

**SOT-23**

**Pin Definition:**

1. Base
2. Emitter
3. Collector

**TO-92**

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**PRODUCT SUMMARY**

<b>BV<sub>CEO</sub></b>	400V
<b>BV<sub>CBO</sub></b>	400V
<b>I<sub>C</sub></b>	300mA
<b>V<sub>CE(SAT)</sub></b>	0.1V @ I <sub>C</sub> / I <sub>B</sub> = 10mA / 1mA

**Features**

- Low V<sub>CE(SAT)</sub> 0.15V @ I<sub>C</sub> / I<sub>B</sub> = 10mA / 10mA (Typ.)
- Complementary part with TSA1759

**Structure**

- Epitaxial Planar Type
- NPN Silicon Transistor

**Ordering Information**

Part No.	Package	Packing
TSC4505CX RF	SOT-23	3Kpcs / 7" Reel
TSC4505CT B0	TO-92	1Kpcs / Bulk
TSC4505CT A3	TO-92	2Kpcs / Ammo

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	V <sub>CBO</sub>	400	V
Collector-Emitter Voltage	V <sub>CEO</sub>	400	V
Emitter-Base Voltage	V <sub>EBO</sub>	6	V
Collector Current	I <sub>C</sub>	300	mA
Collector Power Dissipation	SOT-23	0.225	W
	TO-92	0.6	
Operating Junction Temperature	T <sub>J</sub>	+150	°C
Operating Junction and Storage Temperature Range	T <sub>STG</sub>	- 55 to +150	°C

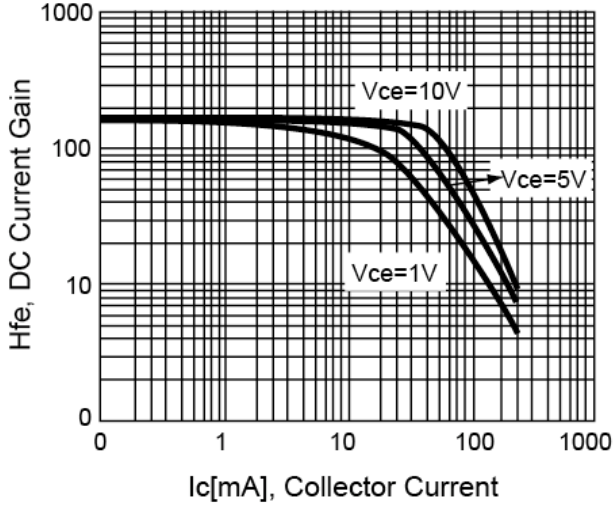
Note: 1. Single pulse, Pw=20ms, Duty≤50%

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

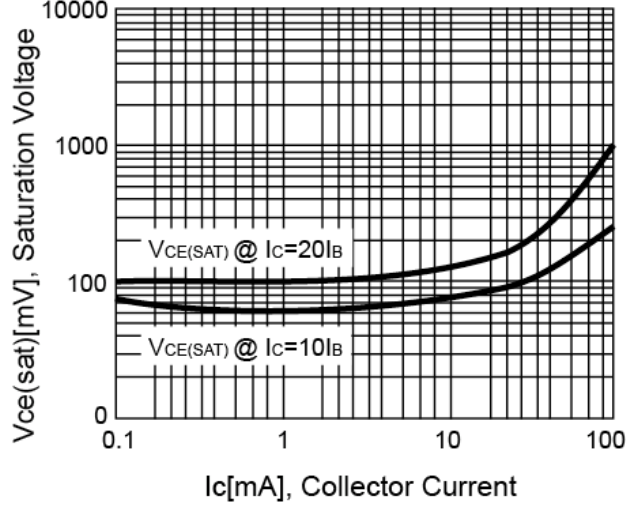
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	I <sub>C</sub> = 50uA, I <sub>E</sub> = 0	BV <sub>CBO</sub>	400	--	--	V
Collector-Emitter Breakdown Voltage	I <sub>C</sub> = 1mA, I <sub>B</sub> = 0	BV <sub>CEO</sub>	400	--	--	V
Emitter-Base Breakdown Voltage	I <sub>E</sub> = 50uA, I <sub>C</sub> = 0	BV <sub>EBO</sub>	6	--	--	V
Collector Cutoff Current	V <sub>CB</sub> = 400V, I <sub>E</sub> = 0	I <sub>CBO</sub>	--	--	10	uA
Collector-Emitter Reverse Current	V <sub>CE</sub> = 300V, R <sub>EB</sub> = 4k Ω	I <sub>CER</sub>	--	--	20	nA
Emitter Cutoff Current	V <sub>EB</sub> = 6V, I <sub>C</sub> = 0	I <sub>EBO</sub>	--	--	10	uA
Collector-Emitter Saturation Voltage	I <sub>C</sub> / I <sub>B</sub> = 10mA / 1mA	V <sub>CE(SAT)</sub>	--	0.1	0.5	V
Base-Emitter Saturation Voltage	I <sub>C</sub> / I <sub>B</sub> = 10mA / 1mA	V <sub>BE(SAT)</sub>	--	--	1.5	V
DC Current Transfer Ratio	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA	h <sub>FE</sub>	100	--	270	
Transition Frequency	V <sub>CE</sub> = 10V, I <sub>C</sub> = 10mA, f = 10MHz	f <sub>T</sub>	--	20	--	MHz
Output Capacitance	V <sub>CB</sub> = 10V, I <sub>E</sub> = 0, f = 1MHz	Cob	--	7	--	pF

