
2SC535

Silicon NPN Epitaxial Planar

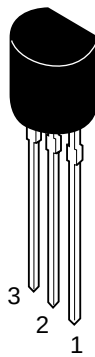
HITACHI

Application

VHF amplifier, mixer, local oscillator

Outline

TO-92 (2)



- 1. Emitter
- 2. Collector
- 3. Base

2SC535

Absolute Maximum Ratings (Ta = 25°C)

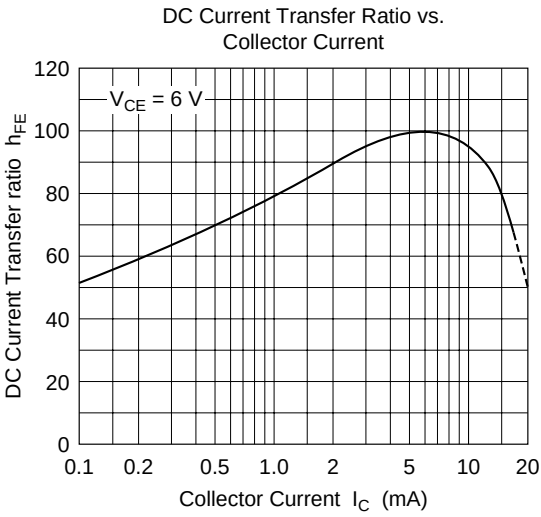
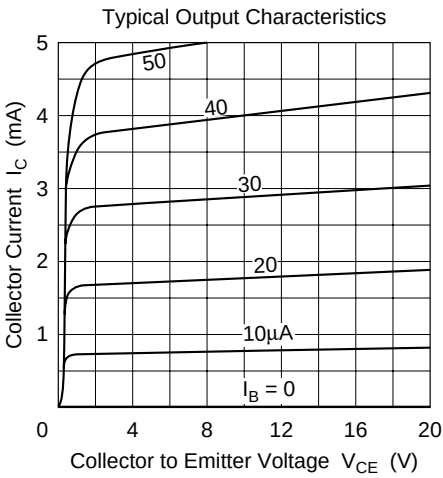
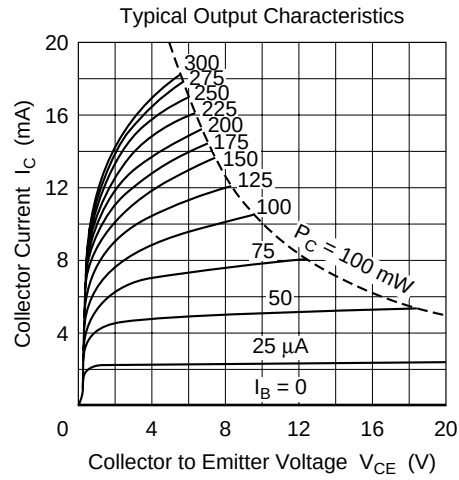
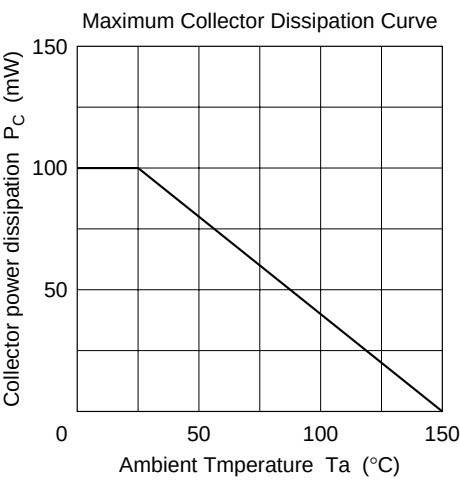
Item	Symbol	Ratings	Unit
Collector to base voltage	V _{CBO}	30	V
Collector to emitter voltage	V _{CEO}	20	V
Emitter to base voltage	V _{EBO}	4	V
Collector current	I _C	20	mA
Collector power dissipation	P _C	100	mW
Junction temperature	T _j	150	°C
Storage temperature	T _{stg}	−55 to +150	°C

