

For Muting (20V, 0.3A)

2SD2704K / 2SD2705S

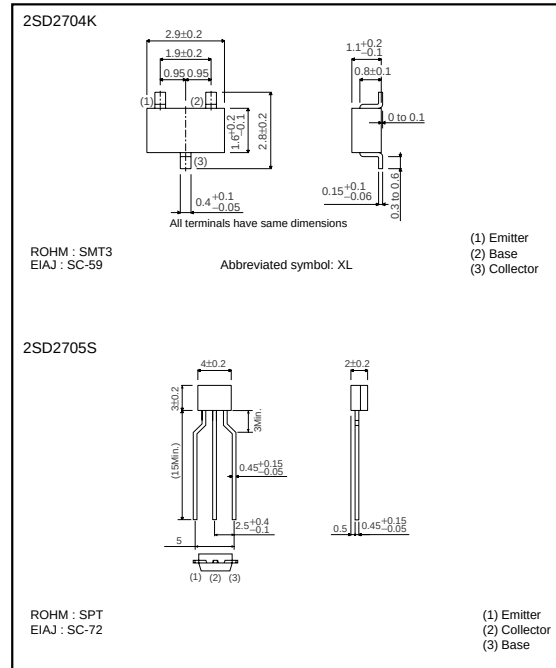
●Features

- 1) High DC current gain.
 $h_{FE} = 820$ to 2700
- 2) High emitter-base voltage.
 $V_{EBO} = 25V$ (Min.)
- 3) Low R_{on}
 $R_{on} = 0.7\Omega$ (Typ.)

●Structure

Epitaxial planar type
NPN silicon transistor

●External dimensions (Unit : mm)

* Denotes h_{FE} ●Absolute maximum ratings ($T_a=25^\circ\text{C}$)

Parameter	Symbol	Limits	Unit
Collector-base voltage	V_{CBO}	50	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	25	V
Collector current	I_C	0.3	A
Collector power dissipation	2SD2704K	0.2	W
	2SD2705S	0.3	
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Transistors

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	—	—	V	$I_C=10\mu A$
Collector-emitter breakdown voltage	BV_{CEO}	20	—	—	V	$I_C=1mA$
Emitter-base breakdown voltage	BV_{EBO}	25	—	—	V	$I_E=10\mu A$
Collector cutoff current	I_{CBO}	—	—	0.1	μA	$V_{CB}=50V$
Emitter cutoff current	I_{EBO}	—	—	0.1	μA	$V_{EB}=25V$
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	50	100	mV	$I_C/I_B=30mA/3mA$
DC current transfer ratio	h_{FE}	820	—	2700	—	$V_{CE}=2V, I_C=4mA$
Transition frequency	f_T^*	—	35	—	MHz	$V_{CE}=6V, I_E=-4mA, f=10MHz$
Output capacitance	C_{ob}	—	3.9	—	pF	$V_{CB}=10V, I_E=0A, f=1MHz$
Output On-resistance	R_{on}	—	0.7	—	Ω	$I_B=5mA, V_i=100mV(rms), f=1kHz$

* 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

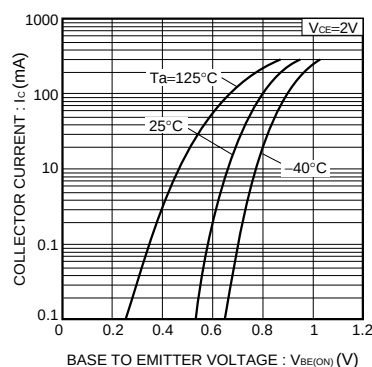


Fig.1 Grounded emitter propagation characteristics (I)

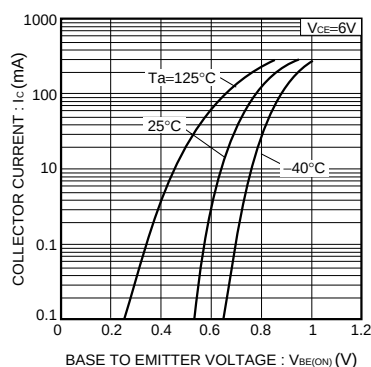


Fig.2 Grounded emitter propagation characteristics (II)

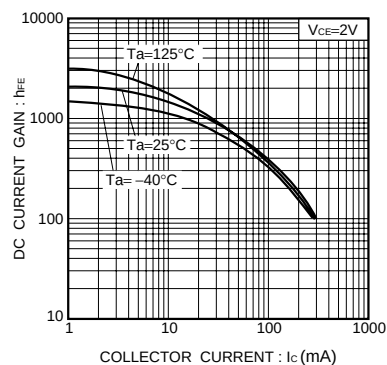


Fig.3 DC current gain vs. collector current (I)

Transistors

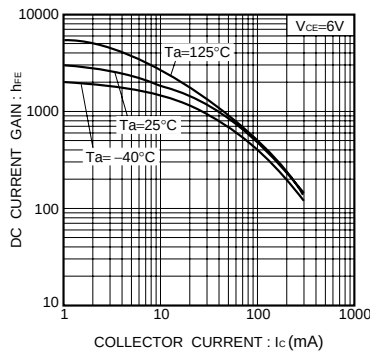


Fig.4 DC current gain vs. collector current (II)

