

**2SA1177****HF Amp Applications****Use**

- Ideally suited for use in FM RF amplifiers, mixers, oscillators, converters, IF amplifiers.

Features

- High f_T (230MHz typ.) and small C_{re} (1.1 pF typ.).
- Small NF (2.5dB typ.).

Specifications**Absolute Maximum Ratings** at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CB0}		-30	V
Collector-to-Emitter Voltage	V_{CE0}		-20	V
Emitter-to-Base Voltage	V_{EB0}		-5	V
Collector Current	I_C		-30	mA
Collector Dissipation	P_C		150	mW
Junction Temperature	T_j		125	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +125	$^\circ\text{C}$

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

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CB0}	$V_{CB}=-10\text{V}, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EB0}	$V_{EB}=-4\text{V}, I_C=0$			-0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$	60*		320*	
Gain-Bandwidth Product	f_T	$V_{CE}=-6\text{V}, I_C=-1\text{mA}$	150	230		MHz
Feedback Capacitance	C_{re}	$V_{CB}=-6\text{V}, f=1\text{MHz}$		1.1	1.7	pF
Base-to-Collector Time Constant	τ_{bb}, τ_c	$V_{CB}=-6\text{V}, I_C=-1\text{mA}, f=31.9\text{MHz}$		11	20	ps
Noise Figure	NF	$V_{CE}=-6\text{V}, I_C=-1\text{mA}, f=100\text{MHz}$		2.5		dB
Power Gain	PG	$V_{CE}=-6\text{V}, I_C=-1\text{mA}, f=100\text{MHz}$		22		dB

* : 2SA1177 is classified as follows according to h_{FE} at 1mA.

Rank	D	E	F
h_{FE}	60 to 120	100 to 200	160 to 320

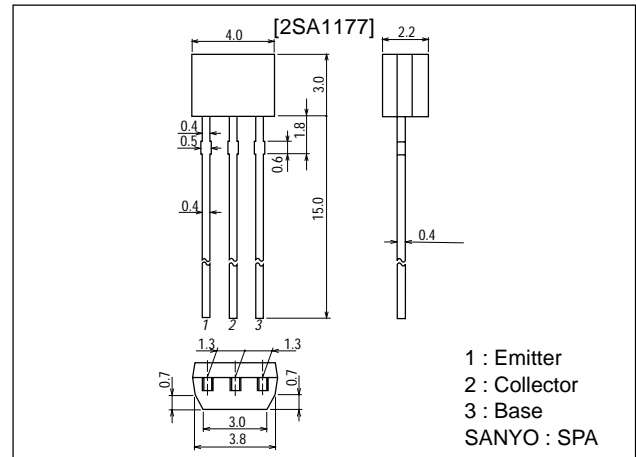
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Package Dimensions

