

### SOT-23



#### Pin Definition:

1. Base
2. Emitter
3. Collector

### PRODUCT SUMMARY

$BV_{CEO}$	400V
$BV_{CBO}$	400V
$I_C$	300mA
$V_{CE(SAT)}$	0.1V @ $I_C / I_B = 10mA / 1mA$

### Features

- Low  $V_{CE(SAT)}$  0.15V @  $I_C / I_B = 10mA / 10mA$  (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
TSC4505CX RFG	SOT-23	3Kpcs / 7" Reel

**Note:** "G" denotes Halogen Free Product.

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

Parameter	Symbol	Limit	Unit
Collector-Base Voltage	$V_{CBO}$	400	V
Collector-Emitter Voltage	$V_{CEO}$	400	V
Emitter-Base Voltage	$V_{EBO}$	6	V
Collector Current	$I_C$	300	mA
Collector Power Dissipation	$P_D$	0.225	W
Operating Junction Temperature	$T_J$	+150	$^\circ C$
Operating Junction and Storage Temperature Range	$T_{STG}$	- 55 to +150	$^\circ C$

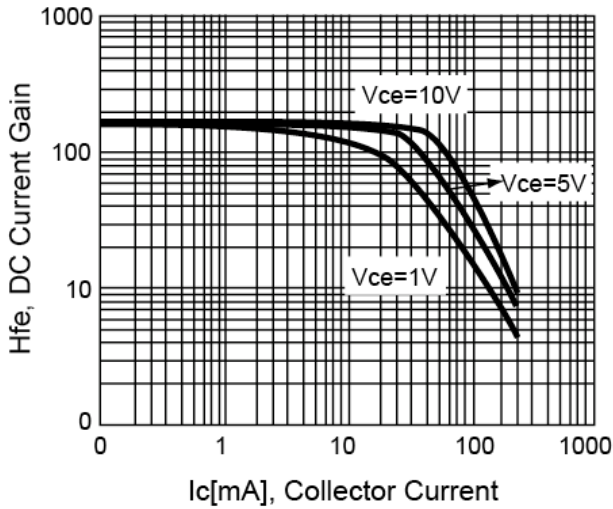
**Note:** Single pulse,  $P_w=20ms$ ,  $Duty \leq 50\%$

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

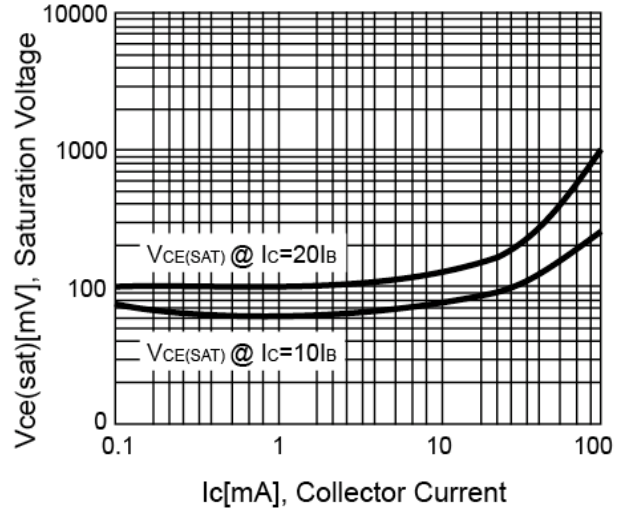
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$I_C = 50\mu A, I_E = 0$	$BV_{CBO}$	400	--	--	V
Collector-Emitter Breakdown Voltage	$I_C = 1mA, I_B = 0$	$BV_{CEO}$	400	--	--	V
Emitter-Base Breakdown Voltage	$I_E = 50\mu A, I_C = 0$	$BV_{EBO}$	6	--	--	V
Collector Cutoff Current	$V_{CB} = 400V, I_E = 0$	$I_{CBO}$	--	--	10	$\mu A$
Collector-Emitter Reverse Current	$V_{CE} = 300V, R_{EB} = 4k\Omega$	$I_{CER}$	--	--	20	nA
Emitter Cutoff Current	$V_{EB} = 6V, I_C = 0$	$I_{EBO}$	--	--	10	$\mu A$
Collector-Emitter Saturation Voltage	$I_C / I_B = 10mA / 1mA$	$V_{CE(SAT)}$	--	0.1	0.5	V
Base-Emitter Saturation Voltage	$I_C / I_B = 10mA / 1mA$	$V_{BE(SAT)}$	--	--	1.5	V
DC Current Transfer Ratio	$V_{CE} = 10V, I_C = 10mA$	$h_{FE}$	100	--	270	
Transition Frequency	$V_{CE} = 10V, I_C = 10mA, f = 10MHz$	$f_T$	--	20	--	MHz
Output Capacitance	$V_{CB} = 10V, I_E = 0, f = 1MHz$	$C_{ob}$	--	7	--	pF