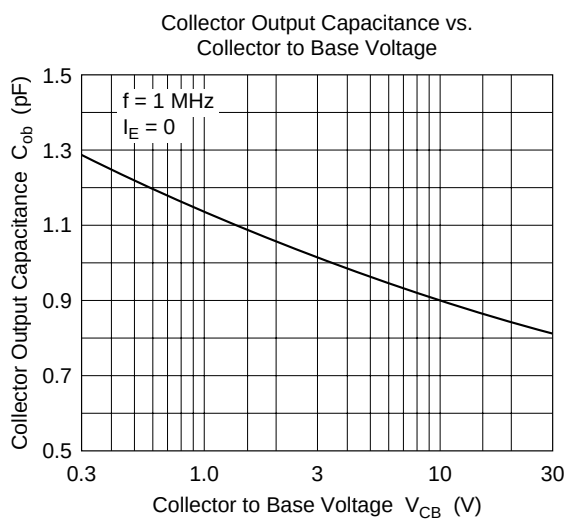
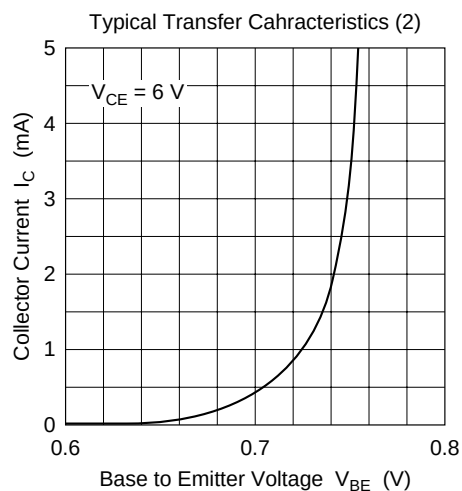
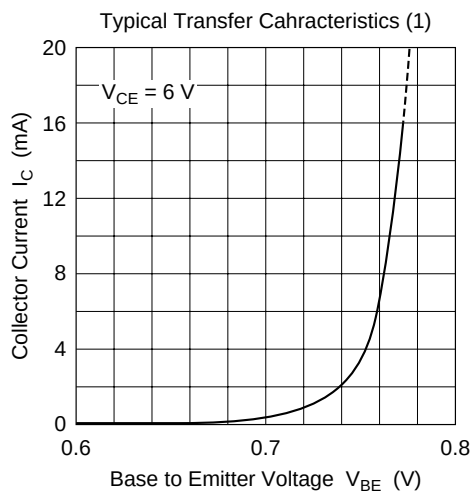
Electrical Characteristics ($T_a = 25^\circ\text{C}$)

