

SOT-89

Pin Definition:

1. Base
2. Collector
3. Emitter

PRODUCT SUMMARY

BV_{CBO}	95V
BV_{CEO}	20V
I_C	5A
V_{CE(SAT)}	0.5V @ I _C / I _B = 3.5A / 40mA

Features

- Ultra Low V_{CE(SAT)} 0.5V @ I_C / I_B = 3.5A / 40mA
- 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°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V _{CBO}	95	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)
Total Power Dissipation	P _D	0.9	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 = 300uS

2. SOT-89 package mounted on a 40 x 40 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 = 1mA, I _E = 0	BV _{CBO}	95	--	--	V
Collector-Emitter Breakdown Voltage	I _C = 1mA, 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 = 50uA, I _C = 0	BV _{EBO}	6	--	--	V
Collector Cutoff Current	V _{CB} = 50V, I _E = 0	I _{CBO}	--	0.35	0.5	uA
Emitter Cutoff Current	V _{EB} = 5V, I _C = 0	I _{EBO}	--	--	0.5	uA
Collector-Emitter Saturation Voltage	I _C = 1.5A, I _B = 30mA	V _{CE(SAT)}	--	0.1	0.25	V
	I _C = 3.5A, I _B = 40mA	V _{CE(SAT)}	--	--	0.5	
DC Current Transfer Ratio	V _{CE} = 2V, I _C = 500mA	h _{FE}	200	--	560	
	V _{CE} = 2V, I _C = 3A	h _{FE}	75	--	--	
Transition Frequency	V _{CE} = 6V, I _C = 50mA, f = 100MHz	f _T	--	150	--	MHz
Output Capacitance	V _{CB} = 20V, f = 1MHz	Cob	--	30	50	pF

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

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

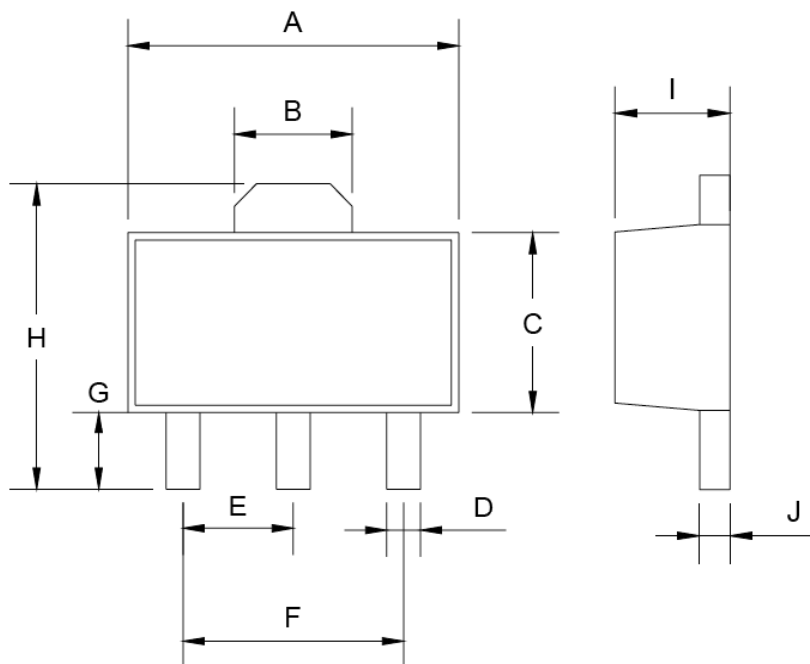
Figure 1. DC Current Gain

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

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

Figure 4. Power Derating Curve

SOT-89 Mechanical Drawing



DIM	SOT-89 DIMENSION			
	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



TSD2098A

Low Vcesat NPN Transistor

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