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

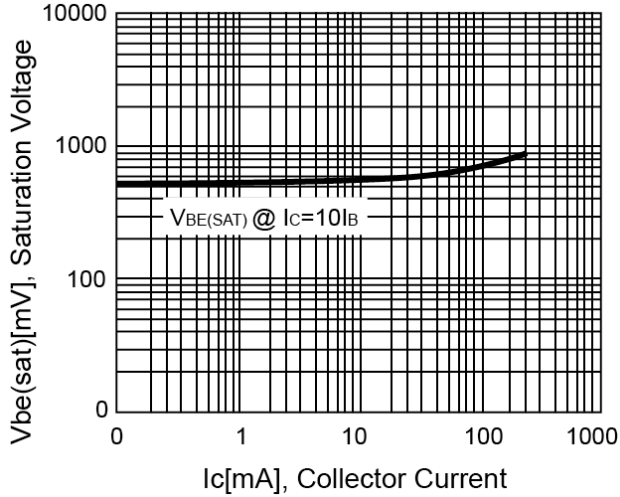
**Figure 1. DC Current Gain**



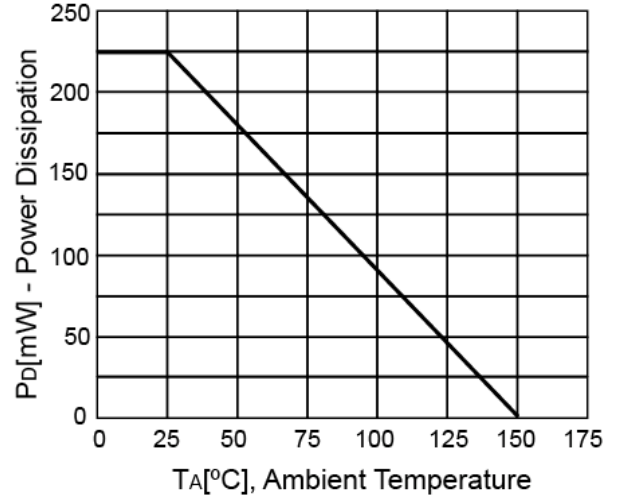
**Figure 2.  $V_{CE(SAT)}$  v.s.  $I_c$**