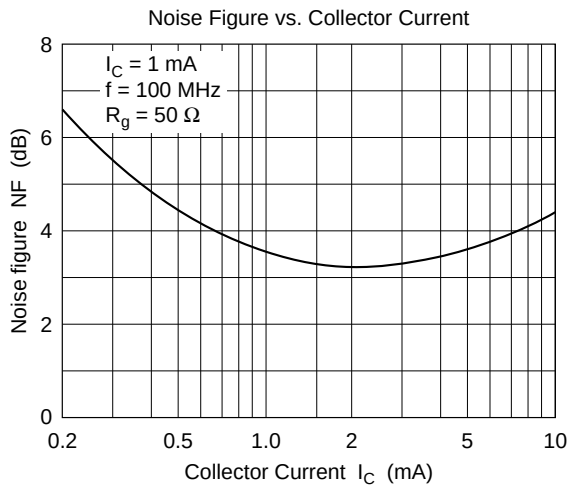
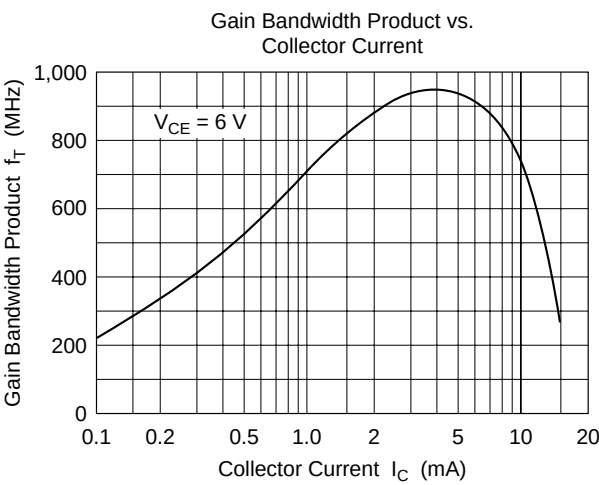
Item	Symbol	Min	Typ	Max	Unit	Test conditions
Collector to base breakdown voltage	$V_{(BR)CBO}$	30	—	—	V	$I_C = 10\ \mu\text{A}$, $I_E = 0$
Collector to emitter breakdown voltage	$V_{(BR)CEO}$	20	—	—	V	$I_C = 1\ \text{mA}$, $R_{BE} = \infty$
Emitter to base breakdown voltage	$V_{(BR)EBO}$	4	—	—	V	$I_E = 10\ \mu\text{A}$, $I_C = 0$
Collector cutoff current	I_{CBO}	—	—	0.5	μA	$V_{CB} = 10\ \text{V}$, $I_E = 0$
DC current transfer ratio	h_{FE}^{*1}	60	—	200		$V_{CE} = 6\ \text{V}$, $I_C = 1\ \text{mA}$
Base to emitter voltage	V_{BE}	—	0.72	—	V	$V_{CE} = 6\ \text{V}$, $I_C = 1\ \text{mA}$
Collector to emitter saturation voltage	$V_{CE(sat)}$	—	0.17	—	V	$I_C = 20\ \text{mA}$, $I_B = 4\ \text{mA}$
Gain bandwidth product	f_T	450	940	—	MHz	$V_{CE} = 6\ \text{V}$, $I_C = 5\ \text{mA}$
Collector output capacitance	C_{ob}	—	0.9	1.2	pF	$V_{CB} = 10\ \text{V}$, $I_E = 0$, $f = 1\ \text{MHz}$
Power gain	PG	17	20	—	dB	$V_{CE} = 6\ \text{V}$, $I_C = 1\ \text{mA}$, $f = 100\ \text{MHz}$
Noise figure	NF	—	3.5	5.5	dB	$V_{CE} = 6\ \text{V}$, $I_C = 1\ \text{mA}$, $f = 100\ \text{MHz}$, $R_g = 50\ \Omega$
Input admittance (typ)	yie	1.3 + j5.3			mS	$V_{CE} = 6\ \text{V}$, $I_C = 1\ \text{mA}$, $f = 100\ \text{MHz}$
Reverse transfer admittance (typ)	yre	−0.078 − j0.41			mS	
Foward transfer admittance (typ)	yfe	32 − j10			mS	
Output admittance (typ)	yoe	0.08 + j0.82			mS	

Note: 1. The 2SC535 is grouped by h_{FE} as follows.

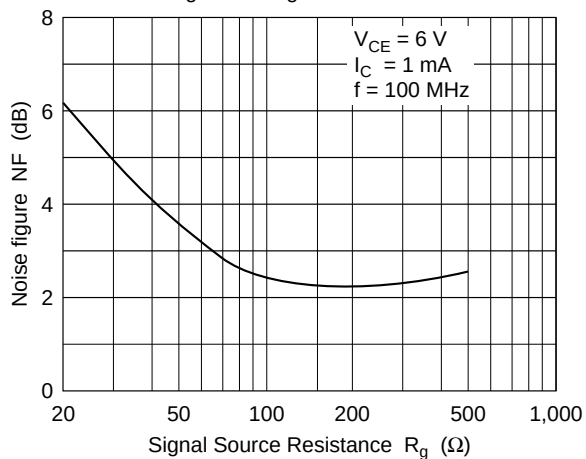
B	C
60 to 120	100 to 200



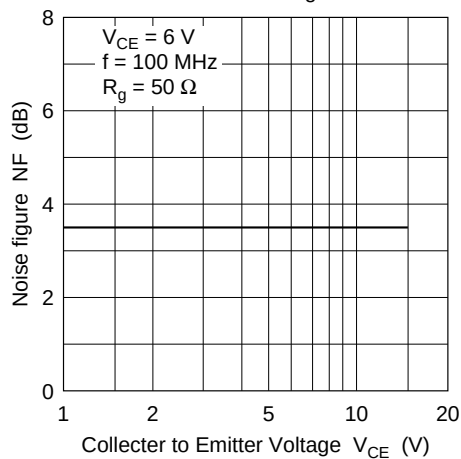




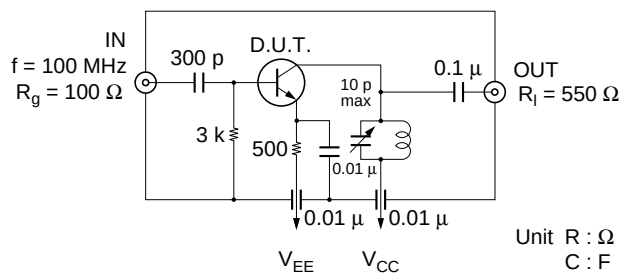
Noise Figure vs. Signal Source Resistance



