

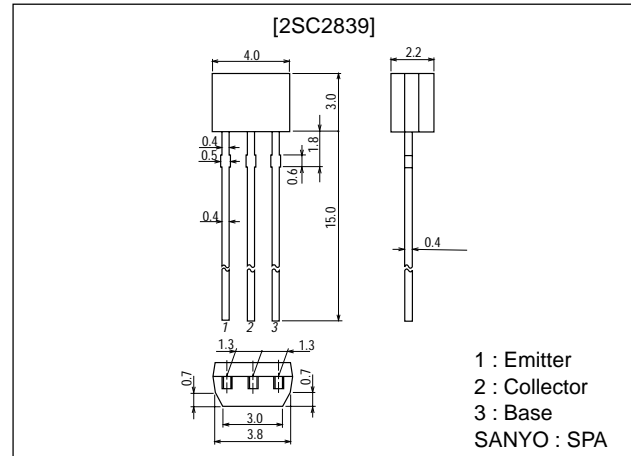
**2SC2839****HF Amplifier Applications****Features**

- Ultrasmall package enabling compactness and slimness of sets.
- High  $f_T$  and small  $c_{re}$  ( $f_T=320\text{MHz}$  typ,  $c_{re}=0.95\text{pF}$  typ).

**Package Dimensions**

unit:mm

2033A

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

| 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         | 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        | $I_{CBO}$    | $V_{CB}=10\text{V}, I_E=0$                           |         |      | 0.1  | $\mu\text{A}$ |
| Emitter Cutoff Current          | $I_{EBO}$    | $V_{EB}=4\text{V}, I_C=0$                            |         |      | 0.1  | $\mu\text{A}$ |
| DC Current Gain                 | $h_{FE}$     | $V_{CE}=6\text{V}, I_C=1\text{mA}$                   | 60*     |      | 320* |               |
| Gain-Bandwidth Product          | $f_T$        | $V_{CE}=6\text{V}, I_C=1\text{mA}$                   | 200     | 320  |      | MHz           |
| Reverse Transfer Capacitance    | $C_{re}$     | $V_{CB}=6\text{V}, f=1\text{MHz}$                    | 0.7     | 0.95 | 1.3  | pF            |
| Base-to-Collector Time Constant | $r_{bb}/C_C$ | $V_{CE}=6\text{V}, I_C=1\text{mA}, f=31.9\text{MHz}$ |         | 12   | 20   | ps            |
| Noise Figure                    | NF           | $V_{CE}=6\text{V}, I_C=1\text{mA}, f=100\text{MHz}$  |         | 3.0  |      | dB            |
| Power Gain                      | PG           | $V_{CE}=6\text{V}, I_C=1\text{mA}, f=100\text{MHz}$  |         | 25   |      | dB            |

\* : The 2SC2839 are classified as follows by  $h_{FE}$  at 1mA :

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

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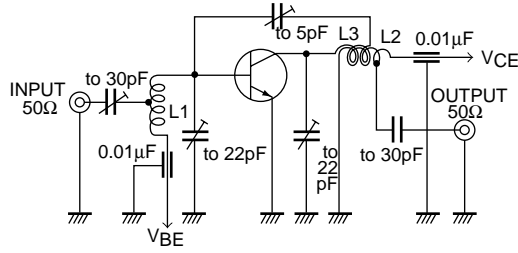
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**SANYO Electric Co., Ltd. Semiconductor Company**

