

# For Muting (20V, 0.3A)

## 2SD2704K / 2SD2705S

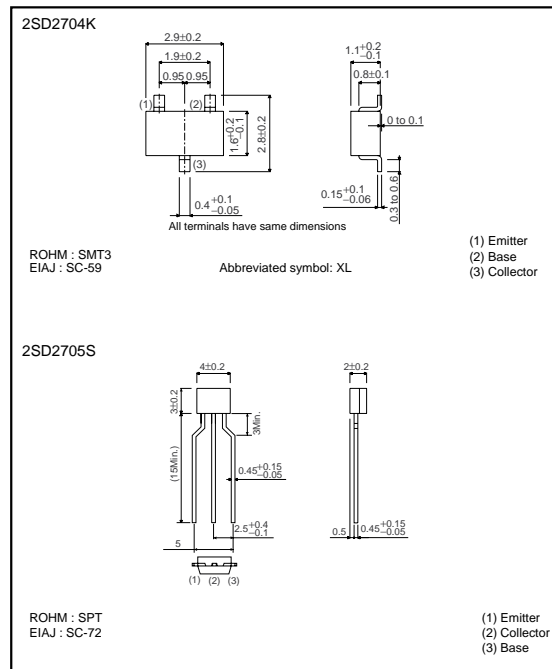
**●Features**

- 1) High DC current gain.  
h<sub>FE</sub> = 820 to 2700
- 2) High emitter-base voltage.  
V<sub>EB0</sub> = 25V (Min.)
- 3) Low Ron  
Ron = 0.7Ω (Typ.)

**●Structure**

Epitaxial planar type  
NPN silicon transistor

**●External dimensions (Unit : mm)**



\* Denotes h<sub>FE</sub>

**●Absolute maximum ratings (Ta=25°C)**

Parameter	Symbol	Limits	Unit
Collector-base voltage	V <sub>CB0</sub>	50	V
Collector-emitter voltage	V <sub>CE0</sub>	20	V
Emitter-base voltage	V <sub>EB0</sub>	25	V
Collector current	I <sub>C</sub>	0.3	A
Collector power dissipation	2SD2704K	0.2	W
	2SD2705S	0.3	
Junction temperature	T <sub>J</sub>	150	°C
Storage temperature	T <sub>stg</sub>	-55 to +150	°C

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV <sub>CB0</sub>	50	–	–	V	I <sub>C</sub> =10μA
Collector-emitter breakdown voltage	BV <sub>CEO</sub>	20	–	–	V	I <sub>C</sub> =1mA
Emitter-base breakdown voltage	BV <sub>EB0</sub>	25	–	–	V	I <sub>E</sub> =10μA
Collector cutoff current	I <sub>CB0</sub>	–	–	0.1	μA	V <sub>CB</sub> =50V
Emitter cutoff current	I <sub>EBO</sub>	–	–	0.1	μA	V <sub>EB</sub> =25V
Collector-emitter saturation voltage	V <sub>CE(sat)</sub>	–	50	100	mV	I <sub>C</sub> /I <sub>B</sub> =30mA/3mA
DC current transfer ratio	h <sub>FE</sub>	820	–	2700	–	V <sub>CE</sub> =2V, I <sub>C</sub> =4mA
Transition frequency	f <sub>T</sub> *	–	35	–	MHz	V <sub>CE</sub> =6V, I <sub>E</sub> =–4mA, f=10MHz
Output capacitance	C <sub>ob</sub>	–	3.9	–	pF	V <sub>CB</sub> =10V, I <sub>E</sub> =0A, f=1MHz
Output On-resistance	R <sub>on</sub>	–	0.7	–	Ω	I <sub>B</sub> =5mA, V <sub>I</sub> =100mV(rms), f=1kHz

\* Measured using pulse current

●Packaging specifications and hFE

Type	Package	Taping	
	Code	T146	TP
	Basic ordering unit (pieces)	3000	5000
2SD2704K		○	–
2SD2705S		–	○