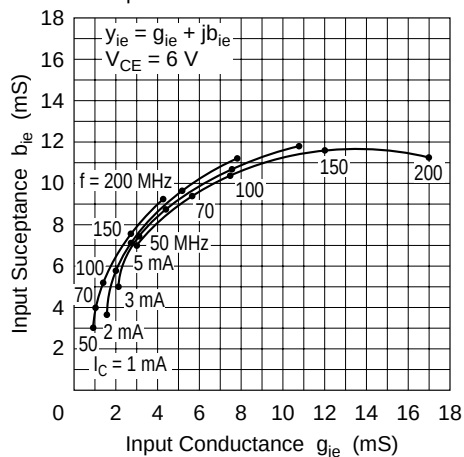
Noise Figure vs. Collector to Emitter Voltage

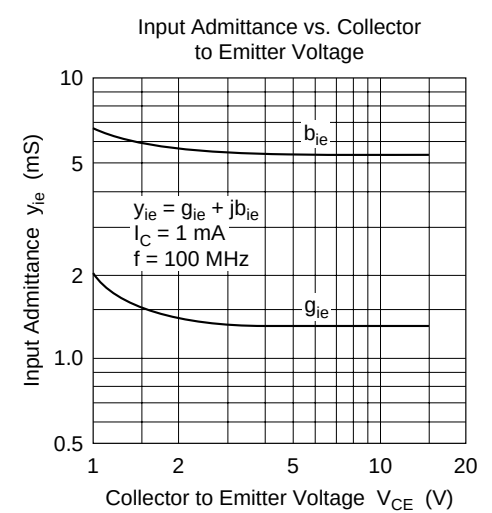
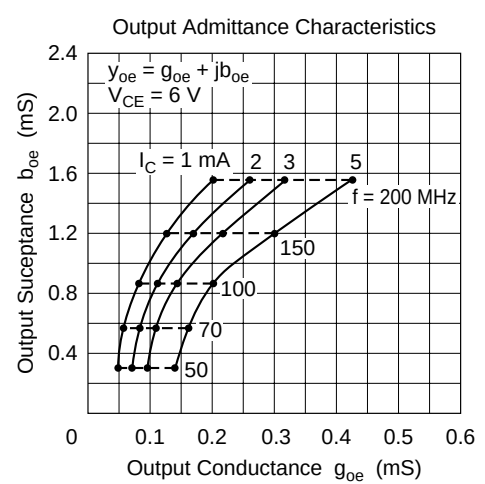
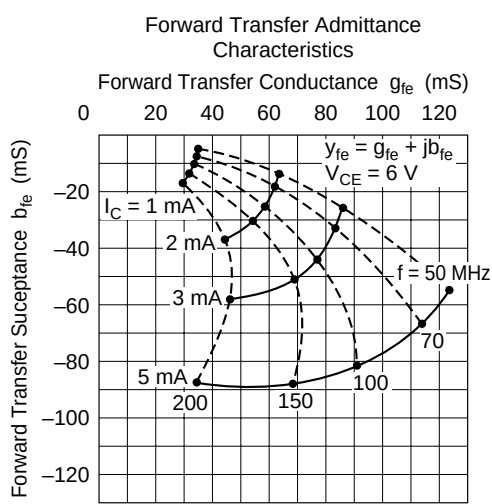
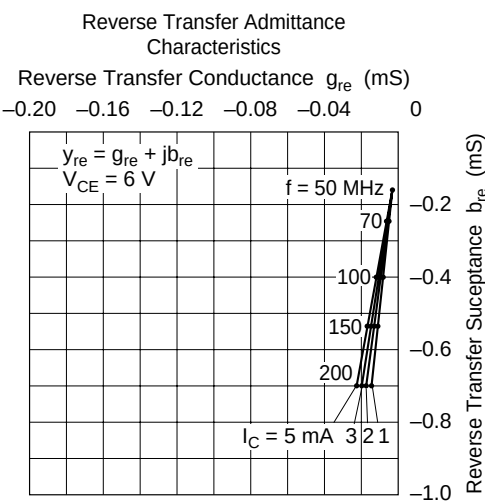


