ROHM SEMICONDUCTOR

Data Sheet

For Muting (20V, 0.3A)

2SD2704K / 2SD2705S

●Features

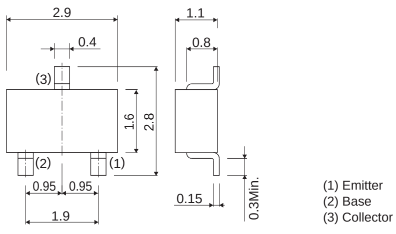
1) High DC current gain.
   h_{FE} = 820 to 2700
2) High emitter-base voltage.
   V_{EBO} = 25V (Min.)
3) Low Ron
   Ron= 0.7Ω (Typ.)

●Structure

Epitaxial planar type
NPN silicon transistor

●Dimensions (Unit : mm)

2SD2704K

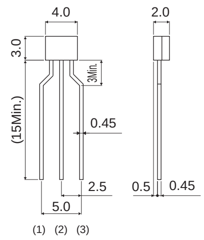


ROHM : SMT3
EIAJ : SC-59

Each lead has same dimensions

Abbreviated symbol : XL

2SD2705S



ROHM : SPT
EIAJ : SC-72

(1) Emitter
(2) Collector
(3) Base

●Packaging specifications

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

●Absolute maximum ratings (Ta=25°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	P_C	0.2	W
	2SD2705S		0.3	
Junction temperature		Tj	150	°C
Storage temperature		Tstg	–55 to +150	°C

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Collector-base breakdown voltage	BV_{CBO}	50	–	–	V	I_C=10µA
Collector-emitter breakdown voltage	BV_{CEO}	20	–	–	V	I_C=1mA
Emitter-base breakdown voltage	BV_{EBO}	25	–	–	V	I_E=10µA
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	Cob	–	3.9	–	pF	V_{CB}=10V, I_E=0A, f=1MHz
Output On-resistance	Ron	–	0.7	–	Ω	I_B=5mA, Vi=100mV(rms), f=1kHz

* Measured using pulse current

●Electrical characteristic curves

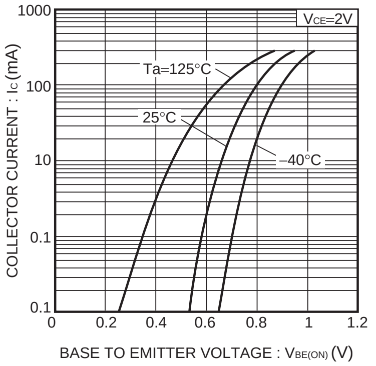


Fig.1 Grounded emitter propagation characteristics (I)

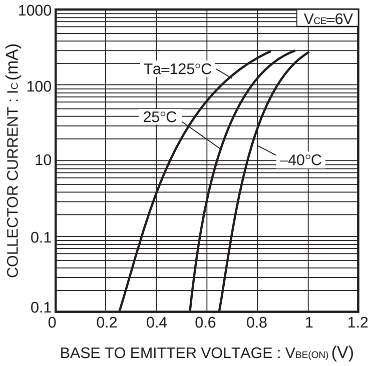


Fig.2 Grounded emitter propagation characteristics (II)

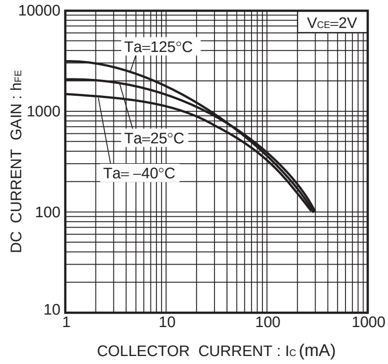


Fig.3 DC current gain vs. collector current (I)

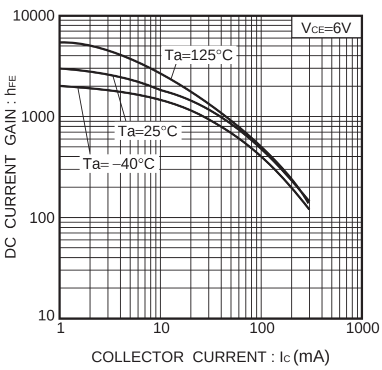


Fig.4 DC current gain vs. collector current (II)

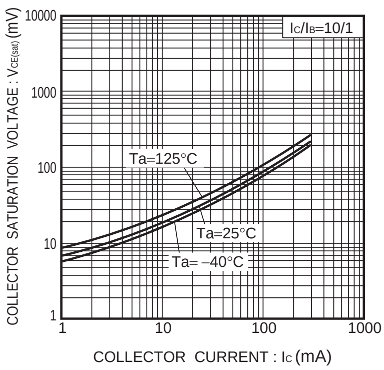


Fig.5 Collector-emitter saturation voltage vs. collector current (I)

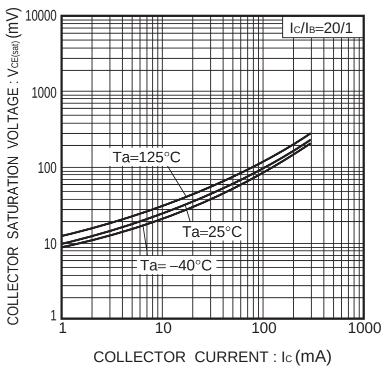


Fig.6 Collector-emitter saturation voltage vs. collector current (II)

