

**2SA1688**

High-Frequency General-Purpose Amplifier Applications

Applications

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

Features

- High power gain : PG=22dB typ (f=100MHz).
- Ultrasmall-sized package permitting 2SA1688-applied sets to be made small and slim.

Specifications

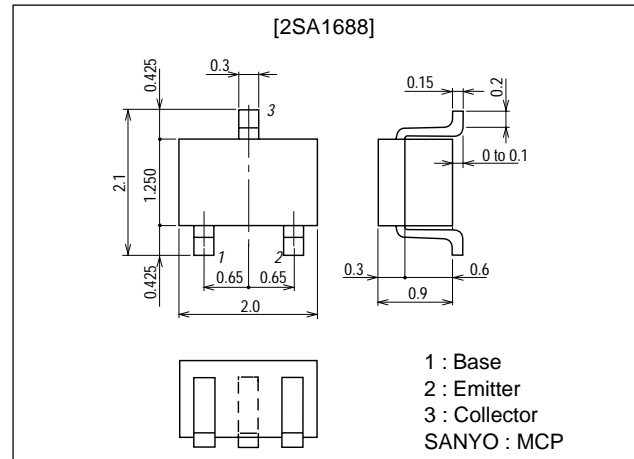
Absolute Maximum Ratings at Ta = 25°C

Parameter	Symbol	Conditions	Ratings	Unit
Collector-to-Base Voltage	V_{CBO}		-30	V
Collector-to-Emitter Voltage	V_{CEO}		-20	V
Emitter-to-Base Voltage	V_{EBO}		-5	V
Collector Current	I_C		-30	mA
Collector Dissipation	P_C		150	W
Junction Temperature	T_J		150	°C
Storage Temperature	T_{stg}		-55 to +150	°C

Package Dimensions

unit:mm

2059B



Electrical Characteristics at Ta = 25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Collector Cutoff Current	I_{CBO}	$V_{CB}=-10V, I_E=0$			-0.1	μA
Emitter Cutoff Current	I_{EBO}	$V_{EB}=-4V, I_C=0$			-0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=-6V, I_C=-1mA$	60*		270*	
Gain-Bandwidth Product	f_T	$V_{CE}=-6V, I_C=-1mA$	150	230		MHz
Reverse Transfer Capacitance	C_{re}	$V_{CB}=-6V, f=1MHz$		1.1	1.7	pF
Base-to-Collector Time Constant	$r_{bb}' C_c$	$V_{CE}=-6V, I_C=-1mA, f=31.9MHz$		11	20	ps
Voltage Gain	PG	See specified Test Circuit,		22		dB
Noise Figure	NF	$V_{CE}=-6V, I_C=-1mA, f=100MHz$		2.5		dB

* : The 2SA1688 is classified by 1mA h_{FE} as follows :

Rank	3	4	5
h_{FE}	60 to 120	90 to 180	135 to 270

Marking : E

 h_{FE} rank : 3, 4, 5

For CP package version, use the 2SA1656.