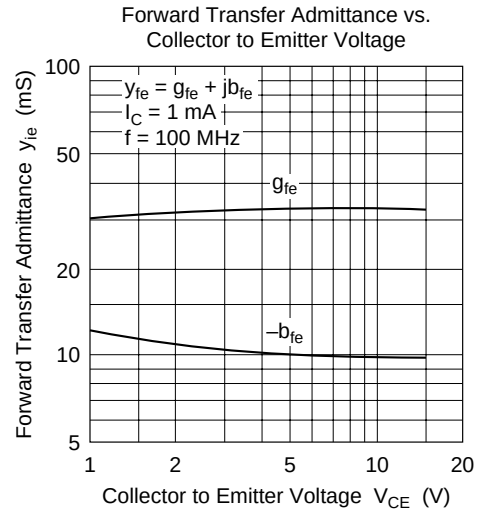
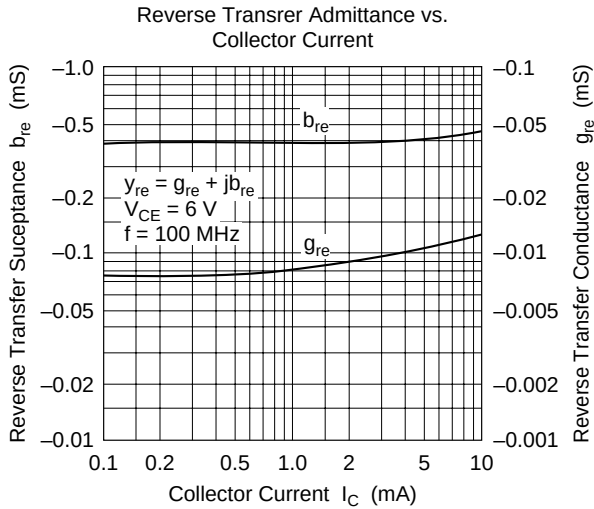
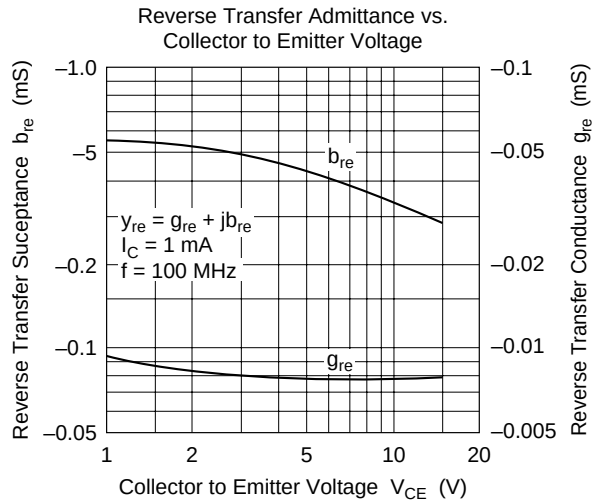
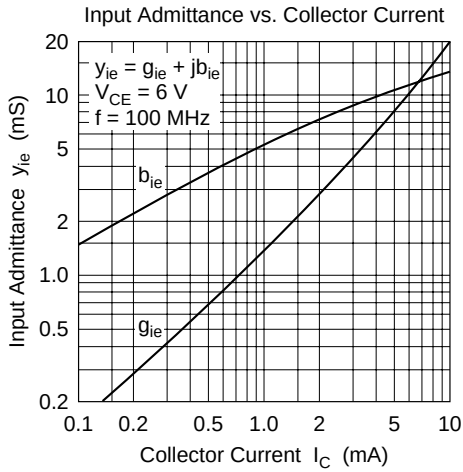
100 MHz Power Gain Test Circuit

