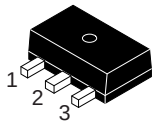
RF Transistor

30 V, 300 mA, f_T = 3.5 GHz, NPN Single PCP

2SC5551A



1: Base
2: Collector
3: Emitter

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Features

- High f_T: (f_T = 3.5 GHz Typ)
- Large Current: (I_C = 300 mA)
- Large Allowable Collector Dissipation (1.3 W Max)
- These are Pb−Free Devices

Product & Package Information

- Package: PCP
- JEITA, JEDEC: SC−62, SOT−89, TO−243
- Minimum Packing Quantity: 1,000 Pcs./Reel

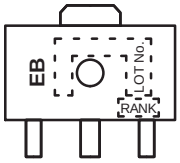
Specifications

ABSOLUTE MAXIMUM RATINGS (at Ta = 25°C)

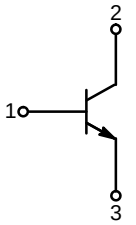
Parameter	Symbol	Conditions	Ratings	Unit
Collector−to−Base Voltage	V_{CBO}		40	V
Collector−to−Emitter Voltage	V_{CEO}		30	V
Emitter−to−Base Voltage	V_{EBO}		2	V
Collector Current	I_C		300	mA
Collector Current (Pulse)	I_{CP}		600	mA
Collector Dissipation	P_C	When mounted on ceramic substrate (250 mm^2 x 0.8 mm)	1.3	W
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

MARKING DIAGRAM



ELECTRICAL CONNECTION



ORDERING INFORMATION

Device	Package	Shipping†
2SC5551AE−TD−E	PCP (Pb−Free)	1,000 / Tape & Reel
2SC5551AF−TD−E	PCP (Pb−Free)	1,000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

ELECTRICAL CHARACTERISTICS (at Ta = 25°C)

Parameter	Symbol	Conditions	Ratings			Unit
			Min	Typ	Max	
Collector Cutoff Current	I_{CBO}	V_{CB} = 20 V, I_E = 0 A	−	−	1.0	μA
Emitter Cutoff Current	I_{EBO}	V_{EB} = 1 V, I_C = 0 A	−	−	5.0	μA
DC Current Gain	$h_{FE}1$	V_{CE} = 5 V, I_C = 50 mA	90	−	270	
	$h_{FE}2$	V_{CE} = 5 V, I_C = 300 mA	20	−	−	
Gain−Bandwidth Product	f_T	V_{CE} = 5 V, I_C = 50 mA	−	3.5	−	GHz
Output Capacitance	Cob	V_{CB} = 10 V, f = 1 MHz	−	2.9	4.0	pF
Reverse Transfer Capacitance	Cre		−	1.5		pF
Collector−to−Emitter Saturation Voltage	V_{CE}(sat)	I_C = 50 mA, I_B = 5 mA	−	0.07	0.3	V
Base−to−Emitter Saturation Voltage	V_{BE}(sat)	I_C = 50 mA, I_B = 5 mA	−	0.8	1.2	V

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
*The 2SC5551A is classified by 50 mA h_{FE} as follows :

Table 1.