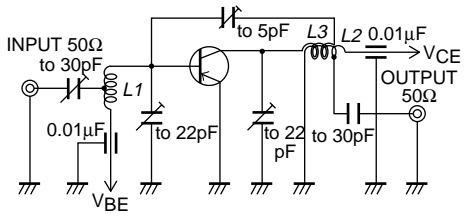
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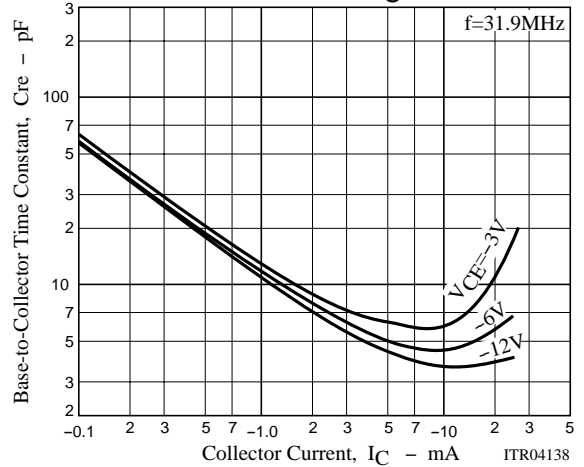
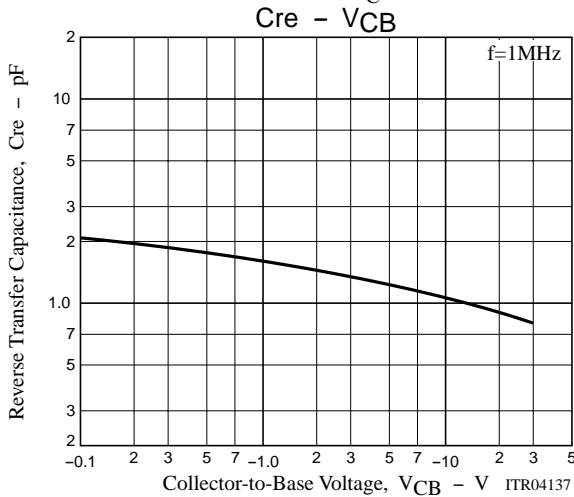
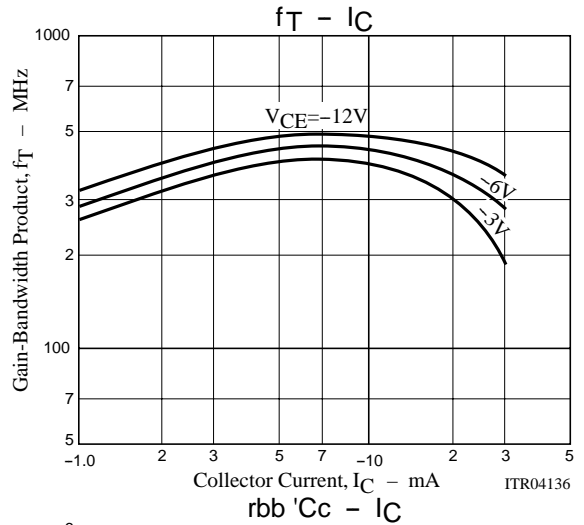
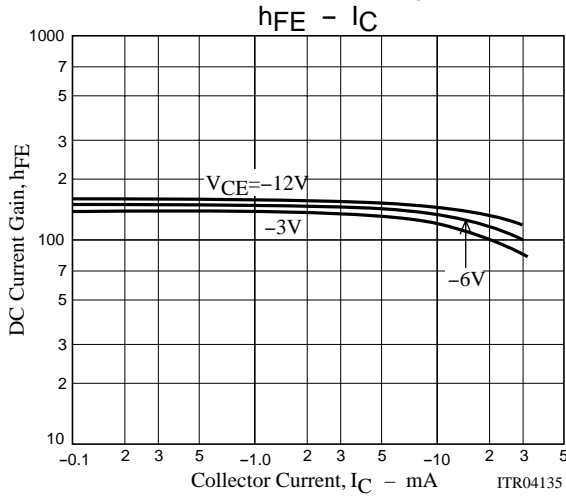