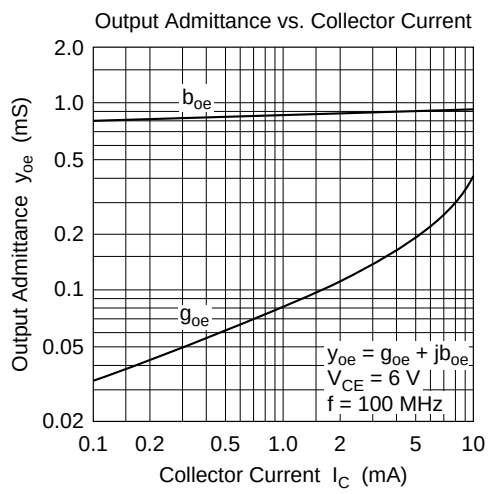
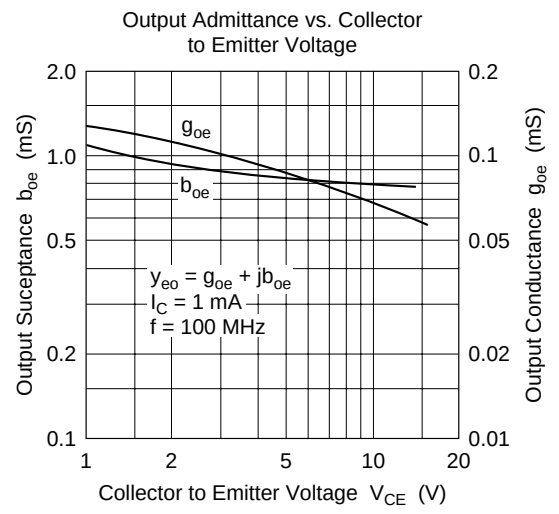
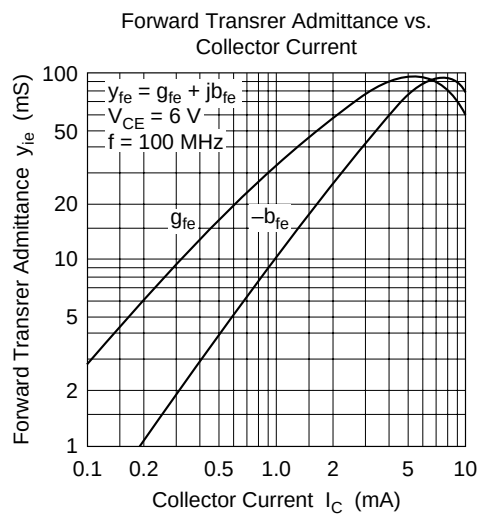


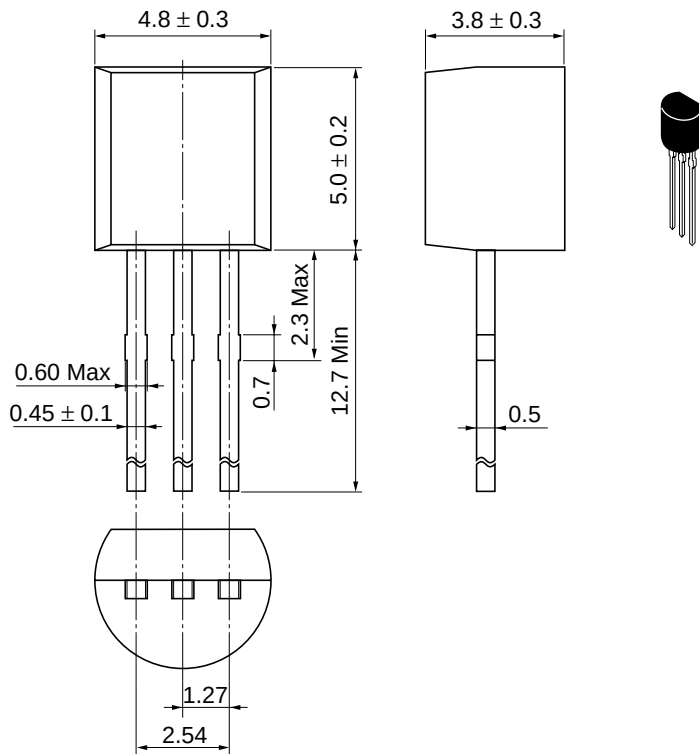
Input Admittance Characteristics











Hitachi Code	TO-92 (2)
JEDEC	Conforms
EIAJ	Conforms
Weight (reference value)	0.25 g

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