Rank	E	F
h_{FE}	90 to 180	135 to 270

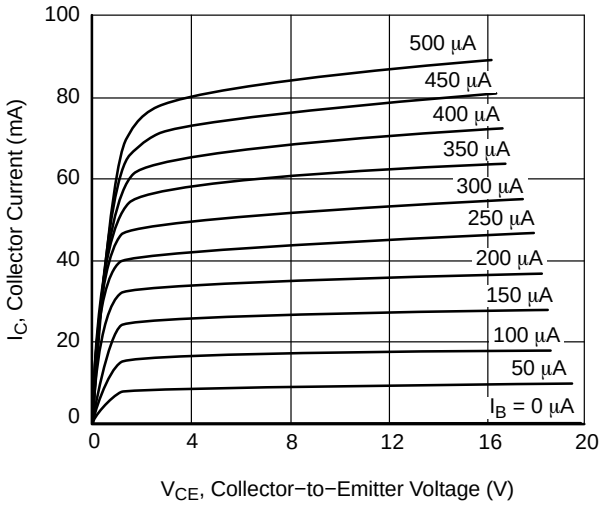


Figure 1. I_C − V_{CE}

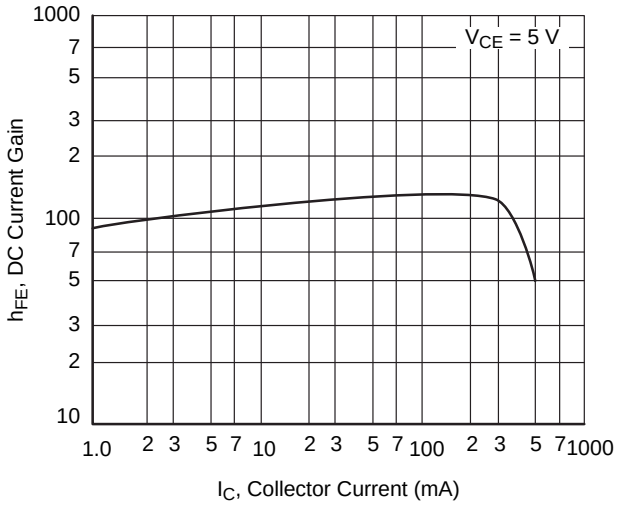


Figure 2. h_{FE}− I_C

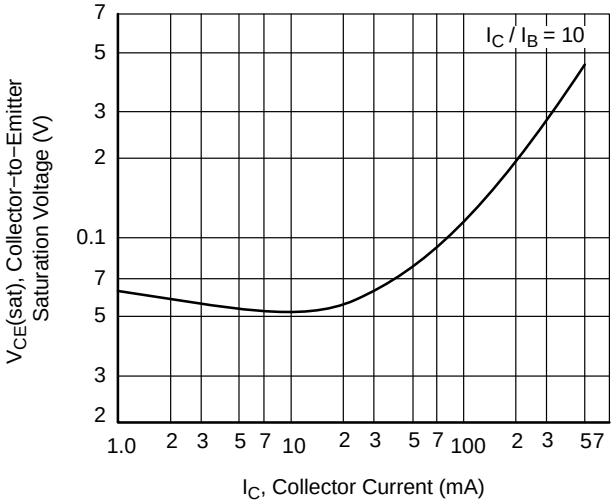


Figure 3. V_{CE}(sat) − I_C

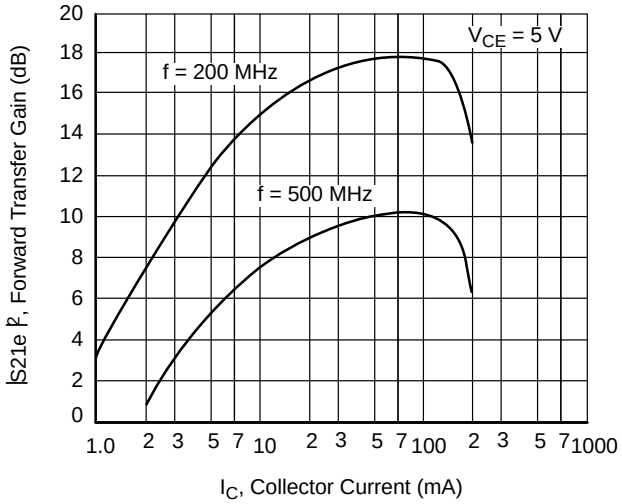