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

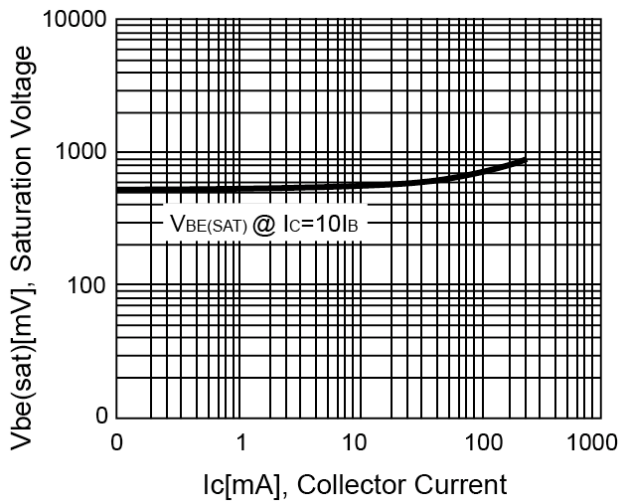
**Figure 1. DC Current Gain**



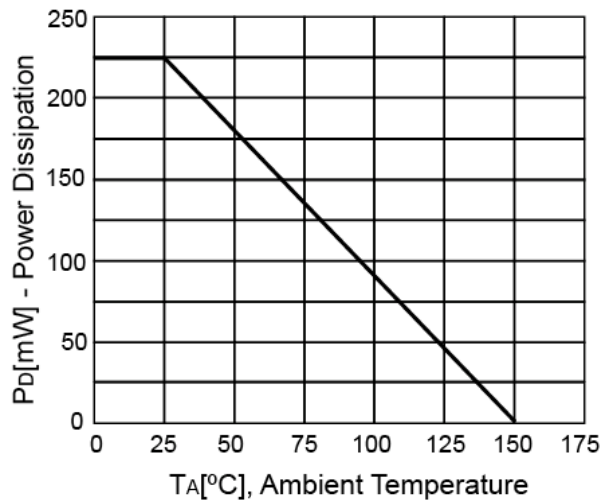
**Figure 2.  $V_{CE(SAT)}$  v.s.  $I_c$**



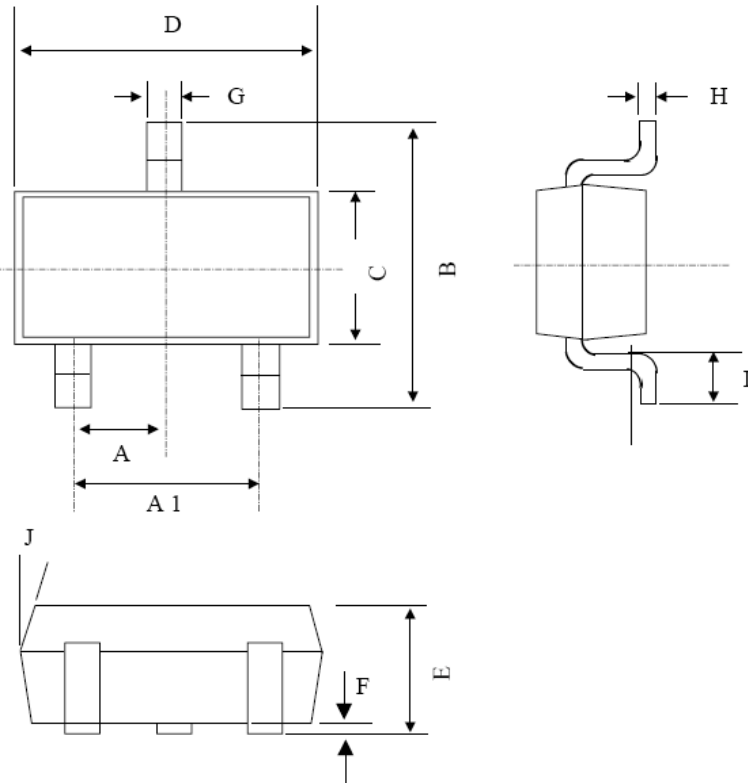
**Figure 3.  $V_{BE(SAT)}$  v.s.  $I_c$**



**Figure 4. Power Derating Curve**



**SOT-23 Mechanical Drawing**



DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX.
A	1.00 BSC		0.039 BSC	
A1	2.00 BSC		0.079 BSC	
B	2.10	2.75	0.083	0.108
C	1.20	1.60	0.047	0.063
D	2.80	3.04	0.110	0.120
E	0.89	1.30	0.035	0.051
F	0.01	0.10	0.000	0.004
G	0.30	0.50	0.012	0.020
H	0.08	0.18	0.003	0.007
I	0.30	0.60	0.012	0.024

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