



**15548-1**  
**2025**

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**(ISO 15548-1:2013, IDT)**

1 322 « », -  
- « » (« « ») « -  
4 , -  
2 322 « » -  
3 25 2025 . 1810- -  
4 15548—1:2013 « -  
1. -  
» (ISO 15548-1:2013 «Non-destructive testing — Equipment for eddy current examination — Part 1: Instrument characteristics and verification», IDT). -

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29 2015 . 162- « 26 », -  
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— (www.rst.gov.ru)

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Non-destructive testing. Equipment for eddy current examination. Part 1. Instrument characteristics and verification

— 2026—04—01

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( ):  
 ISO 12718, Non-destructive testing. Eddy current testing. Vocabulary ( )  
 ISO 15549, Non-destructive testing. Eddy current testing. General principles ( )

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12718.

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**4.1**

**4.1.1**

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15549.

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15548.

**4.1.2**

**4.1.3**

**4.1.4**

**4.1.5**

**4.1.6**

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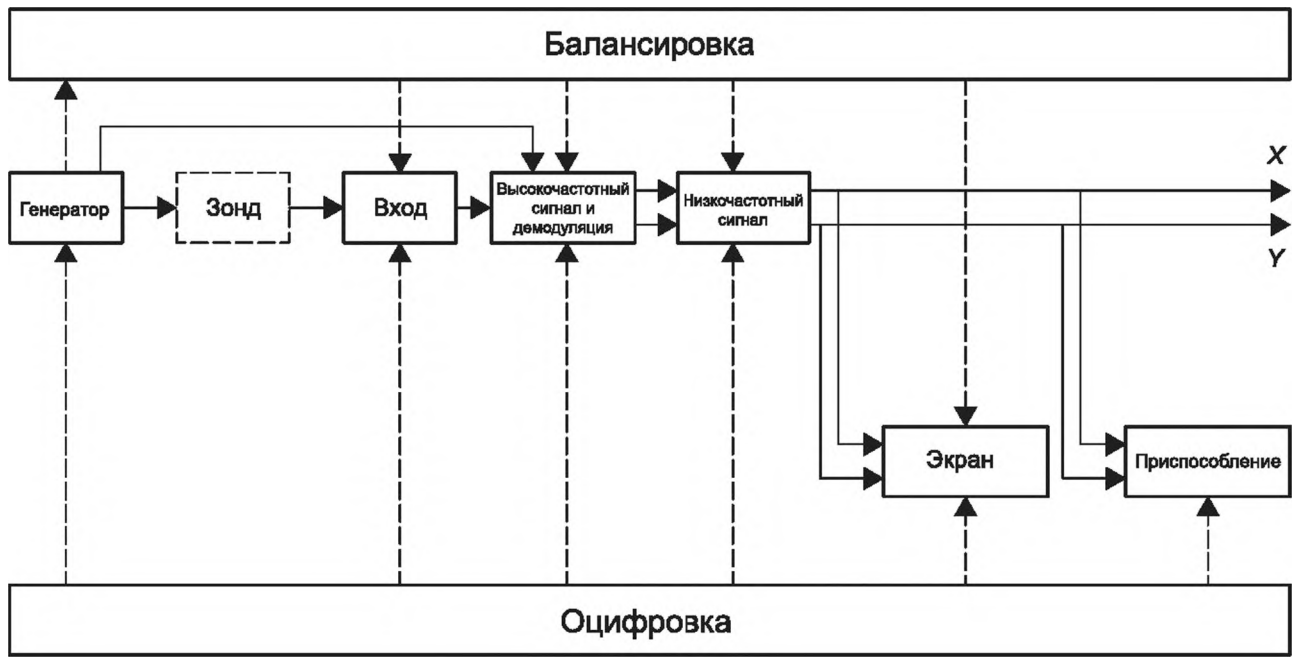
**4.2**

**4.2.1**

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4.2.2

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4.2.3

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4.2.4

4.2.5

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4.2.6

4.2.6.1

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4.2.6.2

4.2.6.2

4.2.6.3

4.2.6.3

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4.2.7

4.2.7

4.2.7.1

4.2.7.2

4.2.7.2

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4.2.7.3

4.2.8

4.2.9

4.2.9.1

4.2.9.2—4.2.9.5.