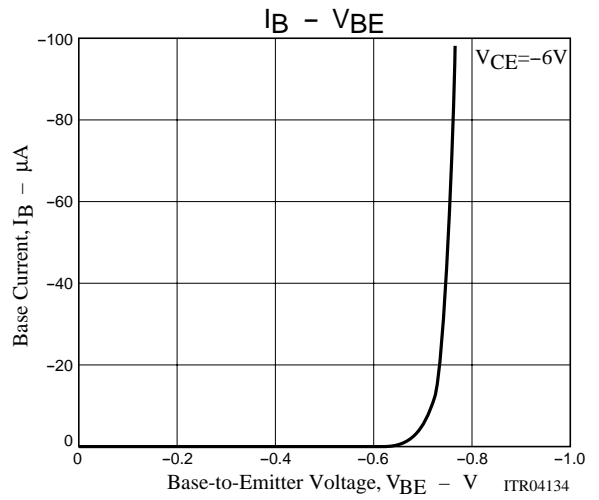
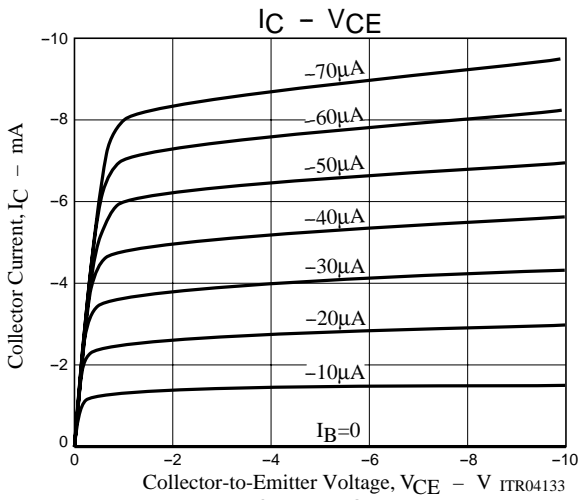
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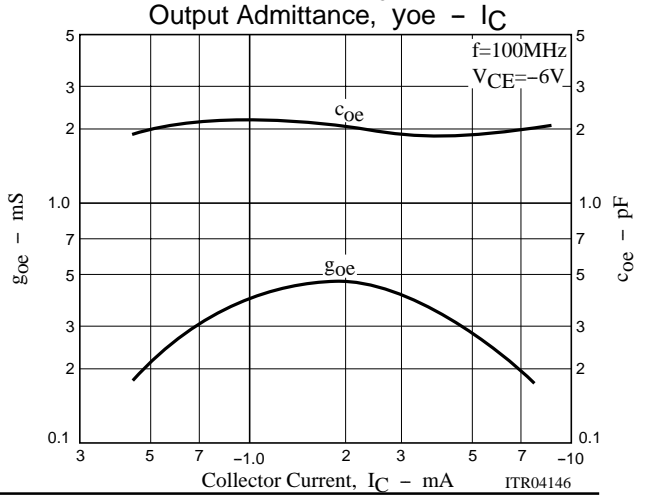
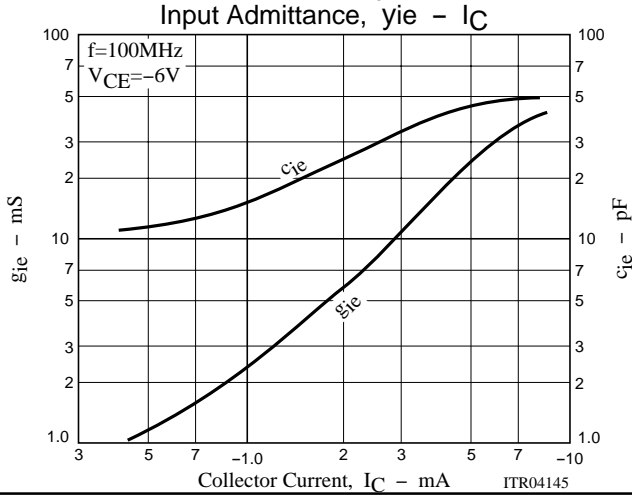
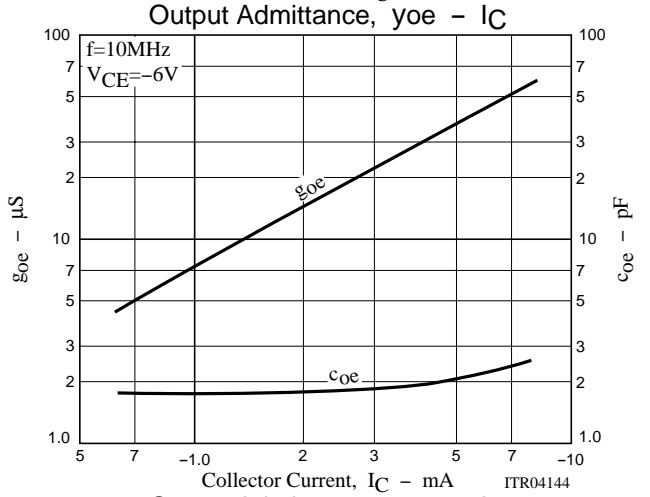