unit:mm

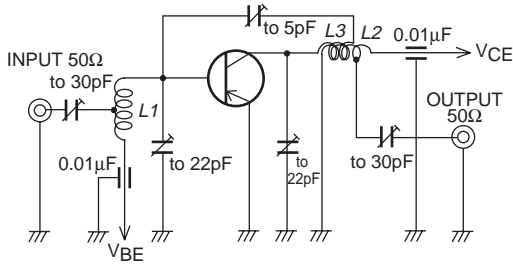
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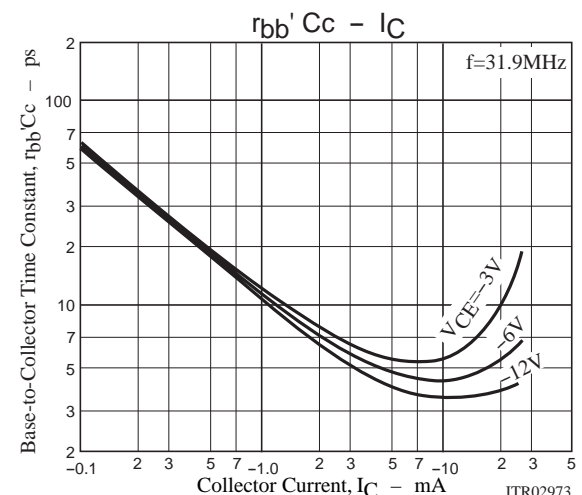
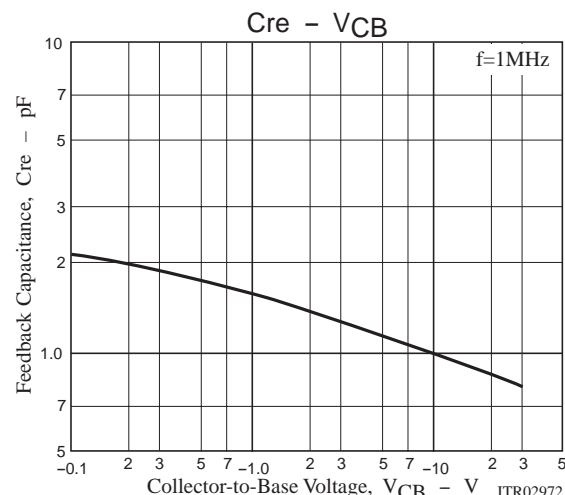
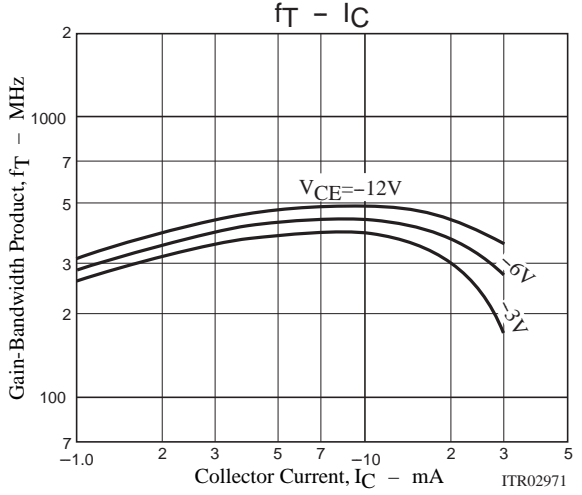
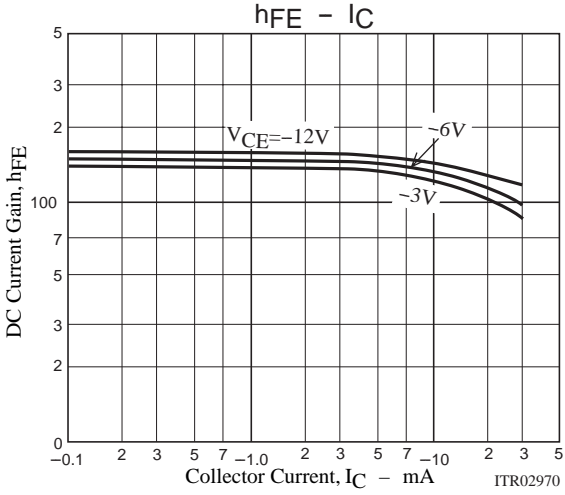