4.2.9.2

4.2.9.3

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4.2.9.4 -  
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4.2.9.5 —

**5**

**5.1**

15548.

**5.2**

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) 2—

) 3—

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**5.3**

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**5.4**

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( ), , -

**6**

**6.1**

, ( ).  
.  
-  
-

1, 2 5. 10 100  
 10, 20 50  
 ( )

**6.2**

**6.2.1**

6.2.1.1

6.1.

, %,

$$\hat{V}_d \quad (1)$$

$V_d$  — ;

$V_m$  —

6.2.1.2

**6.2.2**

6.2.2.1

$$k = \frac{\sqrt{\sum U_n^2}}{U}$$

$$k = \frac{\sqrt{U^2 - U_1^2}}{U} \quad (3)$$

$U$  — ;

$U_1$  — ( ) ;

$U_n$  — n-

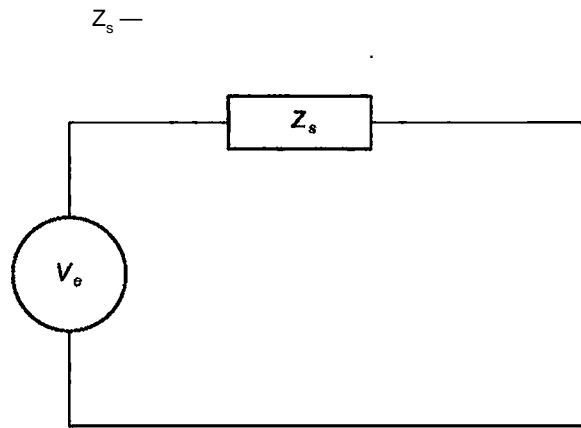
6.1.

6.2.2.2

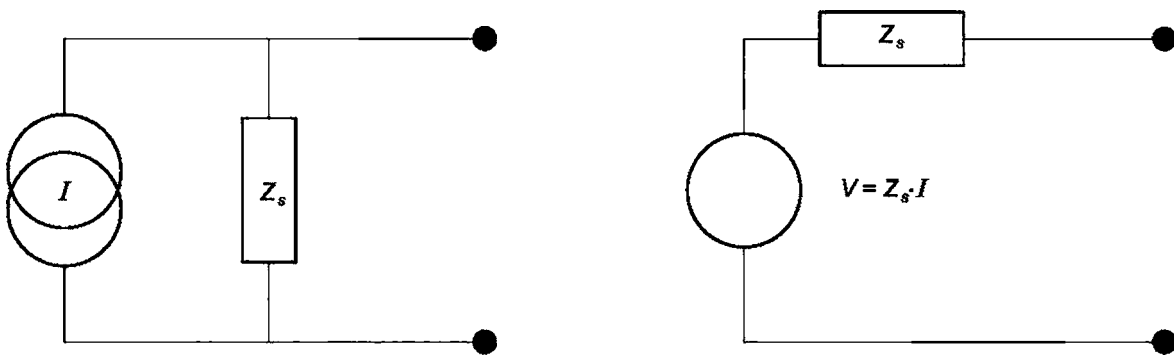
6.2.3

6.2.3.1

( . 2),



а) Генератор с управлением по напряжению



$I$  — ;  $V_e$  — ;  $Z_s$  —  
)  
2 —

6.2.3.2

$Z_s$

$R^{\wedge}$  ( 50 ).

$V_1$

$R_2$  (  $R_2 = 0,5/?^{\wedge}$

$V_2 \cdot Z_s'$  ,

$$Z_s = \frac{V_1 - V_2}{\left(\frac{V_2}{R_2}\right) - \left(\frac{V_1}{R_1}\right)} \quad (4)$$

1 —

$\wedge$  2

—

$\wedge 1$  2

2 —  $R^{\wedge} R_2$

$Z_s'$

6.2.4

$V_{Omax}$

6.2.4.1

6.2.4.2

( > 1 )

6.2.5

6.2.5.1

6.2.5.2

10 %

6.3

6.3.1

6.3.1.1

90 %

6.3.1.2

6.3.1.2.1

10 %

X

$(V_{x+1}, V_{x-1}, V_{y+1}, V_{y-1})$

$V_{s'}$

$V_s$

$V_{js}$   
90%  $V_s$

3.

