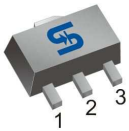


SOT-89



Pin Definition:

1. Base
2. Collector
3. Emitter

TO-92



Pin Definition:

1. Emitter
2. Collector
3. Base

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

Structure

- Epitaxial Planar Type
- NPN Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSD2150ACY RM	SOT-89	1Kpcs / 7" Reel
TSD2150ACT B0	TO-92	1K / Bulk
TSD2150ACT A3	TO-92	2K / Ammo

Absolute Maximum Rating ($T_a = 25^\circ C$ 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	3	A
	Pulse	6 (note1)	
Collector Power Dissipation	SOT-89	0.6	W
	TO-92	0.75	
Operating Junction Temperature	T_J	+150	$^\circ C$
Operating Junction and Storage Temperature Range	T_{STG}	- 55 to +150	$^\circ C$

Note: 1. Single pulse, $P_w=10ms$, Duty $\leq 50\%$
2. When mounted on a 40 x 50 x 0.7mm ceramic board.

Electrical Specifications ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = 50\mu A, I_E = 0$	BV_{CBO}	80	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	BV_{CEO}	50	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	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_{FE1}	180	--	--	
	$V_{CE} = 2V, I_C = 500mA$	h_{FE2}	200	--	400	
	$V_{CE} = 2V, I_C = 1A$	h_{FE3}	150	--	--	
Transition Frequency	$V_{CE} = 5V, I_E = 0.1A, f = 100MHz$	f_T	--	90	--	MHz
Output Capacitance	$V_{CB} = 10V, f = 1MHz$	C_{ob}	--	45	--	pF

Note: Pulse test: pulse width $\leq 380\mu s$, Duty cycle $\leq 2\%$

Electrical Characteristics Curve ($T_a = 25^{\circ}\text{C}$, unless otherwise noted)

