V_{CEO}	50	V
Emitter-Base Voltage		V_{EBO}	6	V
Collector Current	DC	I_C	3	A
	Pulse		6 (note1)	
Collector Power Dissipation		P_D	0.6	W
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≤50%
2. When mounted on a 40 x 50 x 0.7mm ceramic board.

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}	80	--	--	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}	6	--	--	V
Collector Cutoff Current	V_{CB} = 60V, I_E = 0	I_{CBO}	--	--	0.1	μA
Emitter Cutoff Current	V_{EB} = 3V, I_C = 0	I_{EBO}	--	--	0.1	μA
Collector-Emitter Saturation Voltage	I_C / I_B = 1A / 50mA	$V_{CE(SAT)}$	--	0.1	0.25	V
	I_C / I_B = 2A / 200mA	$V_{CE(SAT)}$	--	0.25	0.5	
Base-Emitter Saturation Voltage	I_C / I_B = 2A / 200mA	$V_{BE(SAT)}$	--	--	2	V
DC Current Transfer Ratio	V_{CE} = 2V, I_C = 100mA	h_{FE} 1	180	--	--	
	V_{CE} = 2V, I_C = 500mA	h_{FE} 2	200	--	400	
	V_{CE} = 2V, I_C = 1A	h_{FE} 3	150	--	--	
Transition Frequency	V_{CE} =5V, I_E=0.1A, f=100MHz	f_T	--	90	--	MHz
Output Capacitance	V_{CB} = 10V, f=1MHz	Cob	--	45	--	pF

Note: Pulse test: pulse width ≤380μs, Duty cycle≤2%

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

Figure 1. DC Current Gain

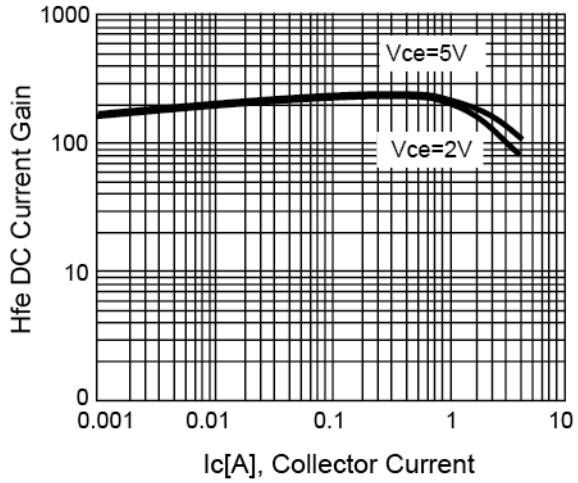


Figure 2. $V_{CE(SAT)}$ v.s. Collector Current

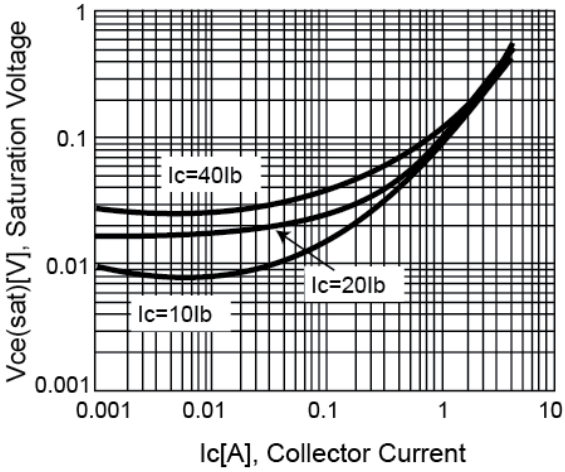


Figure 3. $V_{BE(SAT)}$ v.s. Collector Current

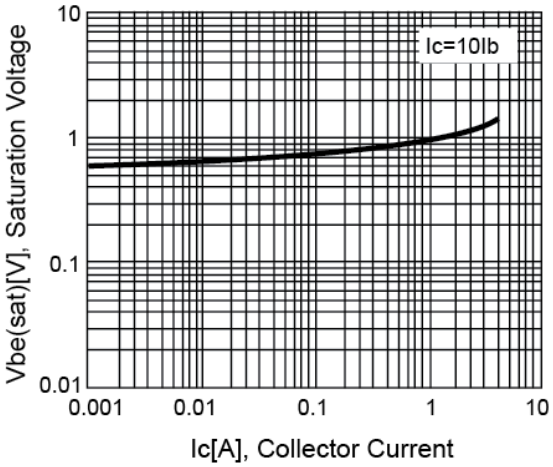
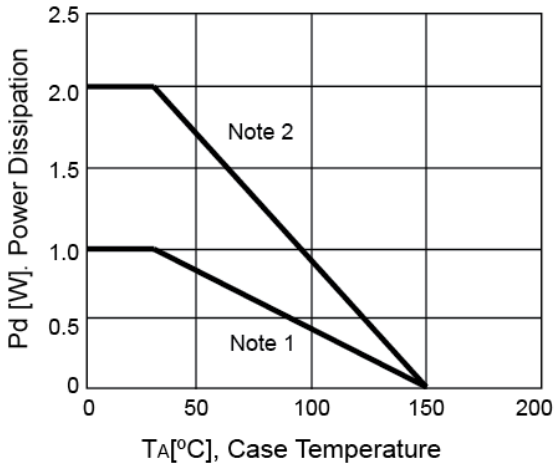
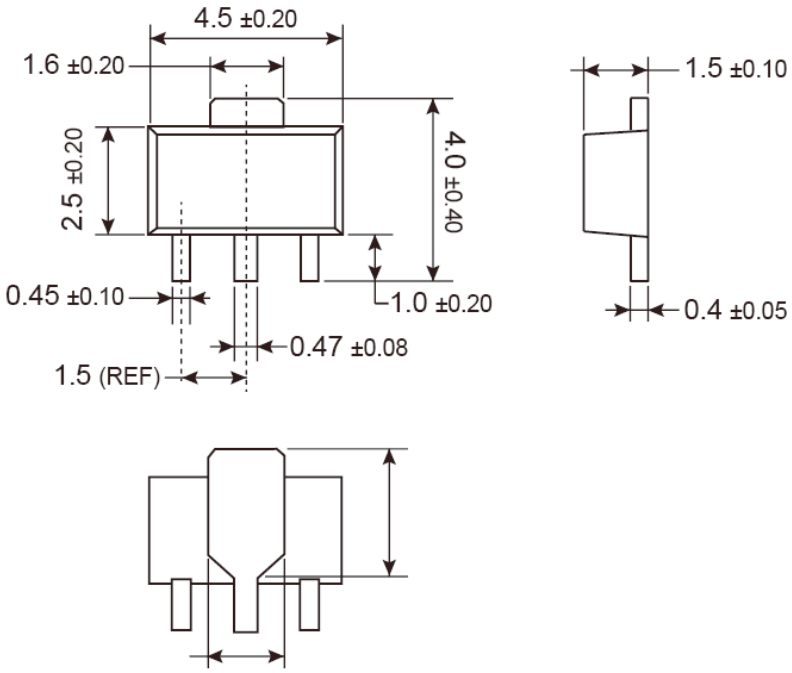


Figure 4. Power Derating Curve



SOT-89 Mechanical Drawing



Unit: Millimeters

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