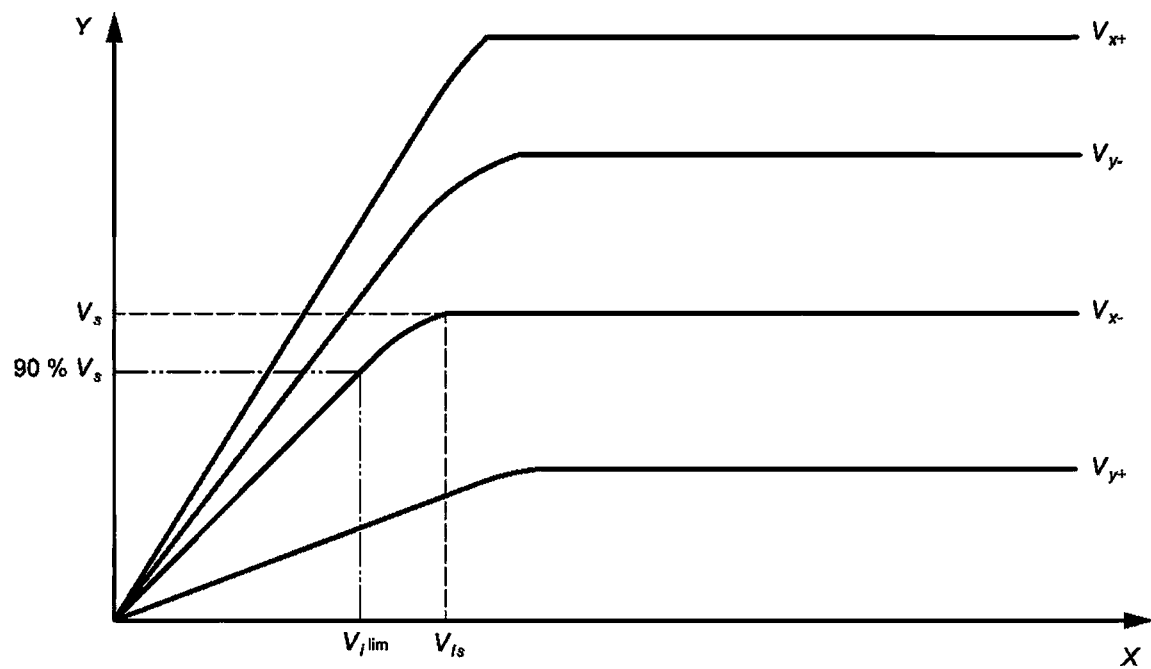
6.3.1.2.2

6.3.1.2.1,

( )

—  
'min- :  
—

^ — ( . 6.3.1.2.1).



X— (  $V_s$ — ) ; —

3—

6.3.2

6.3.2.1

6.3.2.2

6.4

6.4.1

6.4.2

1.

6.4.3—6.4.13,

( 6.1),

( )

( - )

( . ),

$f_d$

10 %

6.4.3

6.4.3.1

6.4.3.1.1

6.4.3.1.2

)

6.4.3.2

6.4.3.2.1

6.4.3.2.2

6.4.3.2.1.