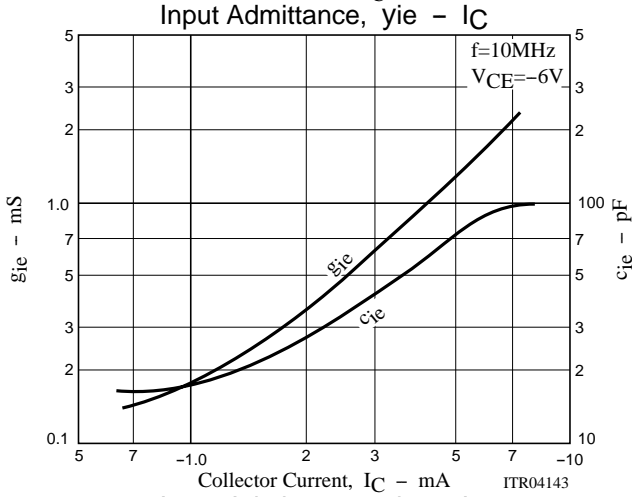
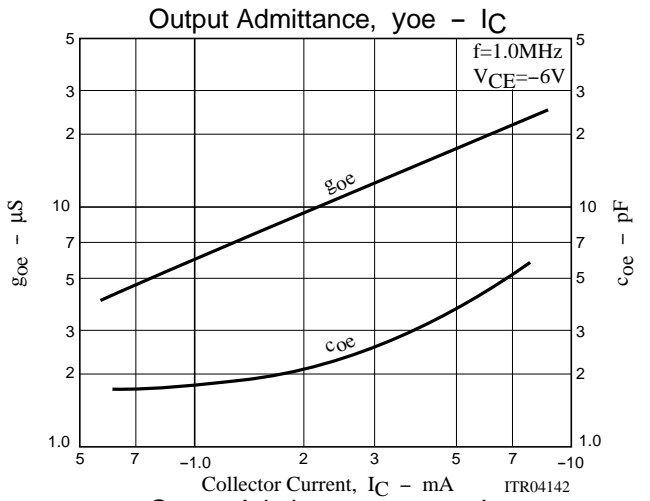
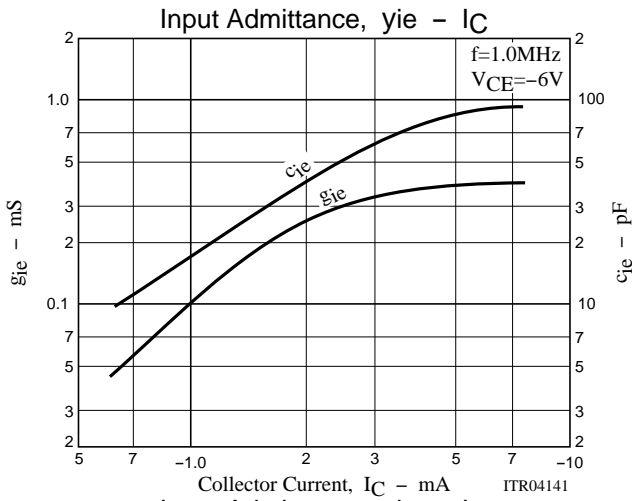
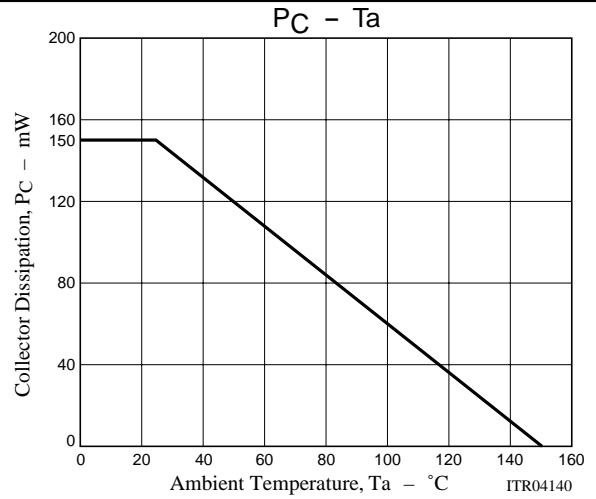
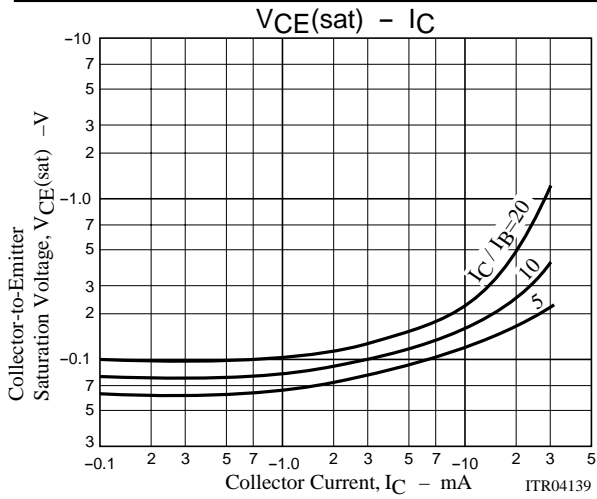
NF, PG Test Circuit