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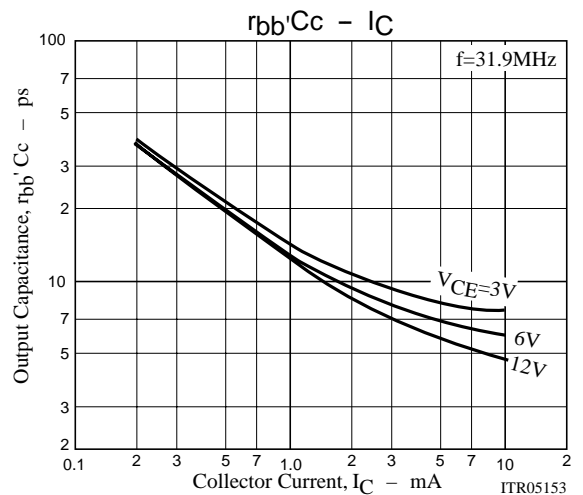
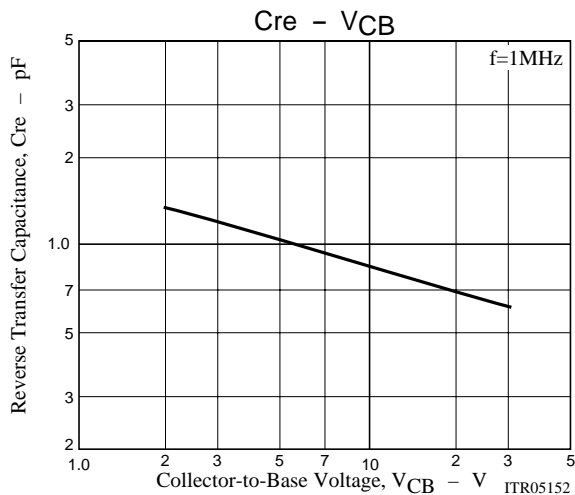
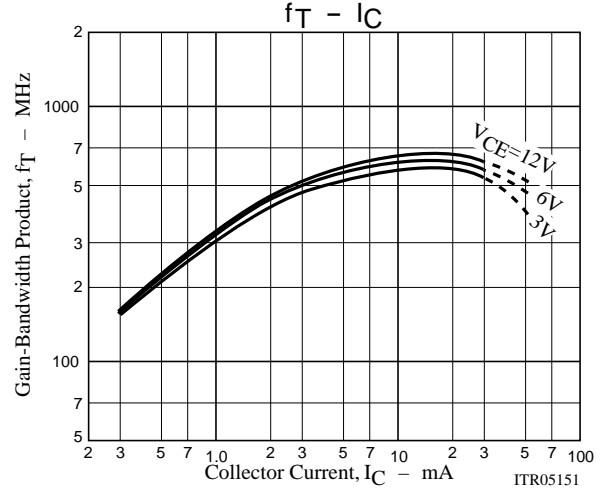
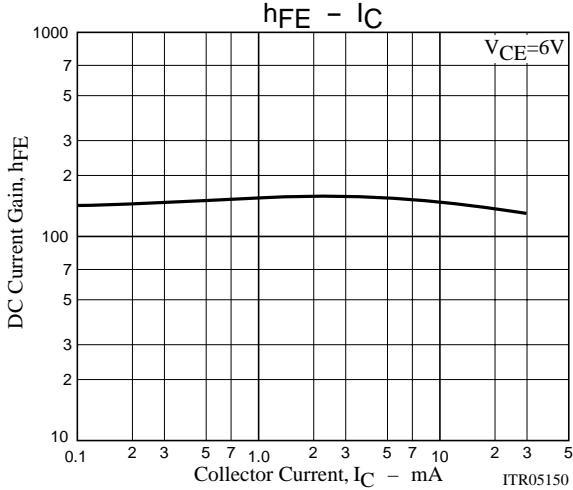
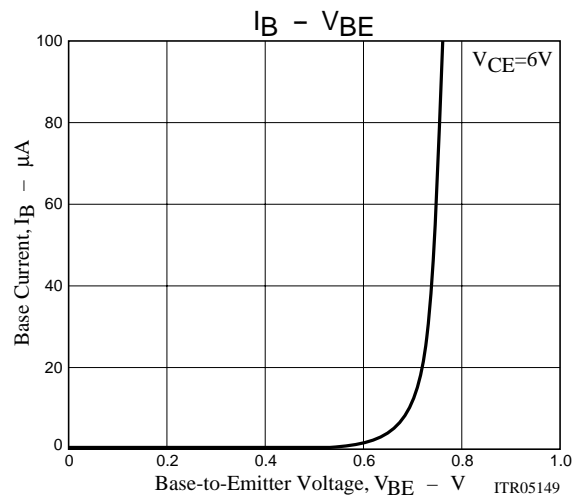
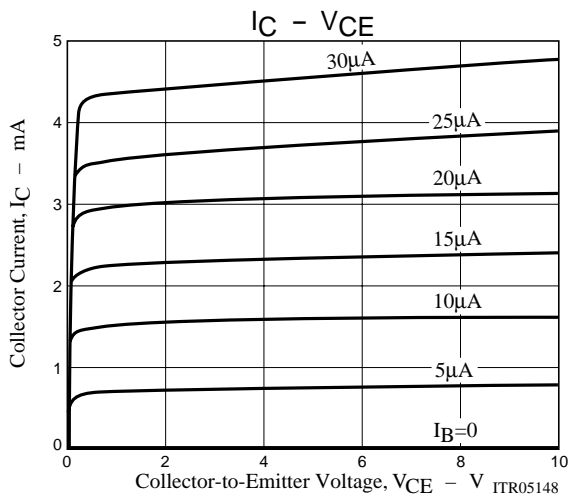
## NF, PG Test Circuit



