

**FOR GENERAL PURPOSE HIGH CURRENT DRIVE APPLICATION  
SILICON NPN EPITAXIAL TYPE**

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**DESCRIPTION**

2SC3581 is a silicon NPN epitaxial type transistor designed for high collector current application.

Complementary with 2SA1399.

**FEATURE**

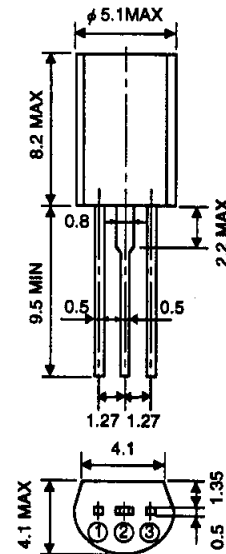
- High collector current  $I_{CM}=600\text{mA}$
- High gain band width product  $f_T=150\text{MHz}$  typ
- High  $V_{CEO}$   $V_{CEO}=50\text{V}$
- Excellent linearity of DC forward current gain

**APPLICATION**

For switching, small type motor drive, application.

**OUTLINE DRAWING**

Unit:mm



**TERMINAL CONNECTOR**

- ① : EMITTER
  - ② : COLLECTOR
  - ③ : BASE
- EIAJ : —  
JEDEC : —

Note)  
The dimension without tolerance represent central value.

**MAXIMUM RATINGS (Ta=25°C)**

Symbol	Parameter	Rating	Unit
V <sub>CEO</sub>	Collector to Base voltage	55	V
V <sub>EB0</sub>	Emitter to Base voltage	4	V
V <sub>CE0</sub>	Collector to Emitter voltage	50	V
I <sub>CM</sub>	Peak collector current	600	mA
I <sub>C</sub>	Collector current	400	mA
P <sub>C</sub>	Collector dissipation(Ta=25°C)	900	mW
T <sub>J</sub>	Junction temperature	+150	°C
T <sub>stg</sub>	Storage temperature	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS (Ta=25°C)**

Symbol	Parameter	Test conditions	Limits			Unit
			Min	Typ	Max	
V <sub>(BR)CBO</sub>	C to B break down voltage	I <sub>C</sub> =10 μA, I <sub>E</sub> =0	55			V
V <sub>(BR)EBO</sub>	E to B break down voltage	I <sub>E</sub> =10 μA, I <sub>C</sub> =0	4			V
V <sub>(BR)CEO</sub>	C to E break down voltage	I <sub>C</sub> =100 μA, R <sub>BE</sub> =∞	50			V
I <sub>CBO</sub>	Collector cut off current	V <sub>CB</sub> =25V, I <sub>E</sub> =0			1	μA
I <sub>EBO</sub>	Emitter cut off current	V <sub>EB</sub> =2V, I <sub>C</sub> =0			1	μA
h <sub>FE</sub> *	DC forward current gain	V <sub>CE</sub> =4V, I <sub>C</sub> =100mA	90		500	—
V <sub>CE(sat)</sub>	C to E saturation voltage	I <sub>C</sub> =200mA, I <sub>B</sub> =10mA		0.15	0.5	V
f <sub>T</sub>	Gain band width product	V <sub>CE</sub> =6V, I <sub>E</sub> =-10mA		150		MHz

\* : It shows h<sub>FE</sub> classification in right table.

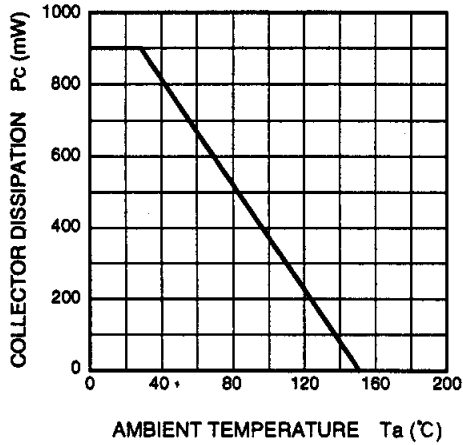
Item	D	E	F
h <sub>FE</sub>	90 to 180	150 to 300	250 to 500