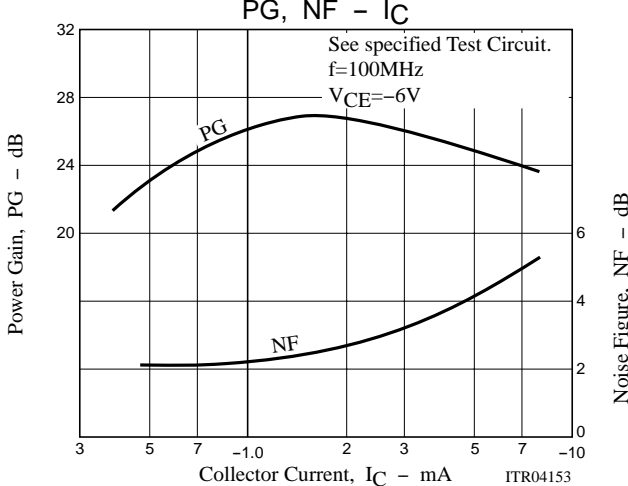
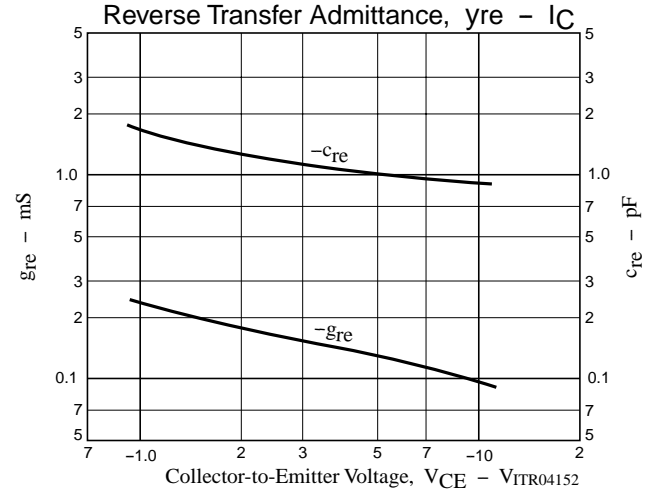
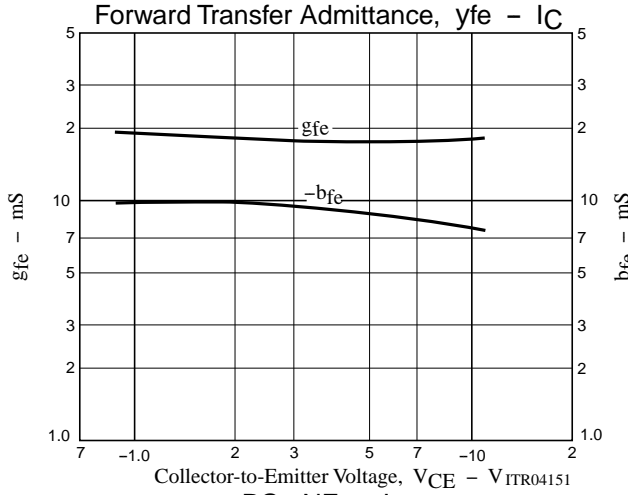
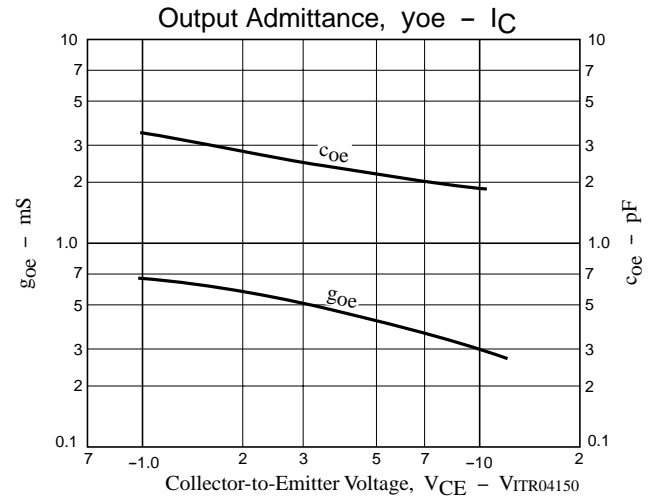
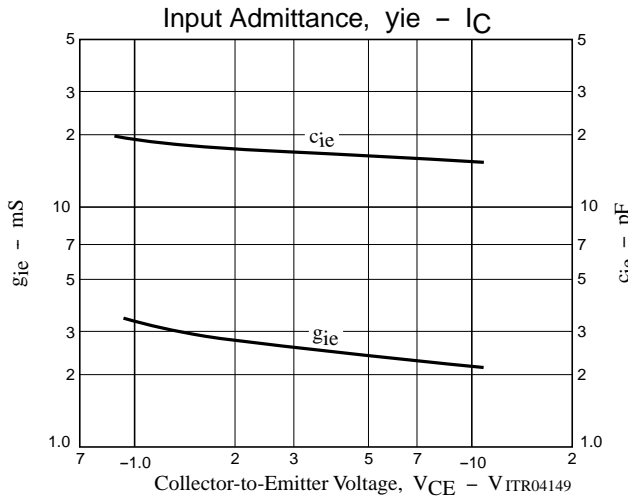
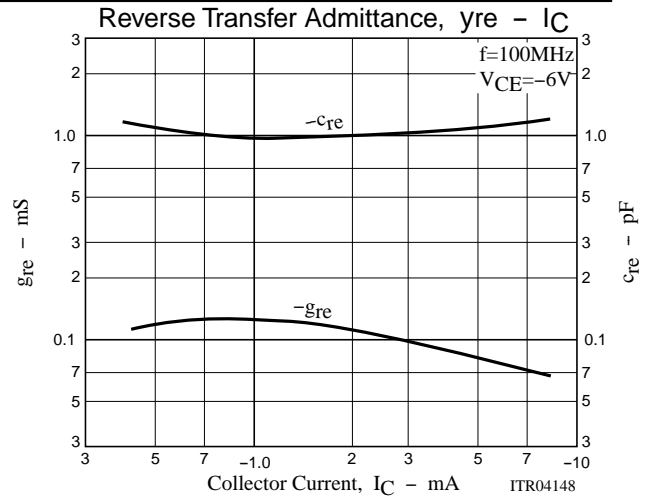