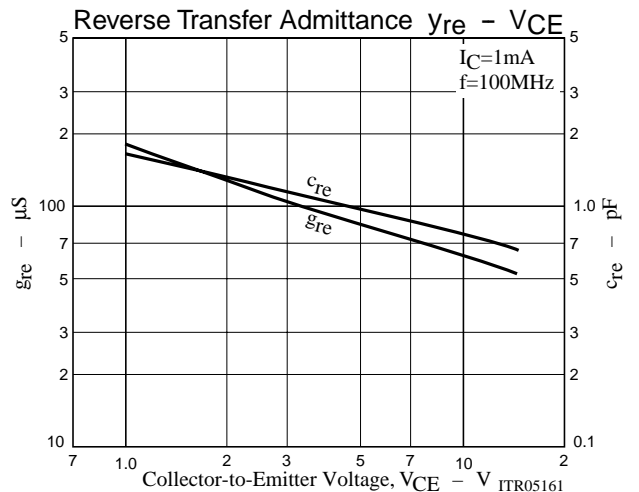
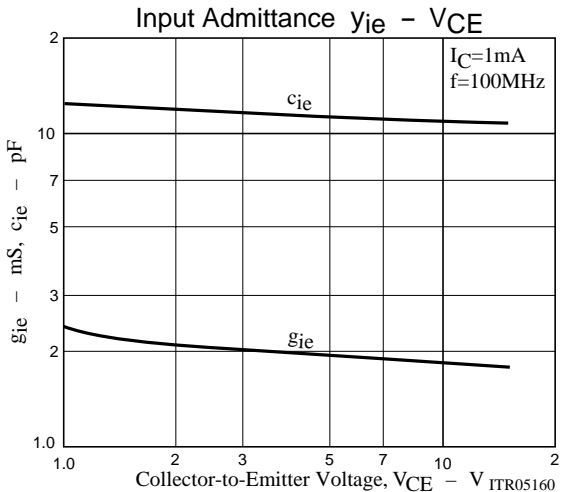
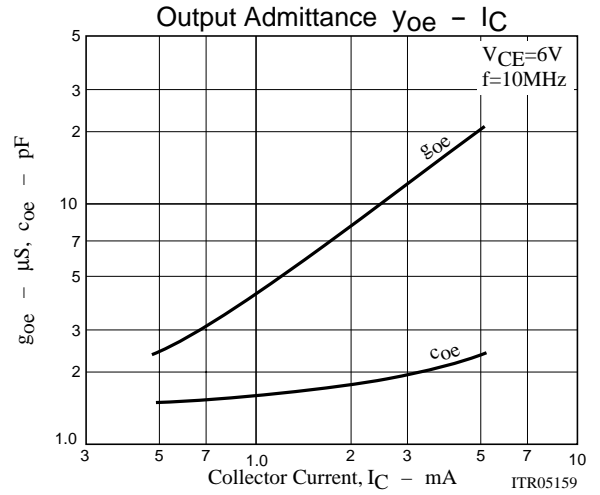
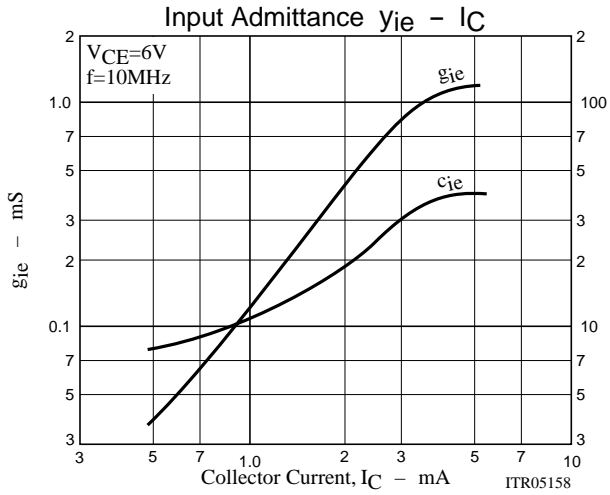
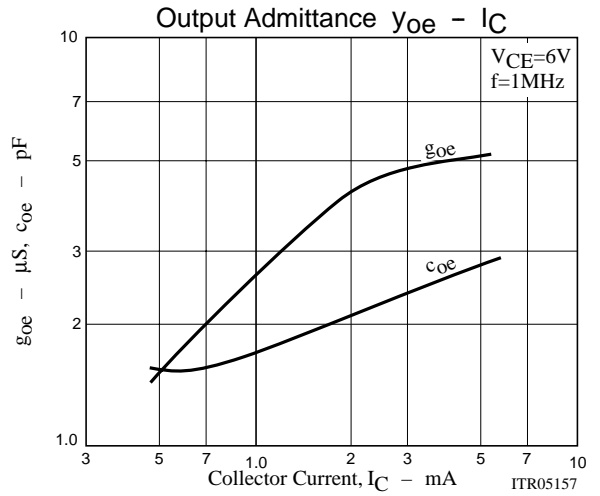