6.4.4

6.4.4.1

n-

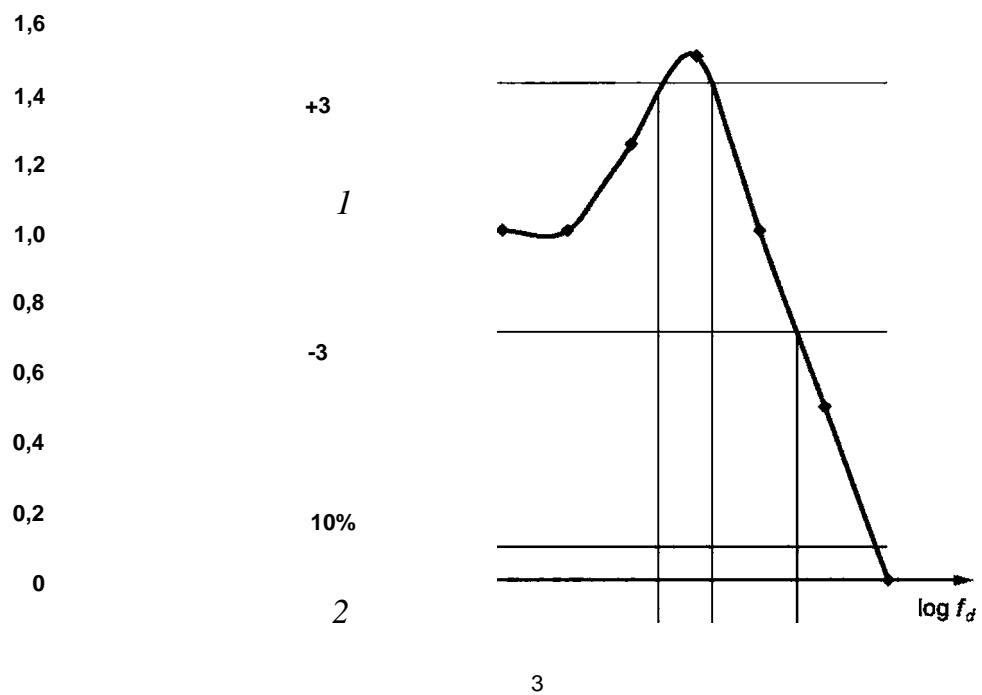
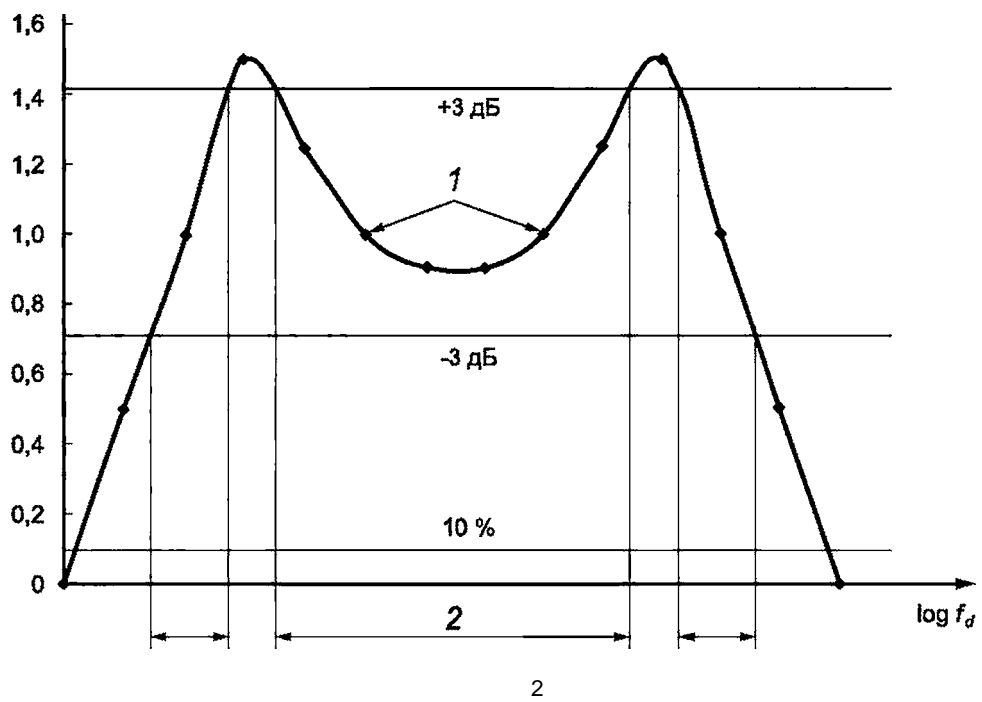
$V_{in}$

( )

$= 20 \log \frac{\dots}{71}$

(5)





— ( ) ; 1 — ; 2 — ±3 ; 4 —

6.4.6  
6.4.6.1

6.4.5.2

3.

6.4.6.2

6.4.5.2.

**6.4.7**

6.4.7.1

0° 360°.

6.4.7.2

(X)  $f_e$  360  $f_d$  (T. . 10° ). 2.