Figure 4. |S21e|² − I_C

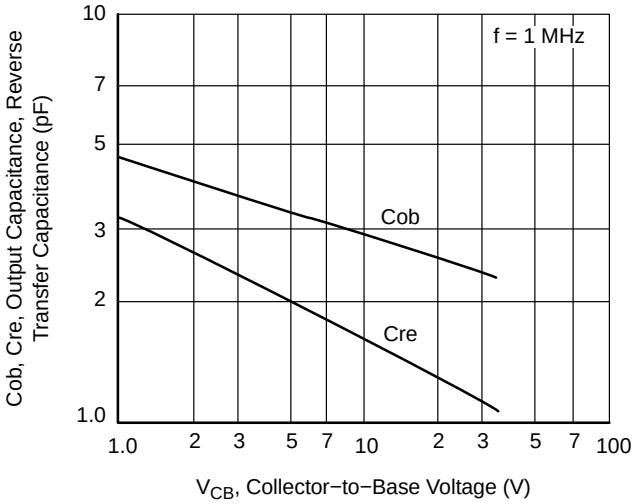


Figure 5. Cob, Cre − V_{CB}

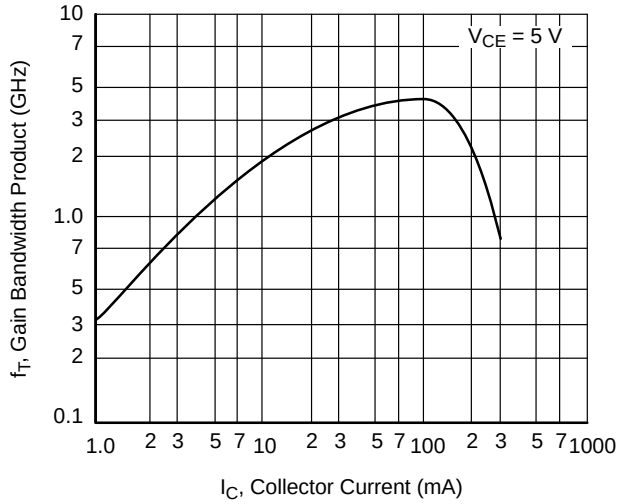


Figure 6. f_T − I_C

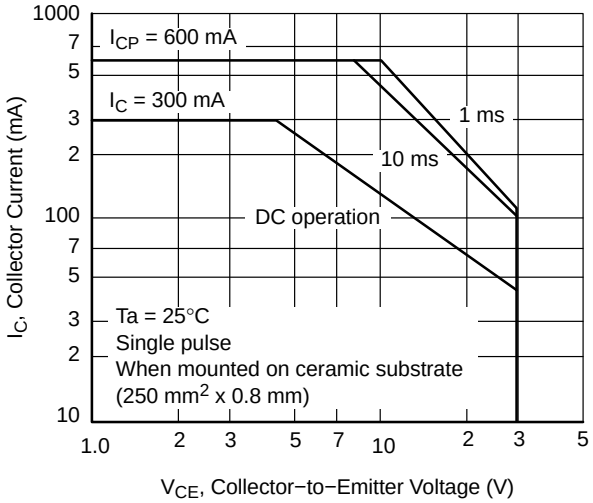


Figure 7. ASO

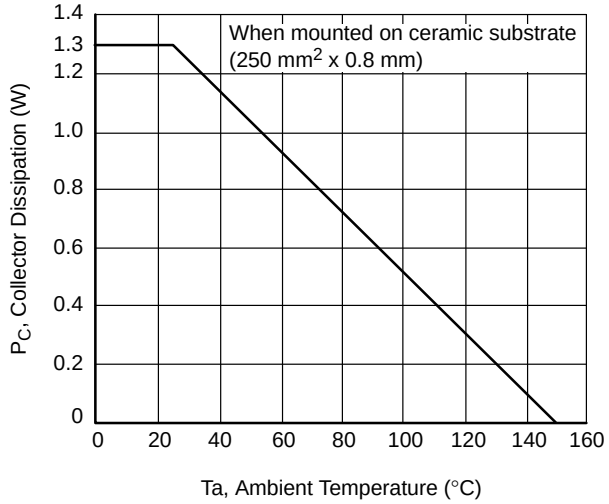