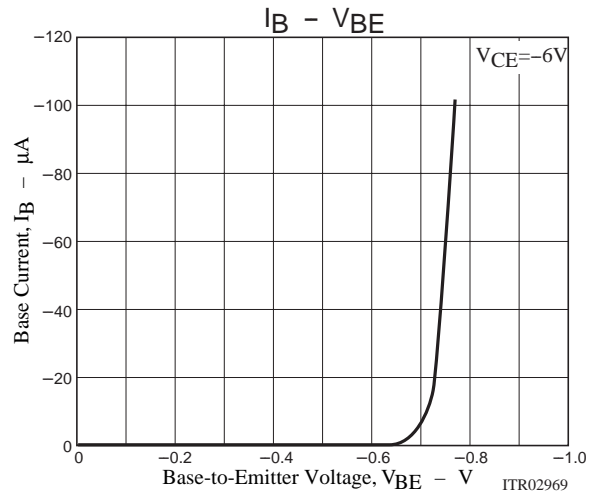
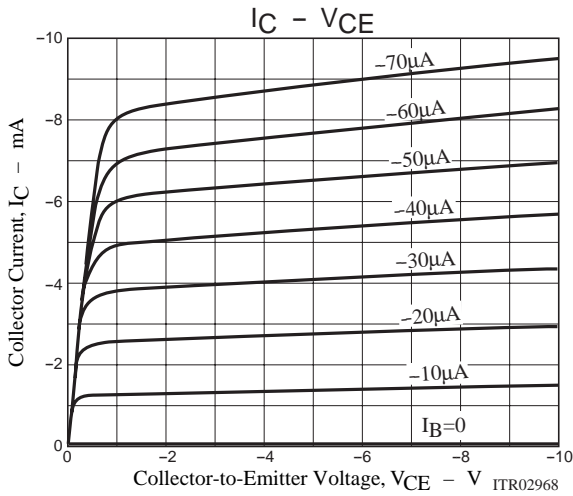
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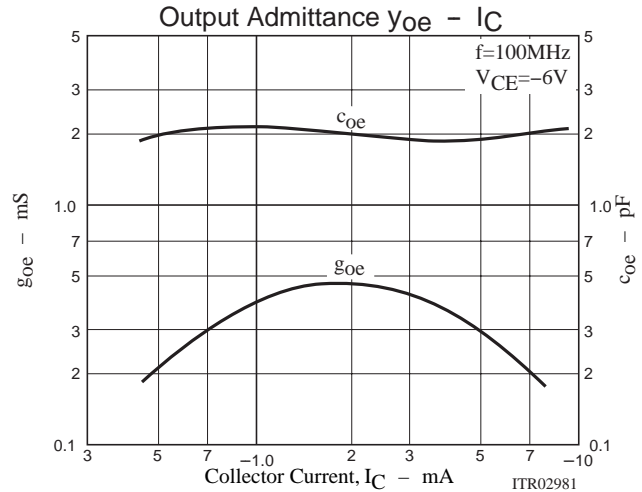
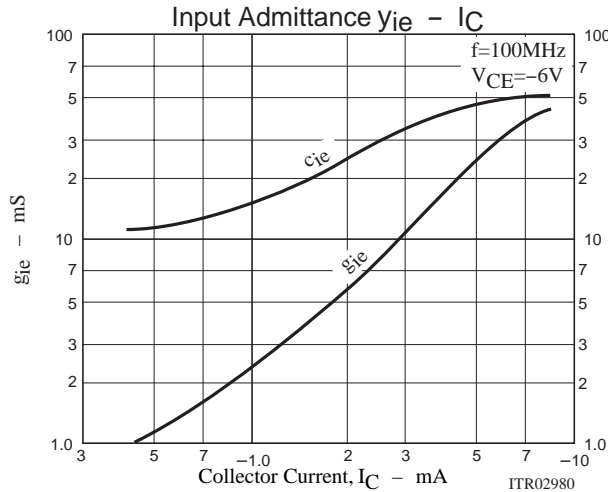