●Electrical characteristic curves

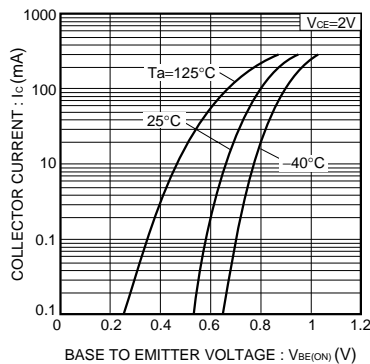


Fig.1 Grounded emitter propagation characteristics ( I )

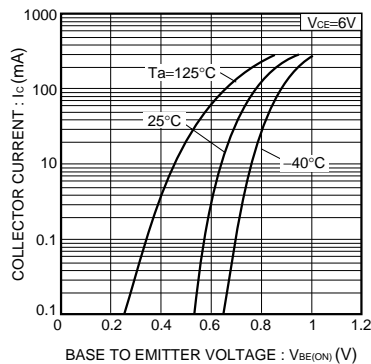


Fig.2 Grounded emitter propagation characteristics ( II )

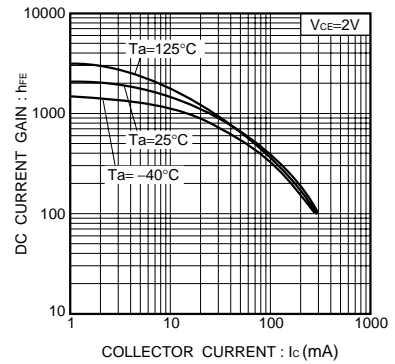


Fig.3 DC current gain vs. collector current ( I )

Transistors

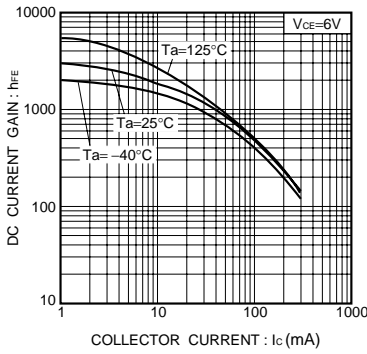


Fig.4 DC current gain vs. collector current (II)

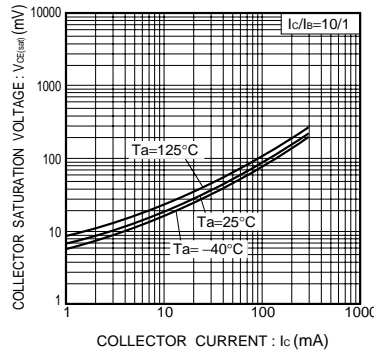


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

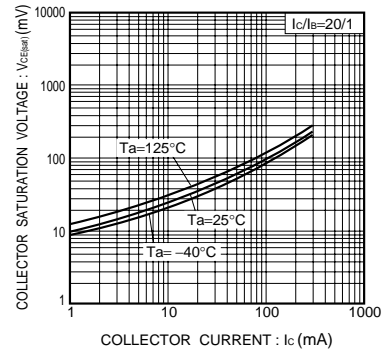


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

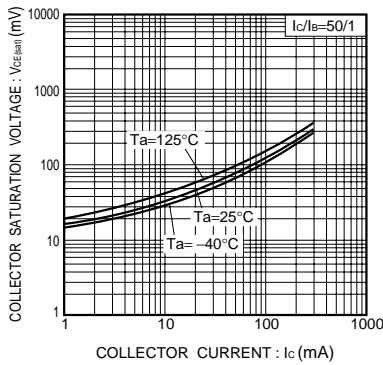


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

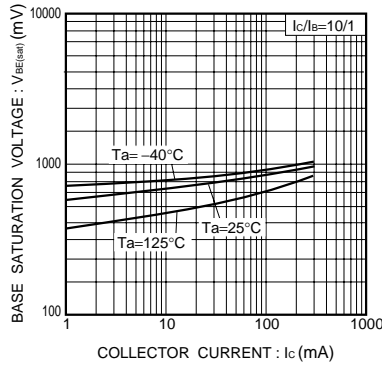


Fig.8 Base-emitter saturation voltage vs. collector current (I)