Figure 1. DC Current Gain

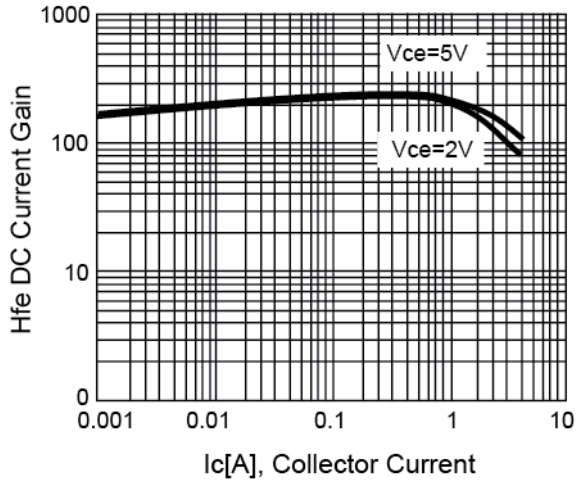


Figure 2. $V_{CE(SAT)}$ v.s. Collector Current

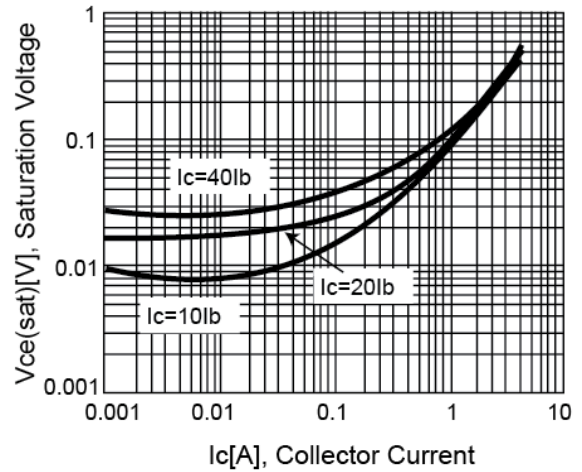


Figure 3. $V_{BE(SAT)}$ v.s. Collector Current

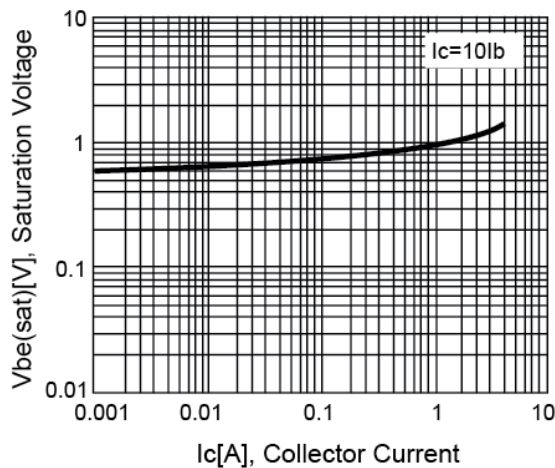
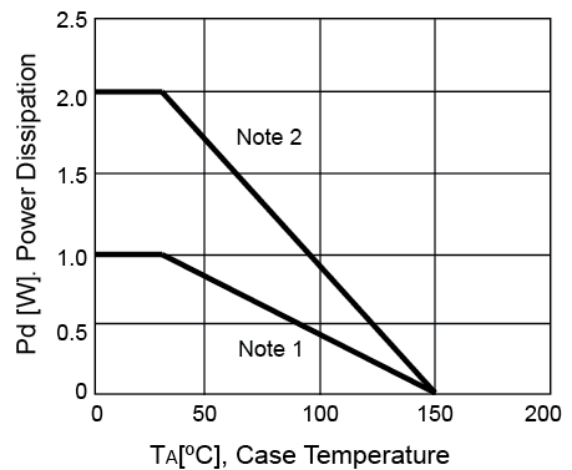
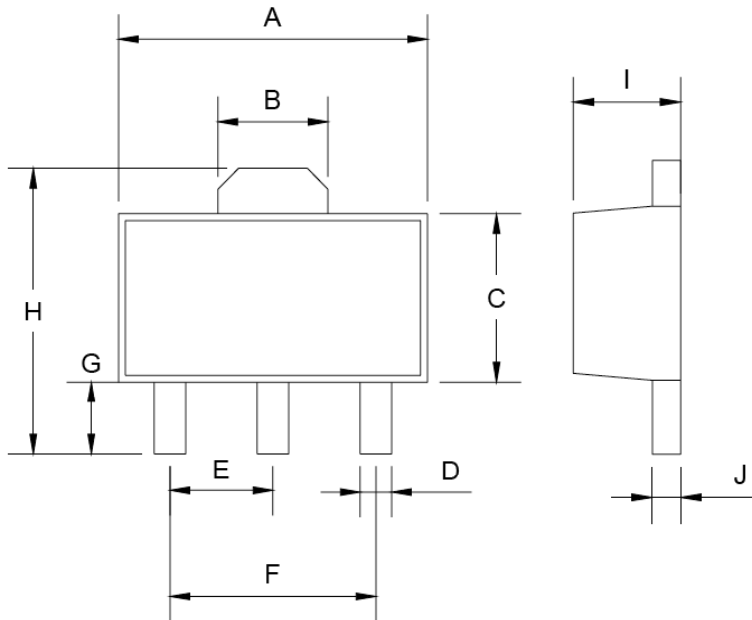


Figure 4. Power Derating Curve

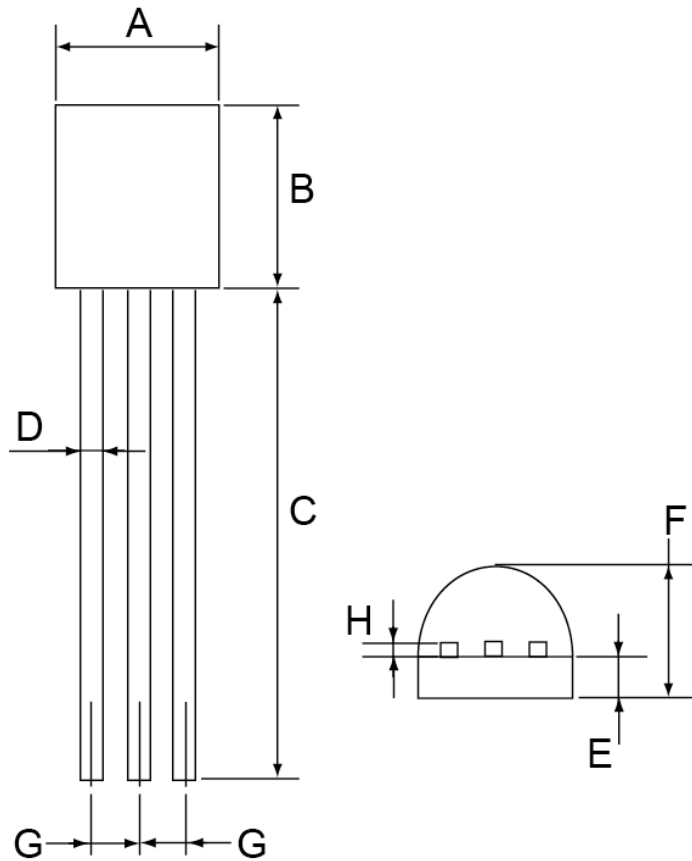


SOT-89 Mechanical Drawing



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

TO-92 Mechanical Drawing



TO-92 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	4.30	4.70	0.169	0.185
B	4.30	4.70	0.169	0.185
C	13.53 (typ)		0.532 (typ)	
D	0.39	0.49	0.015	0.019
E	1.18	1.28	0.046	0.050
F	3.30	3.70	0.130	0.146
G	1.27	1.31	0.050	0.051
H	0.33	0.43	0.013	0.017

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