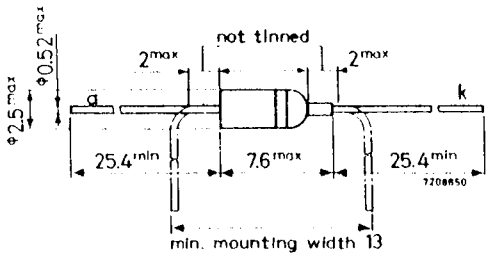
GOLD BONDED DIODES

Gold bonded germanium diodes in subminiature all glass DO-7 envelope, intended for switching applications and general purposes.

QUICK REFERENCE DATA					
			AAZ15	AAZ17	
Continuous reverse voltage	V_R	max.	75	50	V
Repetitive peak reverse voltage	V_{RRM}	max.	100	75	V
Forward current (d.c.)	I_F	max.	140	140	mA
Repetitive peak forward current	I_{FRM}	max.	250	250	mA
Junction temperature	T_j	max.	85	85	°C
Forward voltage at I_F = 250 mA	V_F	<	1.1	1.1	V
Recovered charge when switched from I_F = 10 mA to V_R = 10 V	Q_s	<	1800	900	pC

MECHANICAL DATA Dimensions in mm

DO-7



The coloured band indicates the cathode side

RATINGS (Limiting values) [1])

			AAZ15	AAZ17	
Voltages					
Continuous reverse voltage	V_R	max.	75	50	V
Repetitive peak reverse voltage	V_{RRM}	max.	100	75	V
Non repetitive peak reverse voltage ($t < 1$ s)	V_{RSM}	max.	115	75	V
Currents					
Forward current (d.c.)	I_F	max.	140		mA
Average rectified forward current (averaged over any 20 ms period)	I_{FAV}	max.	140		mA
Repetitive peak forward current	I_{FRM}	max.	250		mA
Non repetitive peak forward current ($t < 1$ s)	I_{FSM}	max.	500		mA
Temperatures					
Storage temperature	T_{stg}		−65 to +85		°C
Junction temperature	T_j	max.	85		°C

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\,j\text{-}a}$	=	0.45	°C/mW

[1]) Limiting values according to the Absolute Maximum System as defined in IEC publication 134.

CHARACTERISTICS

Forward voltage at T_j = 25 °C

I_F = 0.1 mA	V_F < 0.20 V
I_F = 10 mA	V_F < 0.45 V
I_F = 250 mA	V_F < 1.10 V

Forward voltage at T_j = 60 °C

I_F = 0.1 mA	V_F < 0.15 V
I_F = 10 mA	V_F < 0.40 V
I_F = 250 mA	V_F < 1.07 V

Reverse current at T_j = 25 °C			AAZ15	AAZ17	
V_R = 1.5 V	I_R	<	2.5	2.5	μA
V_R = 10 V	I_R	<	4	15	μA
V_R = 50 V	I_R	<	15	150	μA
V_R = 75 V	I_R	<	25	300	μA
V_R = 100 V	I_R	<	100	–	μA
Reverse current at T_j = 60 °C					
V_R = 1.5 V	I_R	<	30	30	μA
V_R = 10 V	I_R	<	40	60	μA
V_R = 50 V	I_R	<	80	300	μA
V_R = 75 V	I_R	<	120	500	μA
V_R = 100 V	I_R	<	300	–	μA
Diode capacitance					
V_R = 1 V; f = 1 MHz	C_d	<	2	2	pF

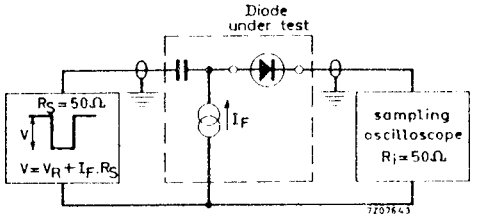
CHARACTERISTICS (continued) T_j = 25 °C

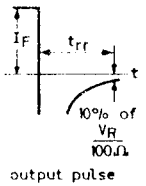
Reverse recovery time when switched
from I_F = 10 mA to V_R = 1 V; R_L = 100 Ω