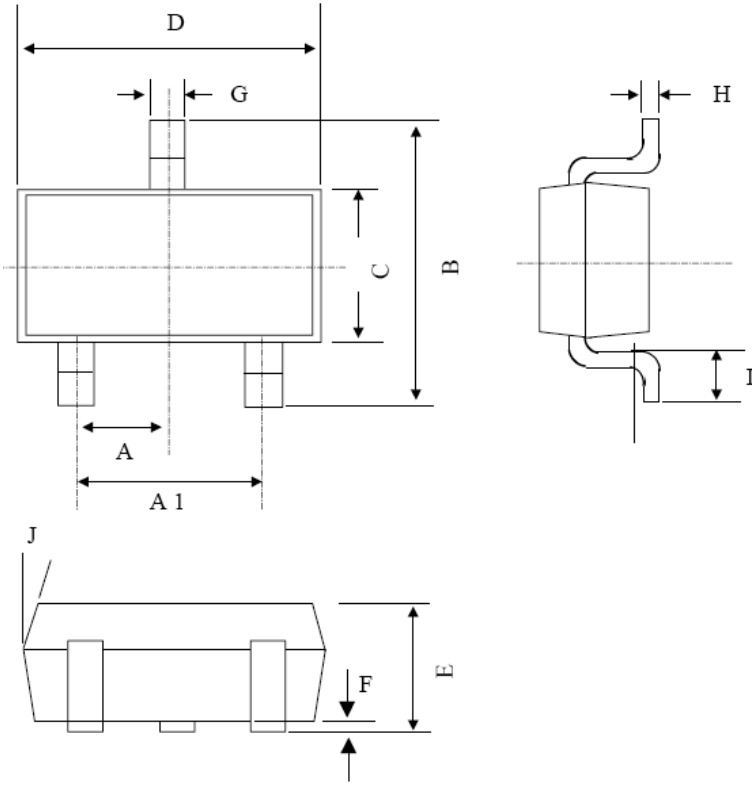
**Figure 3.  $V_{BE(SAT)}$  v.s.  $I_c$**



**Figure 4. Power Derating Curve**

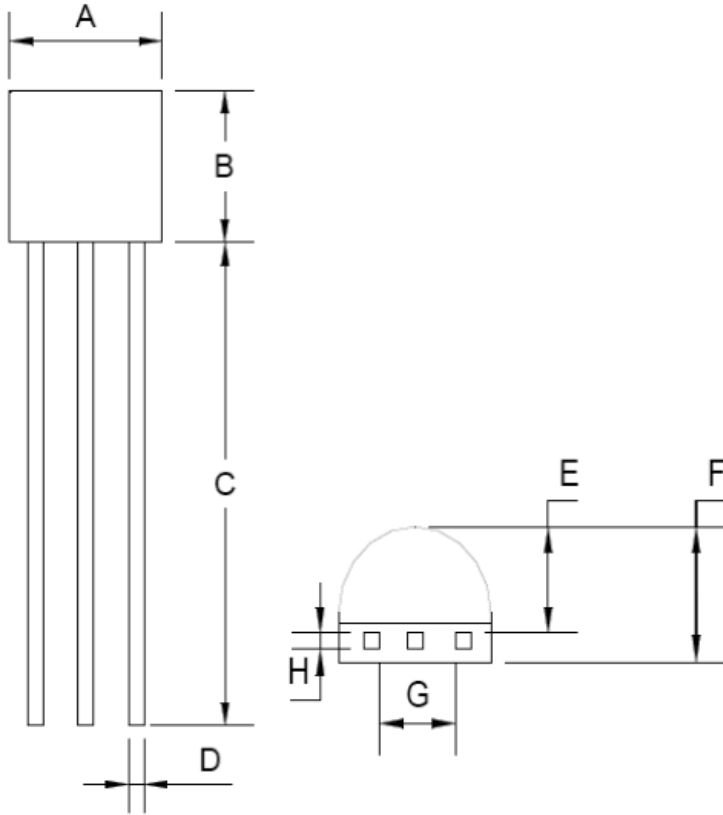


**SOT-23 Mechanical Drawing**



SOT-23 DIMENSION				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	0.95 BSC		0.037 BSC	
A1	1.9 BSC		0.074 BSC	
B	2.60	3.00	0.102	0.118
C	1.40	1.70	0.055	0.067
D	2.80	3.10	0.110	0.122
E	1.00	1.30	0.039	0.051
F	0.00	0.10	0.000	0.004
G	0.35	0.50	0.014	0.020
H	0.10	0.20	0.004	0.008
I	0.30	0.60	0.012	0.024
J	5°	10°	5°	10°

**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	14.30(typ)		0.563(typ)	
D	0.43	0.49	0.017	0.019
E	2.19	2.81	0.086	0.111
F	3.30	3.70	0.130	0.146
G	2.42	2.66	0.095	0.105
H	0.37	0.43	0.015	0.017

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