


SOT-89


1 2 3

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	100V
BV_{CEO}	20V
I_C	5A
$V_{CE(SAT)}$	0.35V @ $I_C / I_B = 3A / 100mA$

Features

- Low $V_{CE(SAT)}$ 0.35V @ $I_C / I_B = 3A / 100mA$ (Typ.)
- Excellent DC current gain characteristics

Structure

- Epitaxial Planar Type
- NPN Silicon Transistor

Ordering Information

Part No.	Package	Packing
TSD2098ACY RM	SOT-89	1Kpcs / 7" Reel

Absolute Maximum Rating ($T_a = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V_{CBO}	100	V
Collector-Emitter Voltage	V_{CES}	95	V
Collector-Emitter Voltage	V_{CEO}	20	V
Emitter-Base Voltage	V_{EBO}	6	V
Collector Current	I_C	DC	5
		Pulse	8 (note1)
Collector Power Dissipation	P_D	0.6	W
		1 (note 2)	
		2 (note 3)	
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, $P_w = 10mS$

2. Printed circuit board, glass epoxy board, 1.7mm thick with collector copper plating 10mm x 10mm.

3. When mounted on a 40 x 40 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}	100	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 50\mu A, I_E = 0$	BV_{CES}	95	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	BV_{CEO}	20	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	BV_{EBO}	6	--	--	V
Collector Cutoff Current	$V_{CB} = 50V, I_E = 0$	I_{CBO}	--	0.35	0.5	μA
Emitter Cutoff Current	$V_{EB} = 5V, I_C = 0$	I_{EBO}	--	--	0.5	μA
Collector-Emitter Saturation Voltage	$I_C = 3A, I_B = 100mA$	$V_{CE(SAT)}$	--	0.35	1.0	V
	$I_C = 3A, I_B = 60mA$	$V_{CE(SAT)}$	--	--	1.0	
DC Current Transfer Ratio	$V_{CE} = 2V, I_C = 20mA$	h_{FE}	230	--	--	
	$V_{CE} = 2V, I_C = 500mA$	h_{FE}	260	--	780	
	$V_{CE} = 2V, I_C = 2A$	h_{FE}	150	--	--	
Transition Frequency	$V_{CE} = 6V, I_C = 50mA, f = 100MHz$	f_T	--	150	--	MHz
Output Capacitance	$V_{CB} = 20V, f = 1MHz$	C_{ob}	--	30	50	pF