2—

<i>i</i>	1	2											
X													
Y													

$$- 1 - X_{av} \quad X_j \quad - 1 - Y_{av} \quad Y_j$$

$$\wedge mi'' \wedge (Y_{j_{rec}}/X_j), \quad X_{j_{rec}} > 0, \quad (6)$$

$$, = \arctg (Y_{, <e>}/X_{i_{rec}}) + 180'', \quad X_{, rec} < 0. \quad (7)$$

+ 0. . 3.

3—

<i>i</i>	1	2											
1													

= ( /- 1 )-  
**6.4.8**  
 6.4.8.1

6.4.8.2

X

90°

6.4.6,  $f_e$  360  $f_d$  ( . . 1°).

**6.4.9**  
 6.4.9.1

6.4.9.2

$X_{ref}$   $Y_{ref}$

6 10

$$= 20 \cdot \log \left( \frac{V_y}{V_{yref}} \right) \quad (8)$$

$$\left( \frac{V_y}{V_{yref}} \right) \quad (9)$$

6.4.10

6.4.10.1

6.4.10.2

$X_{ref}$   $Y_{ref}$

$0^\circ$  ( )

$$V_0 = \sqrt{(X_0 - X_{ref})^2 + (Y_0 - Y_{ref})^2}, \quad (10)$$

$$= \arctg \left( \frac{Y_0 - Y_{ref}}{X_0 - X_{ref}} \right), \quad X_0 - X_{ref} > 0, \quad (11)$$

$$= \arctg \left( \frac{Y_0 - Y_{ref}}{X_0 - X_{ref}} \right) + 180^\circ, \quad X_0 - X_{ref} < 0. \quad (12)$$

360°.

10° ( )

$$\left( \frac{V_y}{V_{yref}} \right) \quad (13)$$

:

$$\bullet 100. \tag{14}$$

6.4.11  
6.4.11.1

6.4.11.2  
6.4.11.2.1

$$ps; | = \wedge Xj + \vee Yj \bullet \tag{15}$$

/-

$$t, = 20 \log \max_{7>} \frac{\prod k}{Vs/} \tag{16}$$

$$t = \max^{\wedge}$$

6.4.11.2.2  
6.4.11.2.2.1

6.4.11.2.1,

$$\left( \begin{matrix} 1 \\ \end{matrix} \right) \quad \left( \begin{matrix} 2 \\ \end{matrix} \right)$$

6.4.11.2.2.2

( . 5).

$$(V_{xa} \ V_{ya}).$$

X

$$V_{xa} \wedge \quad V_{XM} \quad 1. \quad 2.$$

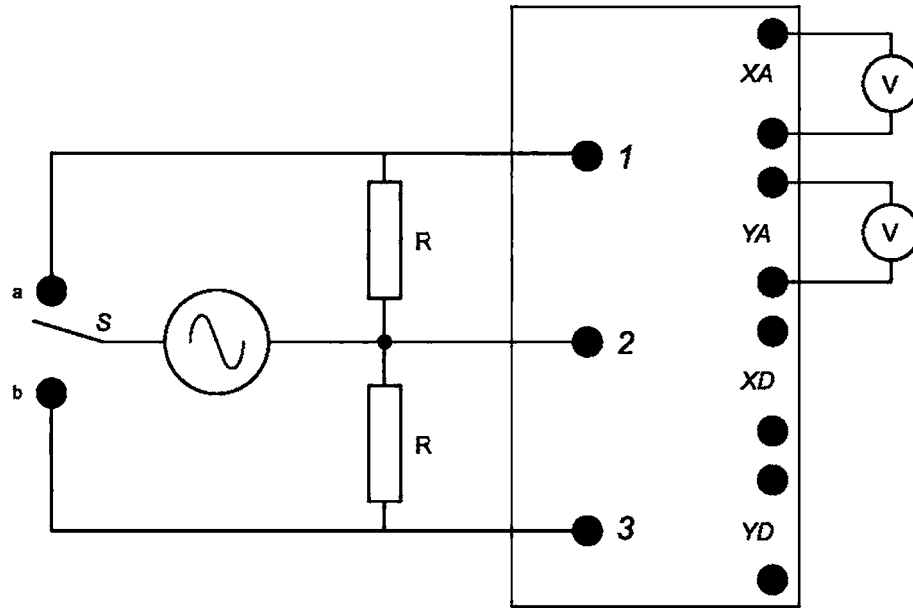
$$V_{xa} \wedge \quad V_{XA2} \ V_{YA2}$$

$$| \wedge / | = \wedge XAi + \vee YAi >$$

/ = 1 2.

t, , :

$$tj = 20 \log \quad Vs^{\wedge} 2 \tag{18}$$



- 1.
- 2.