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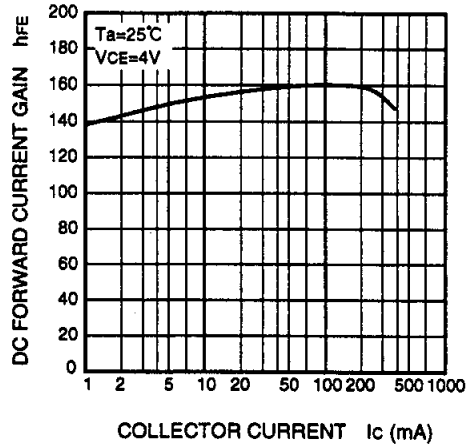
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TYPICAL CHARACTERISTICS

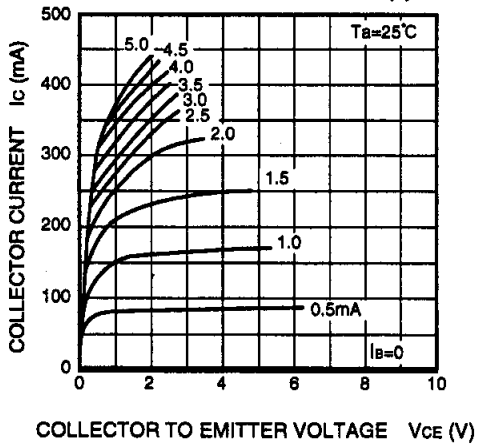
COLLECTOR DISSIPATION VS.  
AMBIENT TEMPERATURE



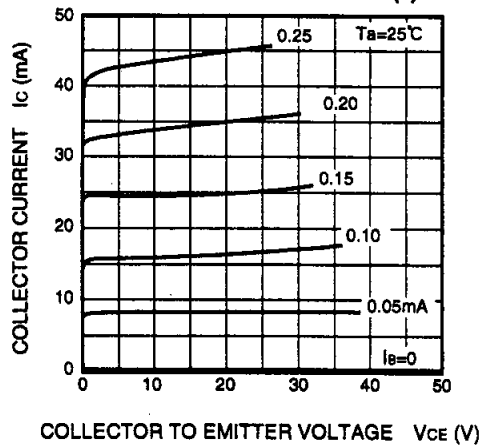
DC FORWARD CURRENT GAIN VS.  
COLLECTOR CURRENT



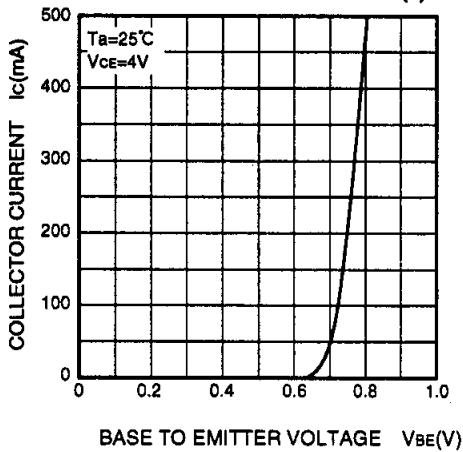
COMMON EMITTER OUTPUT (1)



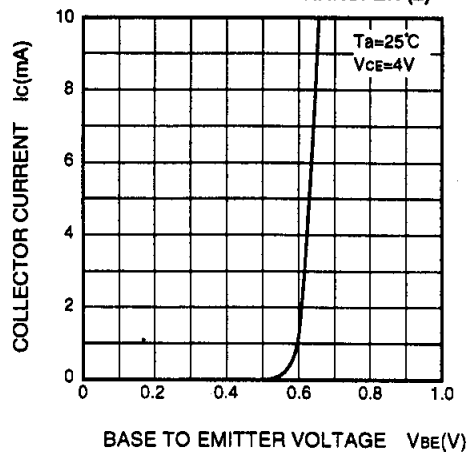
COMMON EMITTER OUTPUT (2)



COMMON EMITTER TRANSFER (1)



COMMON EMITTER TRANSFER (2)



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