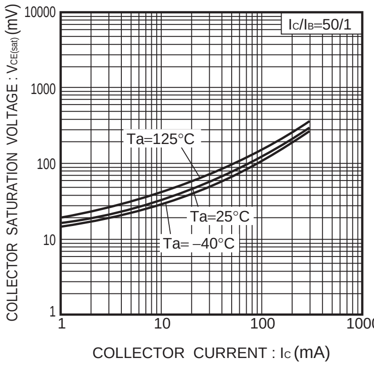


Fig.7 Collector-emitter saturation voltage vs. collector current (III)

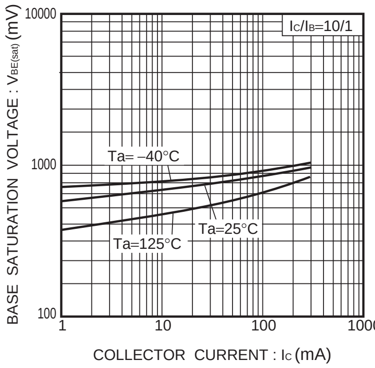


Fig.8 Base-emitter saturation voltage vs. collector current (I)

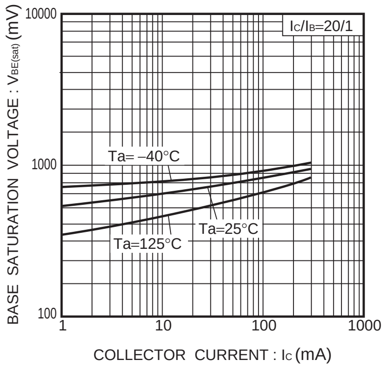


Fig.9 Base-emitter saturation voltage vs. collector current (II)

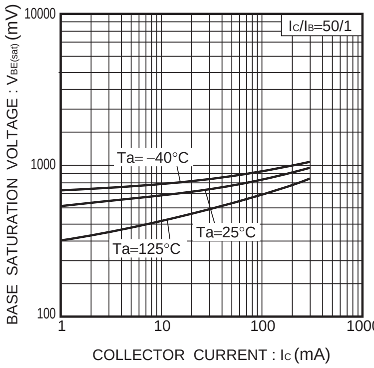


Fig.10 Base-emitter saturation voltage vs. collector current (III)

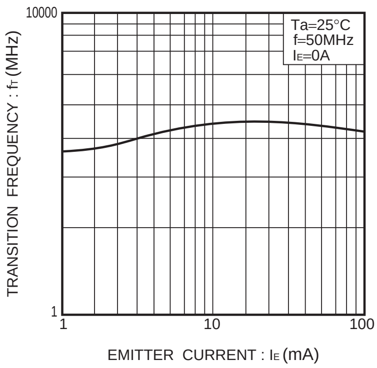


Fig.11 Gain bandwidth product vs. emitter current

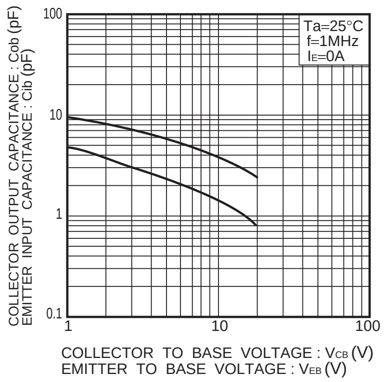


Fig.12 Collector output capacitance vs. collector-base voltage
Emitter input capacitance vs. emitter-base voltage

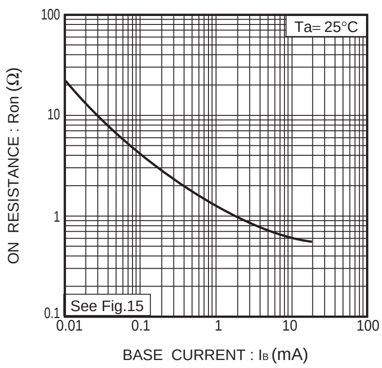


Fig.13 Output-on resistance vs. base current (I)

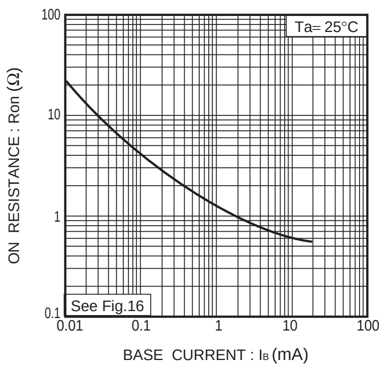


Fig.14 Output-on resistance vs. base current (II)

●Ron measurement circuit

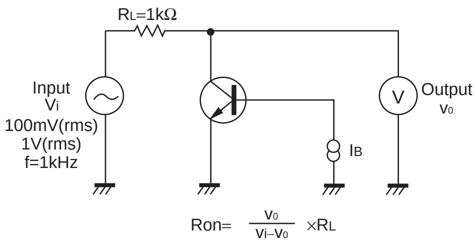


Fig.15 Ron measurement circuit (I)

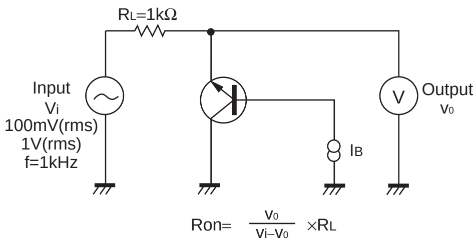


Fig.16 Ron measurement circuit (II)

This product might cause chip aging and breakdown under the large electrified environment.
Please consider to design ESD protection circuit.

Notes

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