1— 1; 2— ; 3— 2

5—

**6.4.12**  
6.4.12.1

6.4.12.2

( . . . 6).

$V^{\wedge} V_Y$  1. 1. 2 (« »),

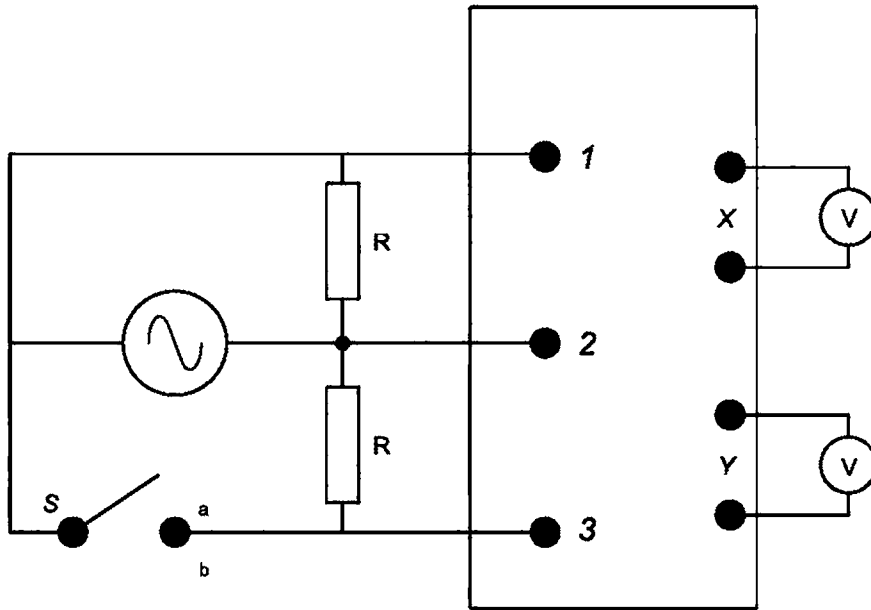
$V_x V_Y$  2  $V_{Y2}$ .

$$pS/| = \wedge \nu X I^{\wedge} \nu Y I \bullet \quad (19)$$

$I = 1$  2.

$q_r$  :

(20)



- 1.
  - 2.
- 1— ; 2— ; 3— 2
- 6—

6.4.13  
6.4.13.1

( ) .

6.4.13.2

=  $G_{min}$  -

$$G_{max} = \frac{V_{max\ out}}{V_{noise\ out}}$$

(RMS- )

$$V_{eq\ noiseout} = \frac{V_{in\ min}}{G_{max\ out\ max}}$$

6.5

6.3.1.