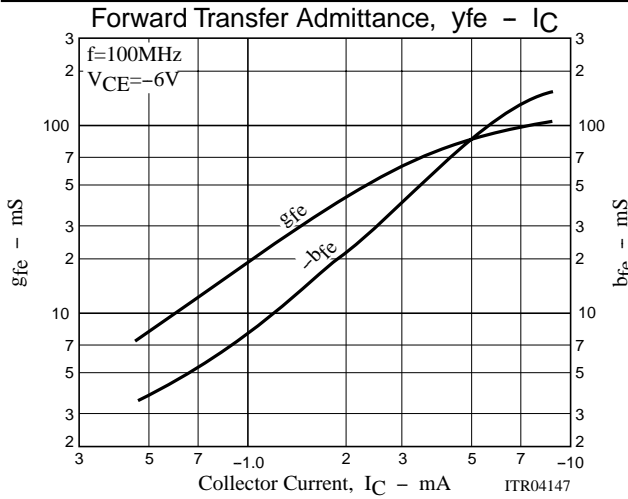
- L1 : 1mmØ plated wire 10mmØ 5 T, tap : 2T from VBE side
- L2 : 1mmØ plated wire 10mmØ 7 T, tap : 1T from VCE side
- L3 : 1mmØ enamel wire 10mmØ 3 T



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