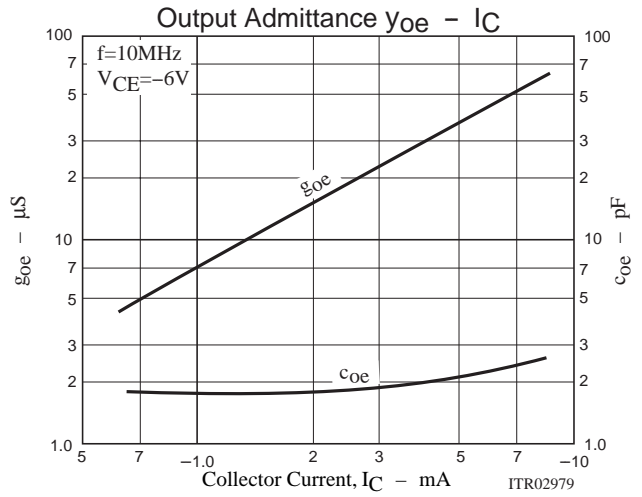
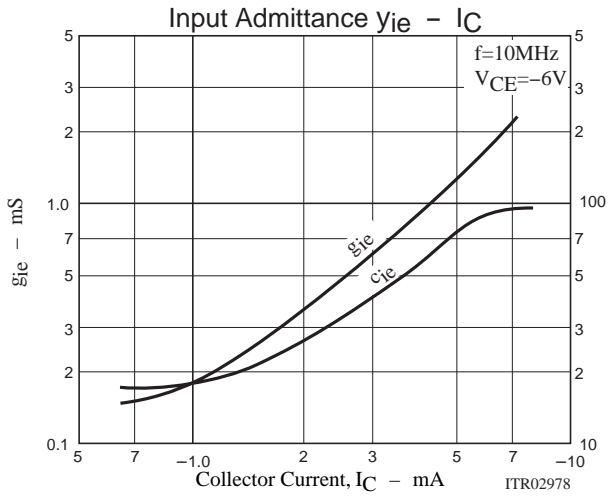
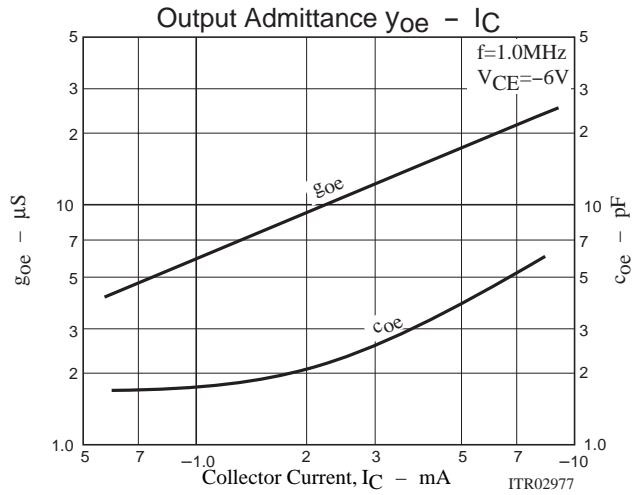
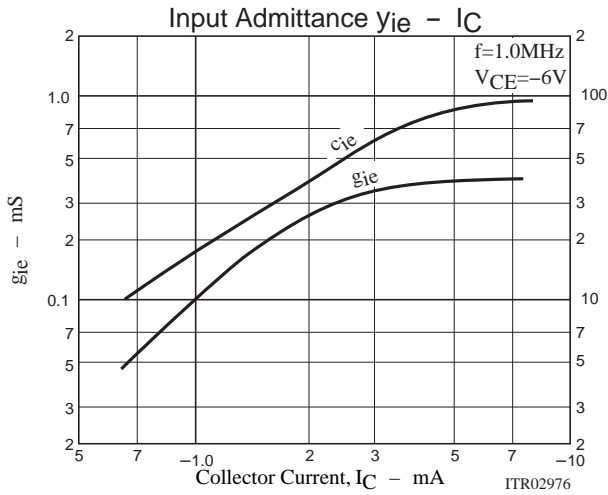
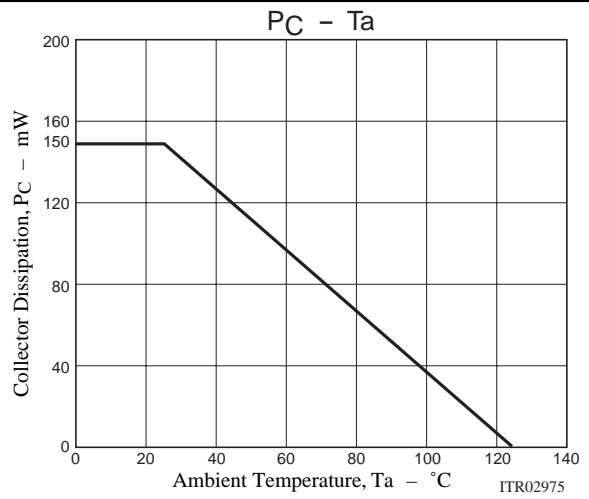
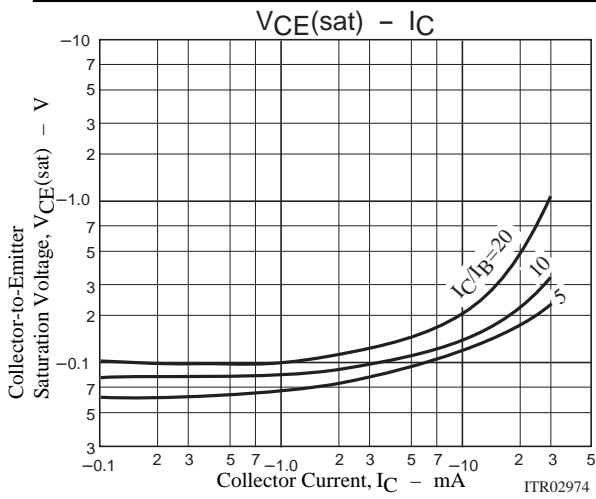
NF, PG Test Circuit