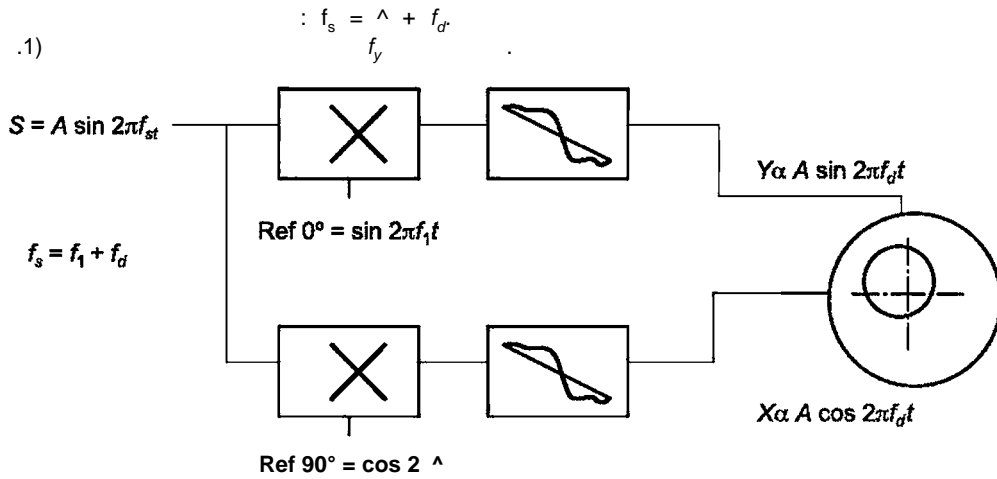
6.6

« » ,

4.2.9.

( )

( . .1)



.1—

$$S_x(t) = A \sin^2 \pi f_1 t + A \sin 2\pi f_1 t \cos 2\pi f_d t$$

$$2 [\cos 2\pi (f_1 + f_d) t + \cos 2\pi (f_1 - f_d) t]$$

$$S_y(t) = A \sin[2\pi (f_1 + f_d) t] \cos 2\pi f_1 t \tag{A.1}$$

$$S_y(t) = \frac{A}{2} [\sin 2\pi (f_1 + f_d) t + \sin 2\pi (2f_1 + f_d) t] \tag{A.2}$$

(.1) (.2),

$(2f_1 + f_d)$ .

$f_d$

$f_d$

10 %

$f_d$

$f_s$

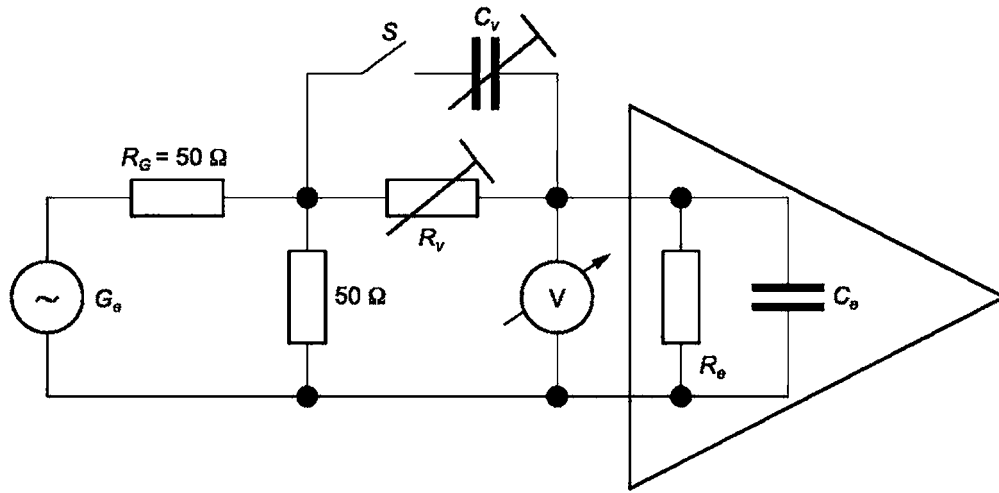
$f_s$



( )

1, ( )

$R_e$



.1 —

$R_G$  ( $G_e$ )  $R_e$  -  
 50 ( 50 ) ,  
 S.  $R_e$   $f_{G1}$  ( 1 ) -  
 $R_v$   $R_e$  ,  $R_v$   $R_v = 0$ .

$V_1 = 0,5V$  ( $R_y = 0$ ).

$R_v$   $R_c$  :

$f_{G2}$

$R_v$  , 1:

$V_{C2} = 0,5V_{C1}$  ( $R_v = R_c$ ).

1 ( $R_v = R_e$ ).

S, a  $C_v$

$f_{G1}$   $f_{G2}$  , 1  $V_{e2}$

$C_v = C_e$ .

$R_v$   $C_v$   $C$

$R_e$

$C_v$

( )

.1

ISO 12718	<b>IDT</b>	12718—2009 « · » - -
ISO 15549	<b>IDT</b>	15549—2009 « · » - -
- IDT —		

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29.12.2025.

06.02.2026.

60x84%.

. . . 3,26. . . . 2,77.

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