Measured at I_R = 10 % of $\frac{V_R}{R_L}$

AAZ15	t_{rr}	typ.	350	ns
AAZ17	t_{rr}	<	350	ns

Test circuit:





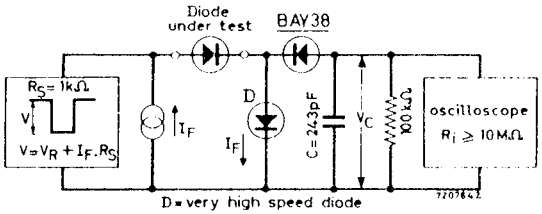
Reverse pulse: Rise time t_r = 0.6 ns
Pulse duration t_p = 100 ns
Duty cycle δ = 0.05

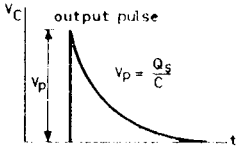
Circuit capacitance C < 1 pF (C = Oscilloscope + parasitical capacitance)

Recovered charge when switched
from I_F = 10 mA to V_R = 10 V; R_L = 1 kΩ

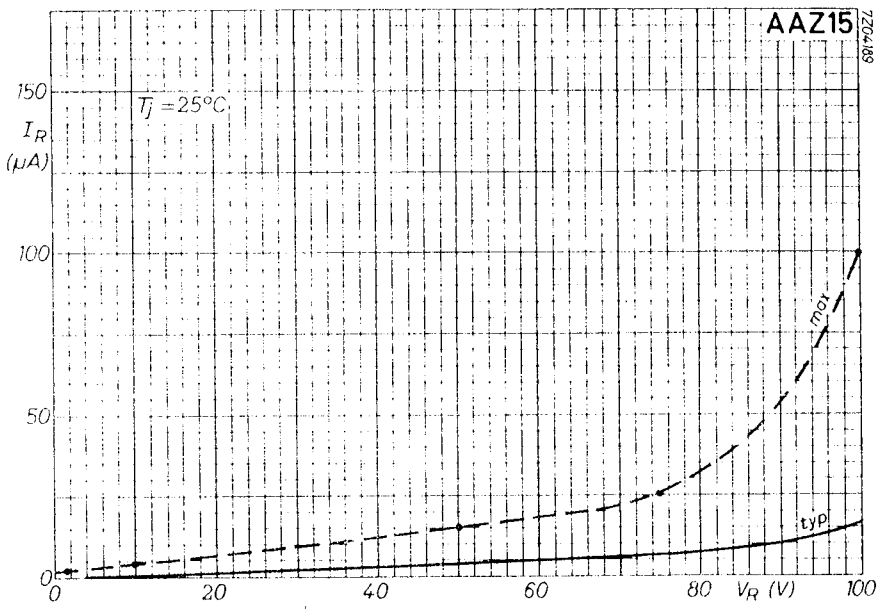
AAZ15	Q_s	<	1800	pC
AAZ17	Q_s	<	900	pC

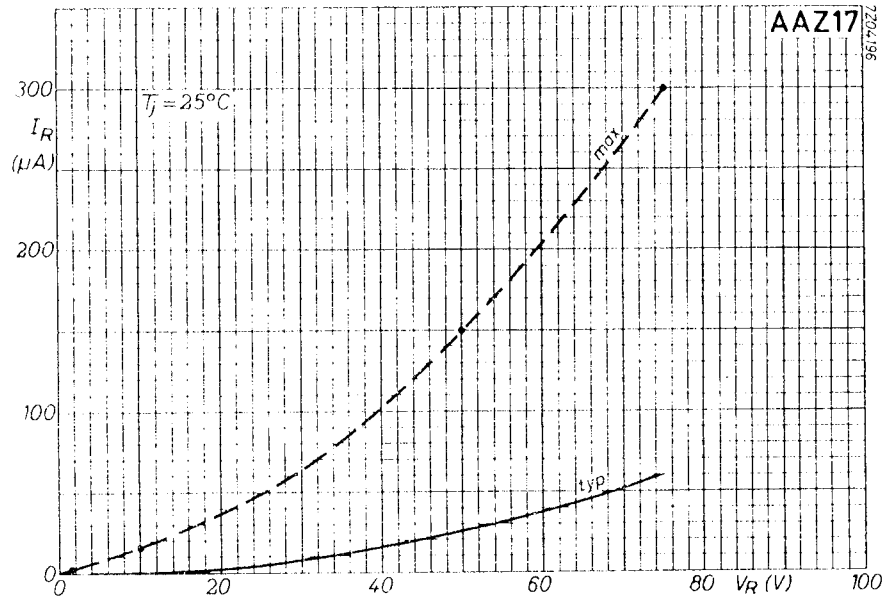
Test circuit:

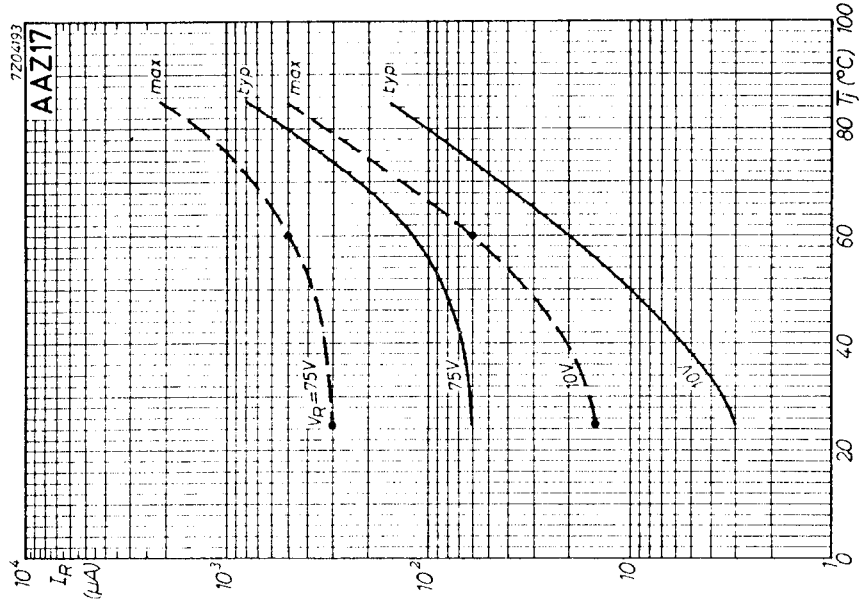


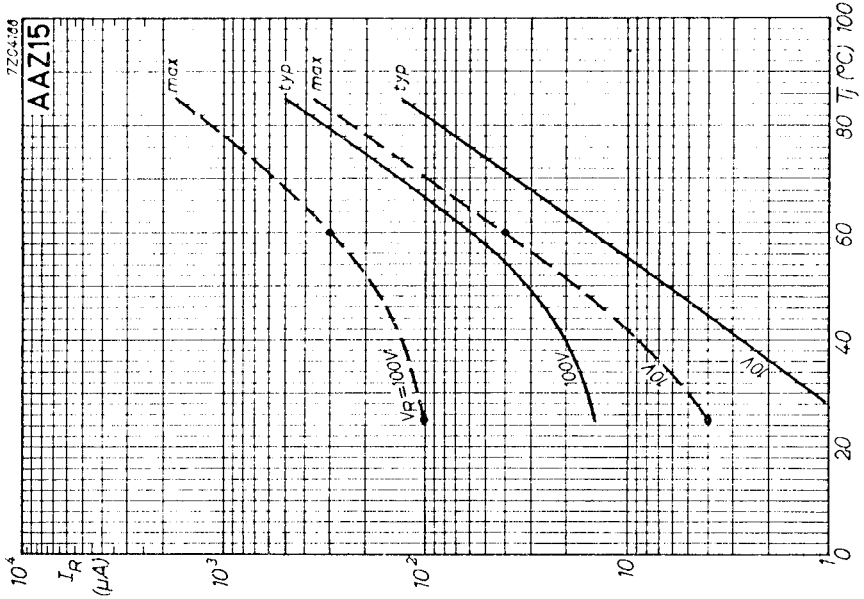


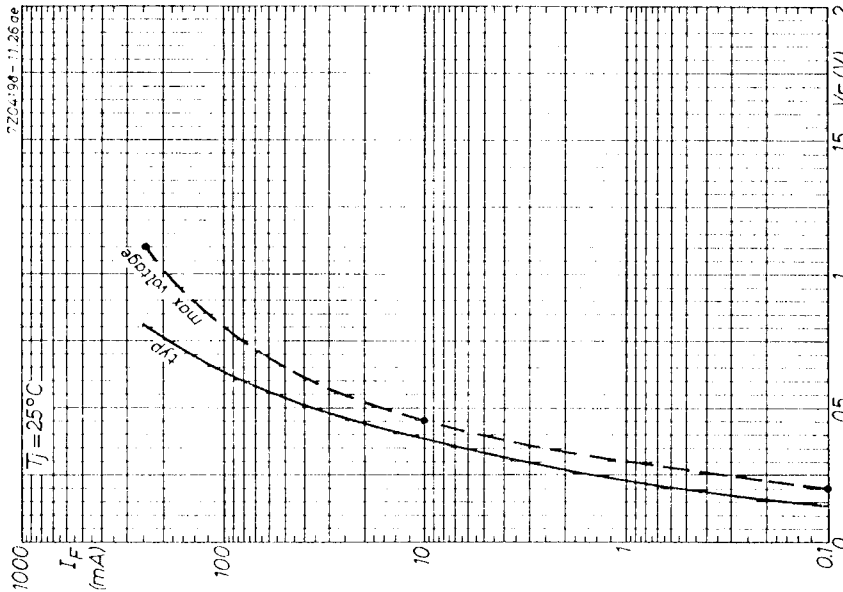
Reverse pulse: Rise time t_r = 2 ns