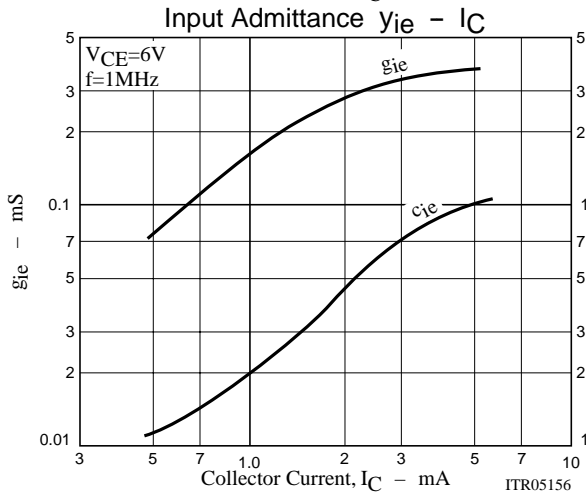
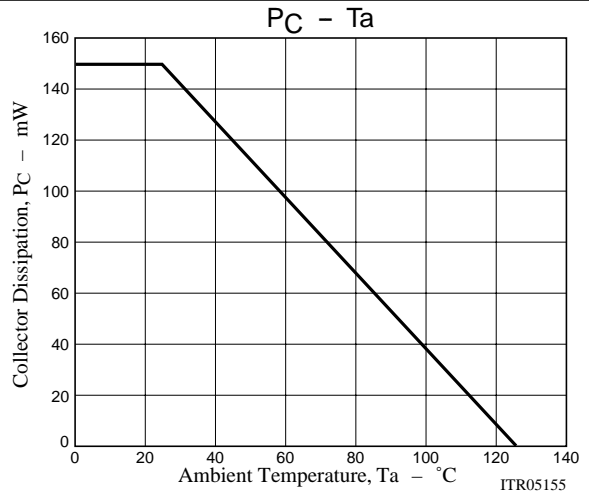
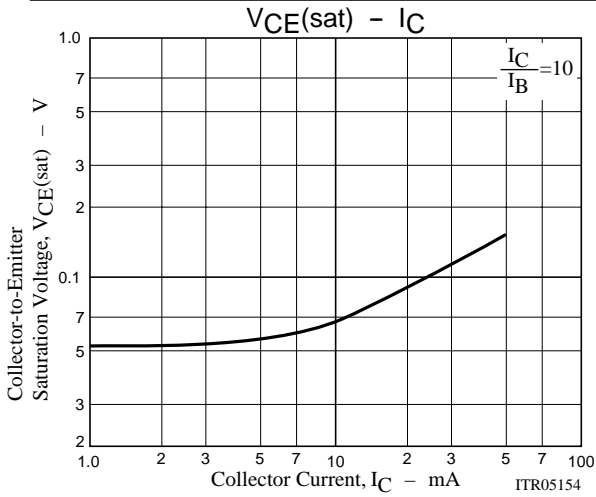
L1 : 1mmø plated wire, 10mmø 5T tap, 2T from  $V_{BE}$  side.