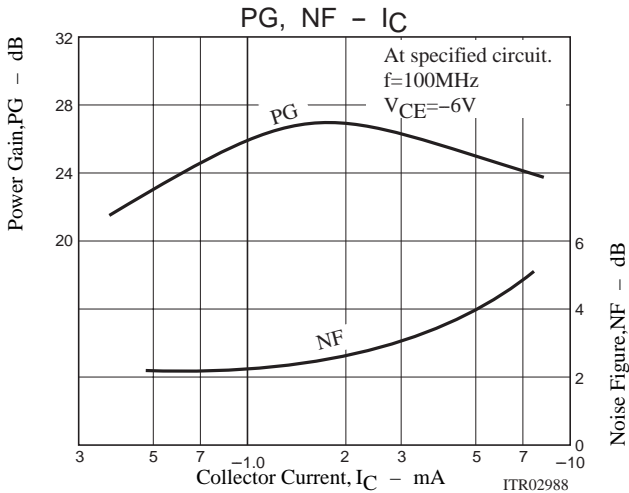
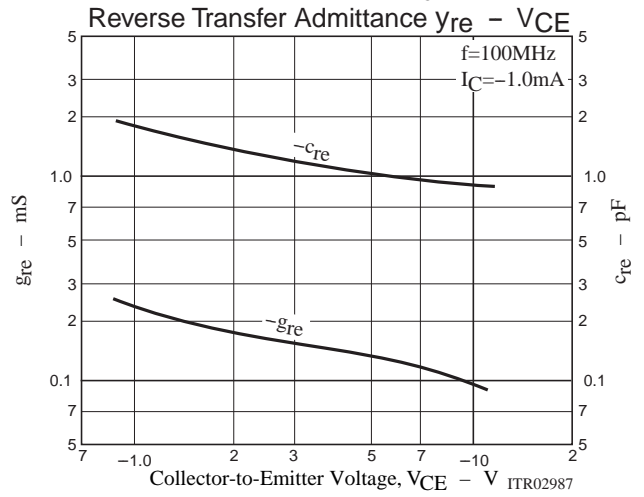
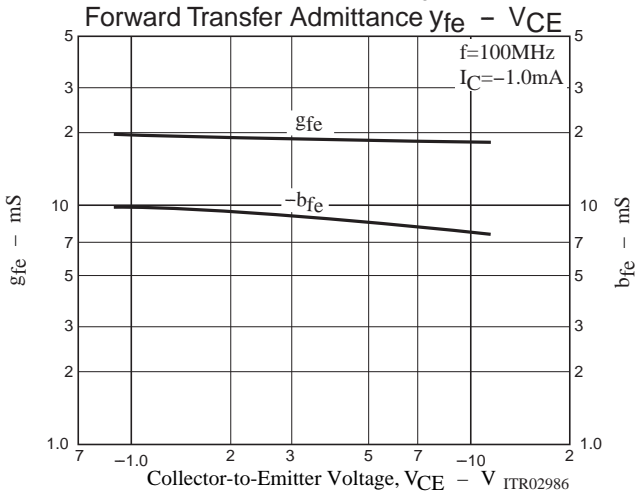
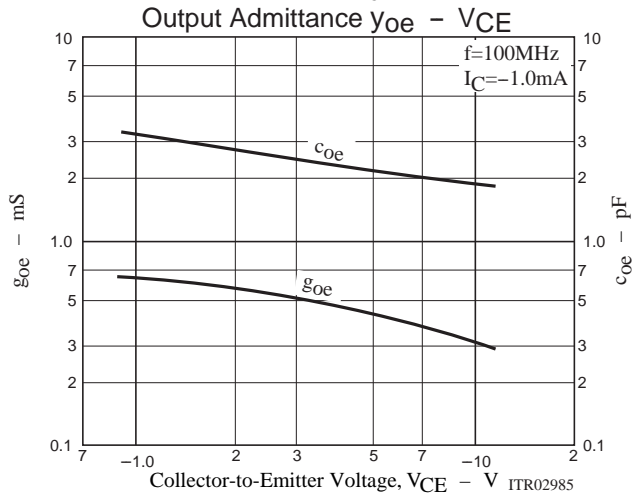
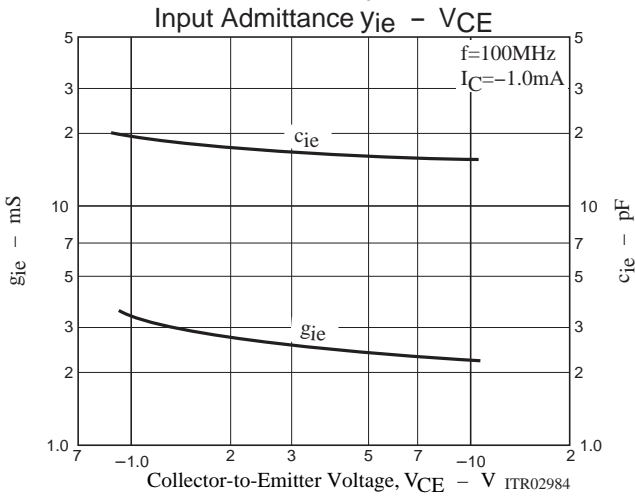
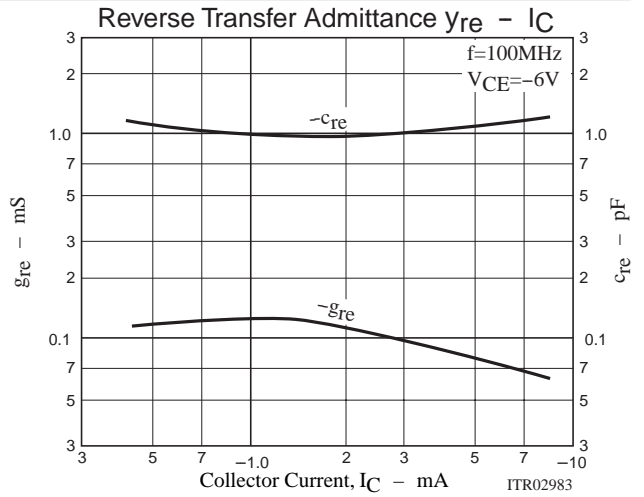