Pulse duration t_p = 0.4 µs
Duty cycle δ = 0.02

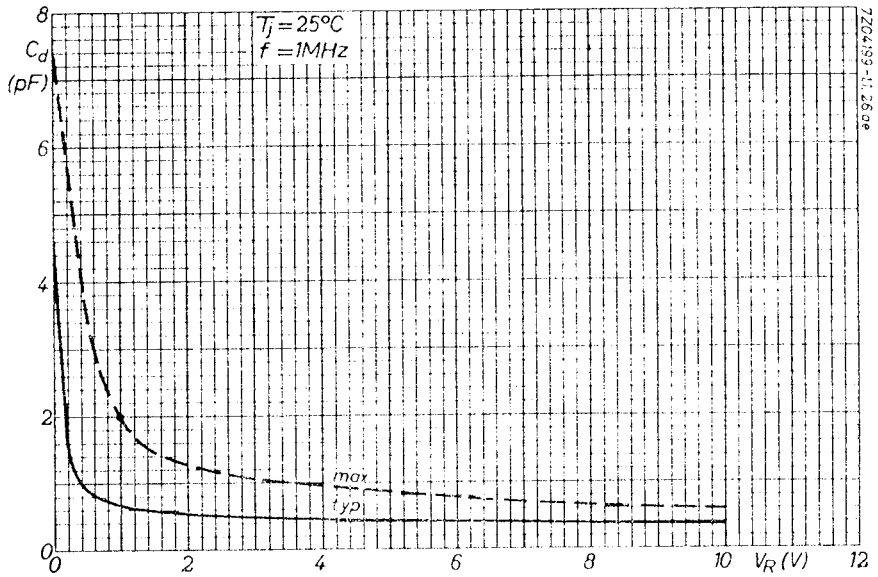

AAZ15
7Z70498
$T_j = 25°C$
I_R (μA)
150
100
50
0
max
typ
0
20
40
60
80
V_R (V)
100