L2 : 1mmø plated wire, 10mmø 7T tap, 1T from  $V_{CE}$  side.

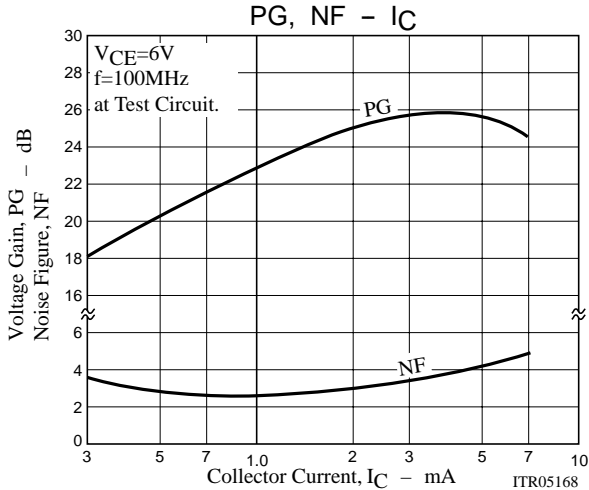
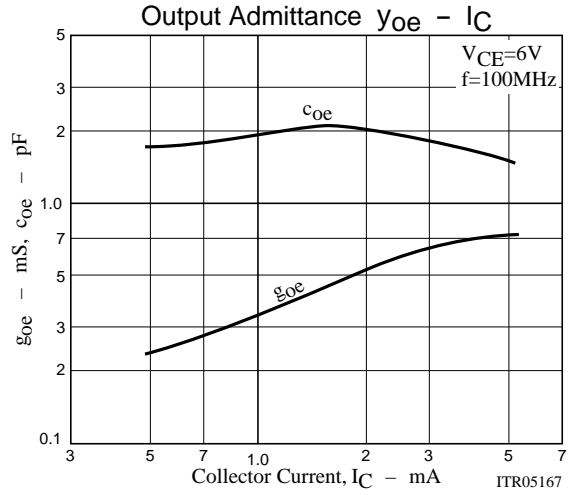
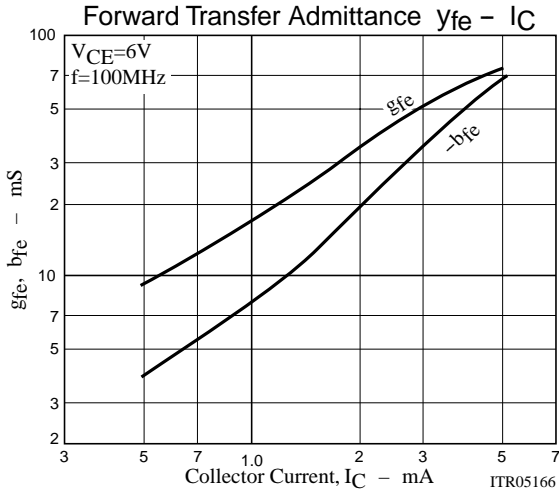
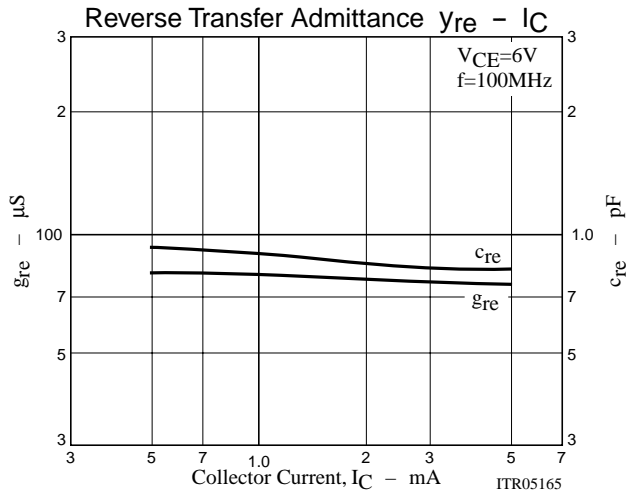