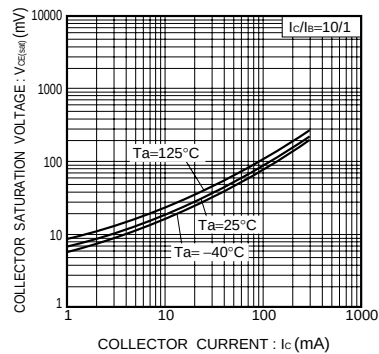


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

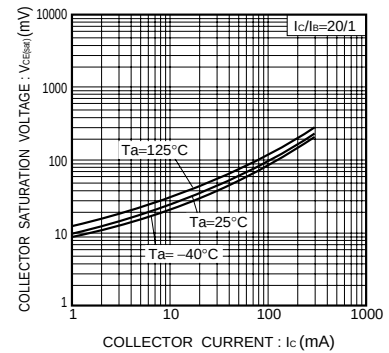


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

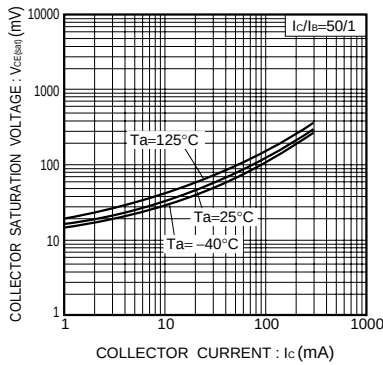


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

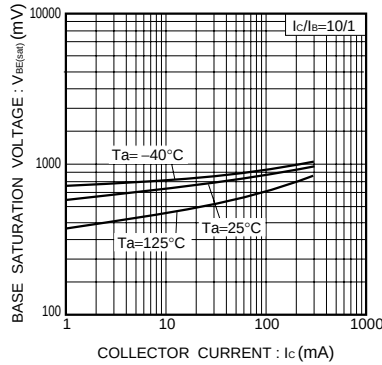


Fig.8 Base-emitter saturation voltage vs. collector current (I)

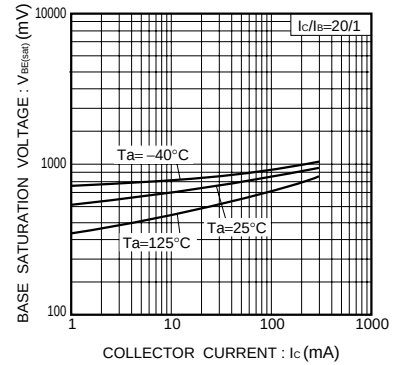


Fig.9 Base-emitter saturation voltage vs. collector current (II)

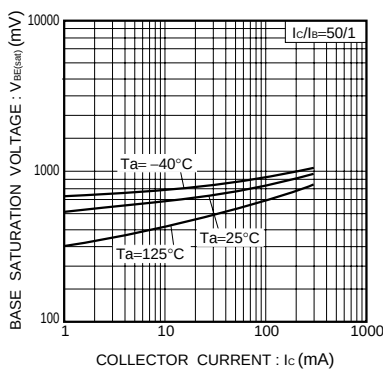


Fig.10 Base-emitter saturation voltage vs. collector current (III)

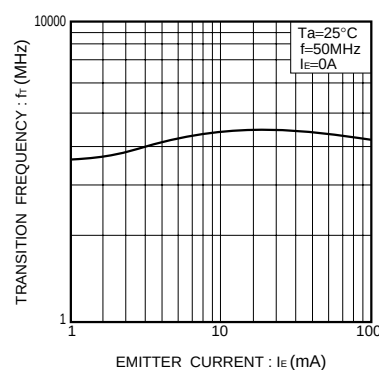
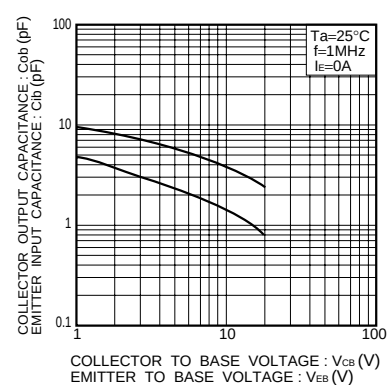


Fig.11 Gain bandwidth product vs. emitter current

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

Transistors

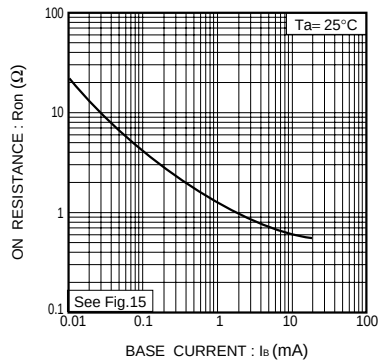


Fig.13 Output-on resistance vs. base current (I)

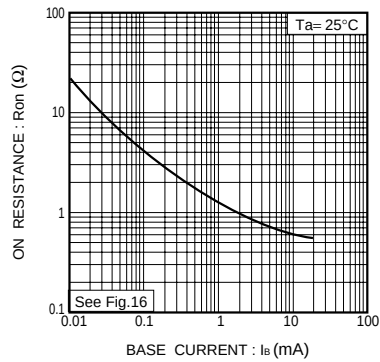
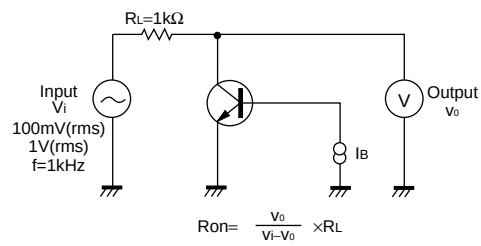
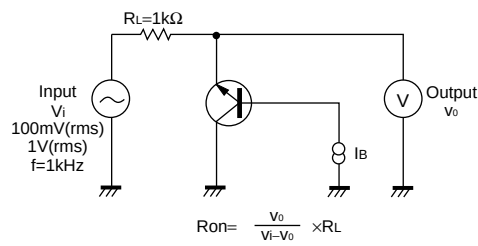


Fig.14 Output-on resistance vs. base current (II)

● R_{on} measurement circuitFig.15 R_{on} measurement circuit (I)Fig.16 R_{on} measurement circuit (II)

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