Figure 8. P_C − Ta

Land Pattern Example

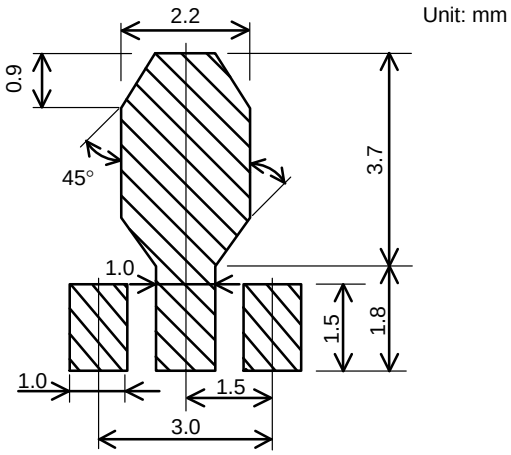


Figure 9. Land Pattern Example

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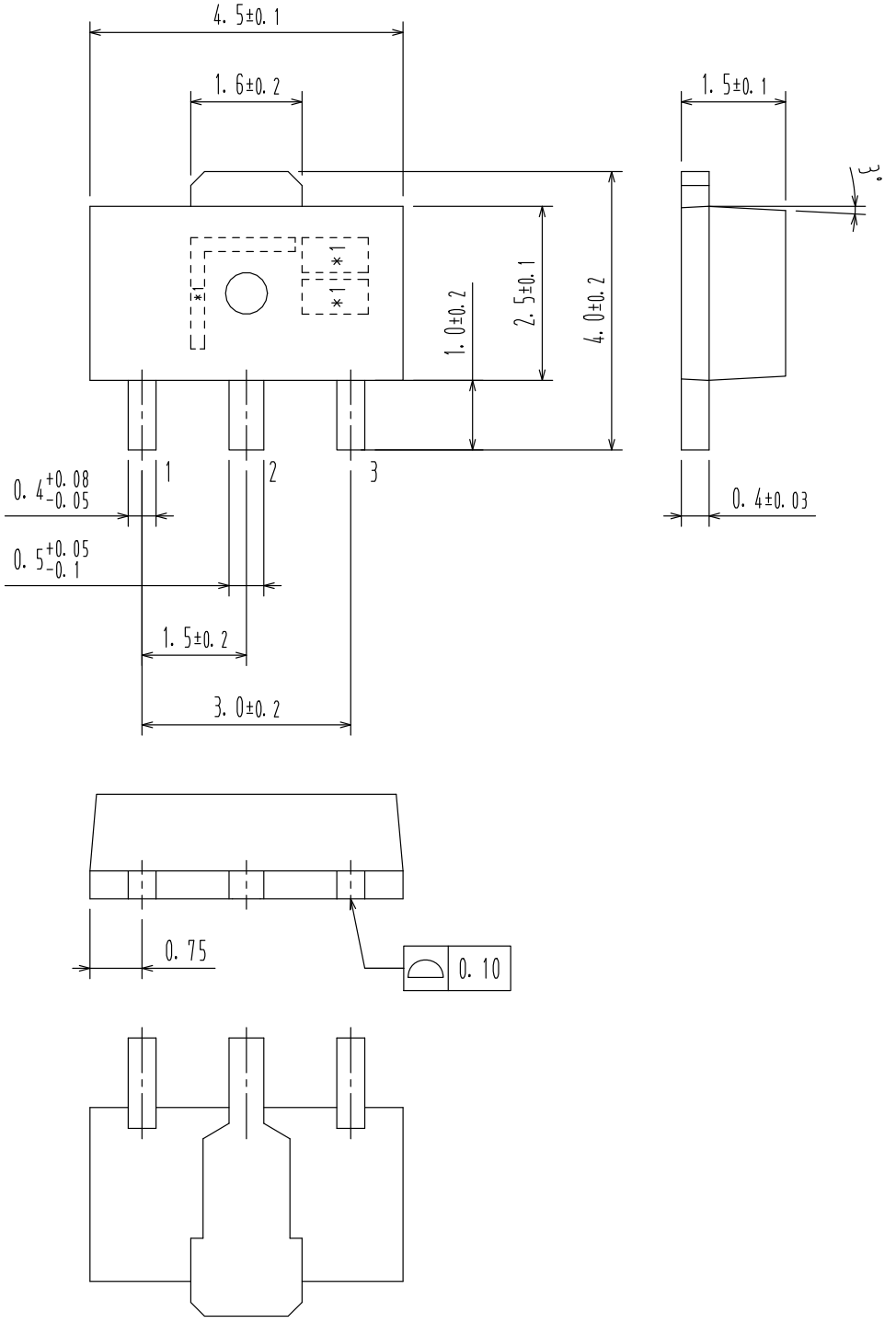

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