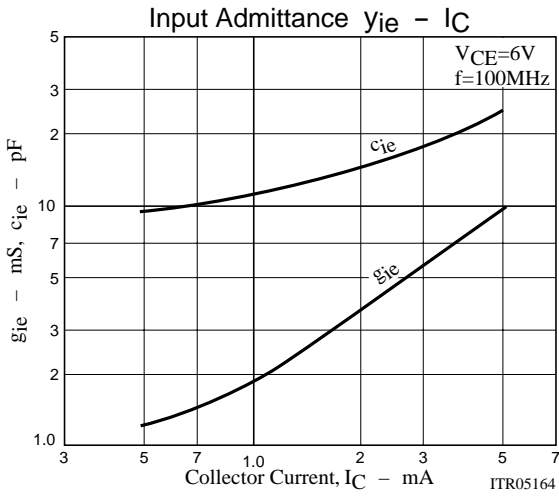
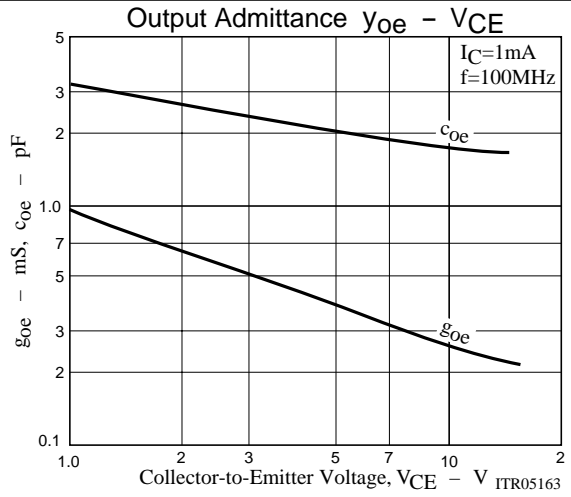
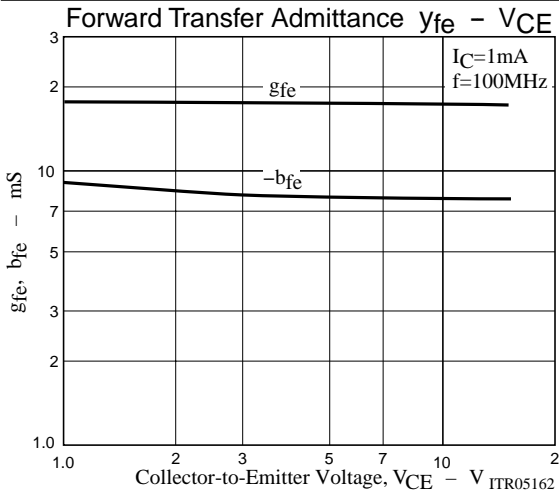
L3 : 1mmø enameled wire, 10mmø 3T .



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