 Note: 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

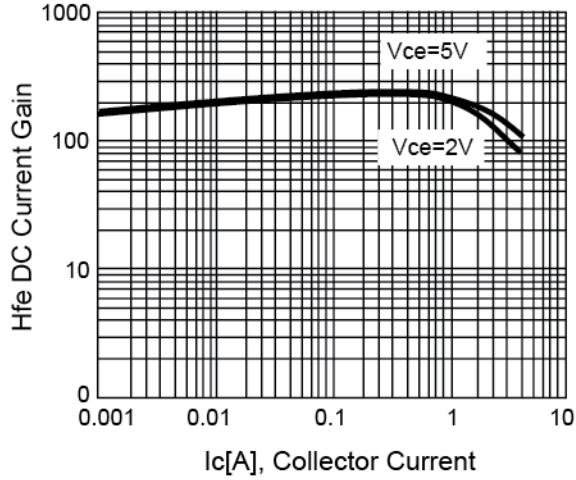


Figure 2. V_{CE(SAT)} v.s. Ic

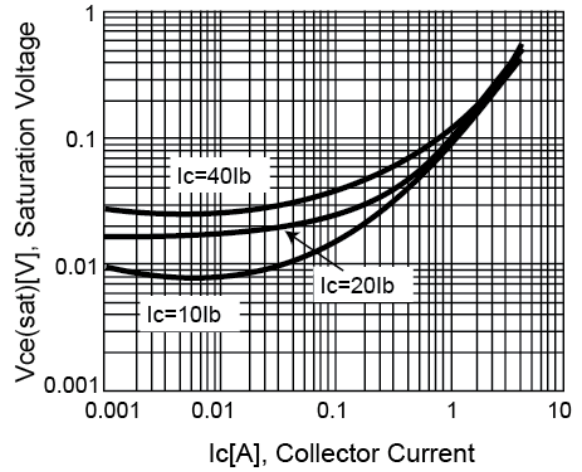


Figure 3. V_{BE(SAT)} v.s. Ic

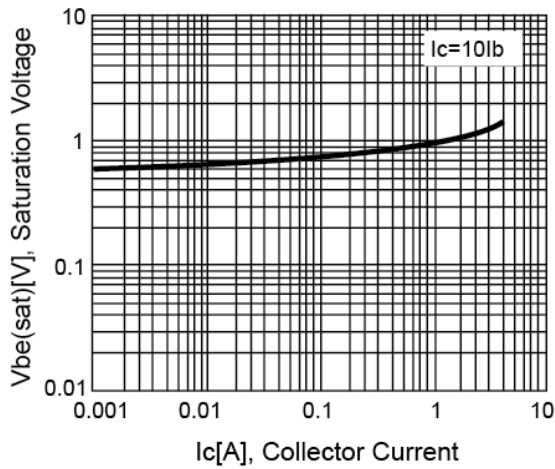
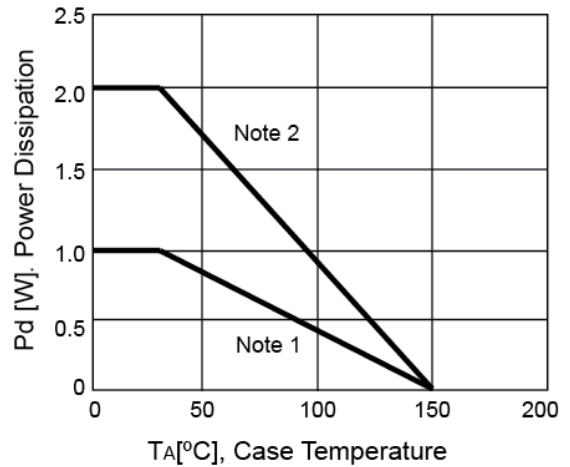
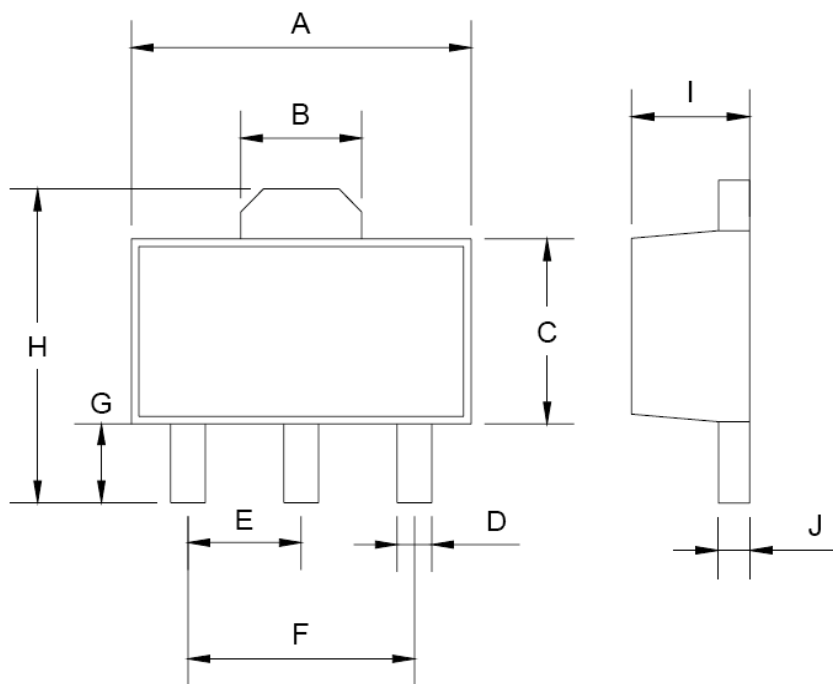


Figure 4. Power Derating Curve



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

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