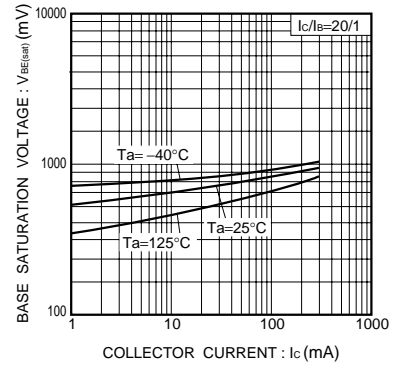


Fig.9 Base-emitter saturation voltage vs. collector current (II)

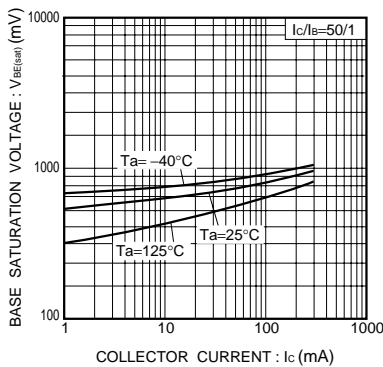


Fig.10 Base-emitter saturation voltage vs. collector current (III)

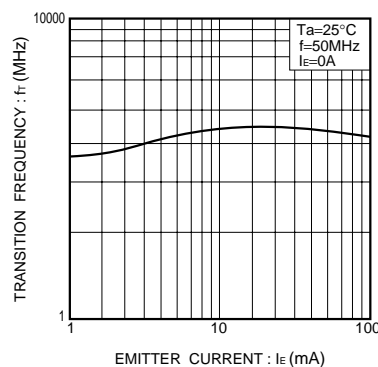


Fig.11 Gain bandwidth product vs. emitter current

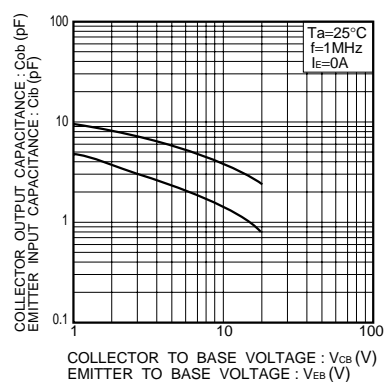


Fig.12 Collector output capacitance vs. collector-base voltage  
Emitter input capacitance vs. emitter-base voltage

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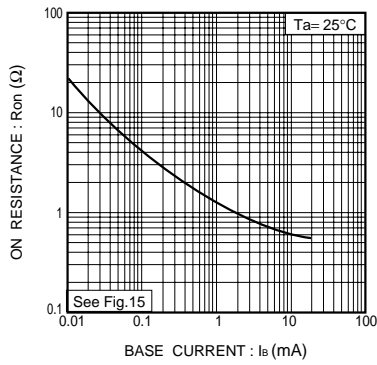


Fig.13 Output-on resistance vs. base current ( I )

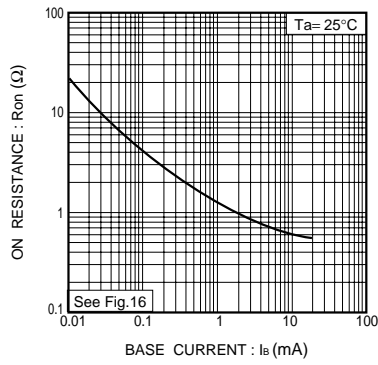


Fig.14 Output-on resistance vs. base current ( II )

●Ron measurement circuit

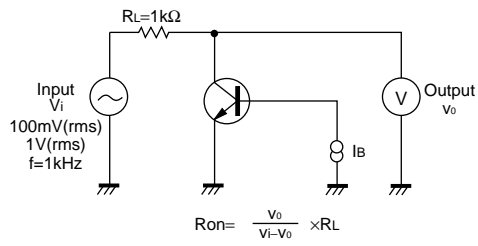


Fig.15 Ron measurement circuit ( I )

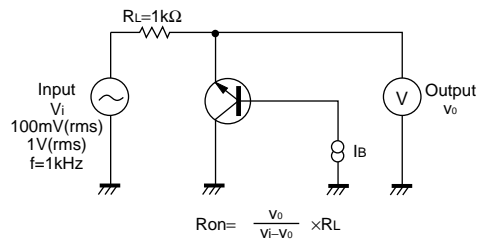


Fig.16 Ron measurement circuit ( II )

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