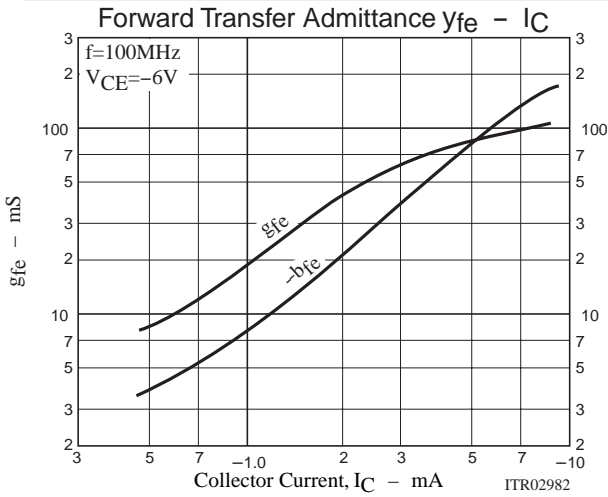
L1 ; 1mmϕ plated wire 10mmϕ 5T, tapped at 2T from V_{BE} side.
 L2 ; 1mmϕ plated wire 10mmϕ 7T, tapped at 1T from V_{CE} side.
 L3 ; 1mmϕ enameled wire 10mmϕ 3T.



2SA1177



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