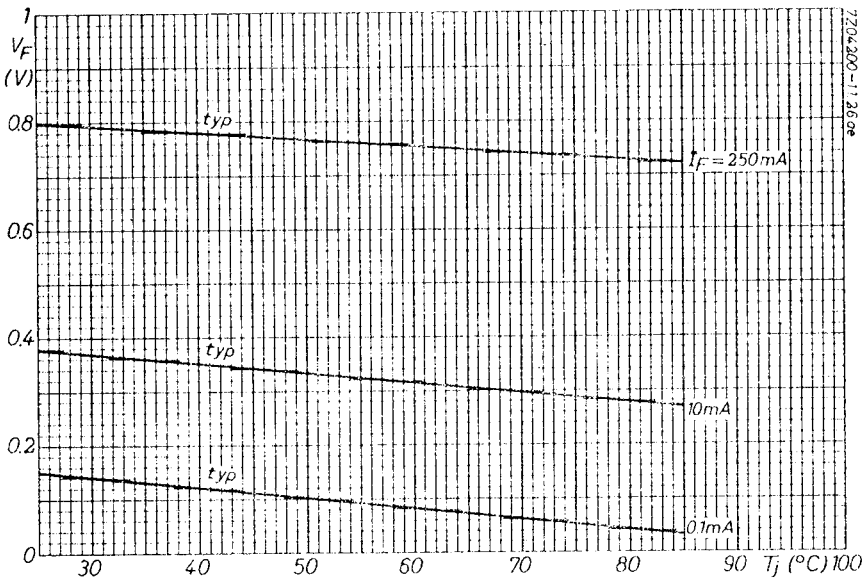

AAZ17
7Z70496
$T_j = 25°C$
I_R (μA)
300
200
100
0
max
typ
0
20
40
60
80
V_R (V)
100

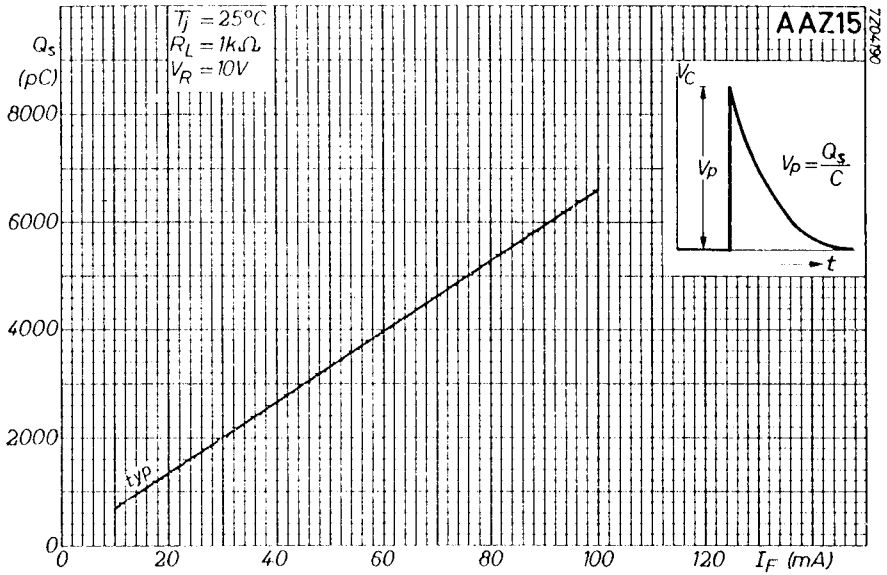

7Z04193
AAZ17
max
typ
max
typ
V_R=75V
75V
10V
1V
10^4
I_R (μA)
10^3
10^2
10
1
0
20
40
60
80
T_j (°C)
100

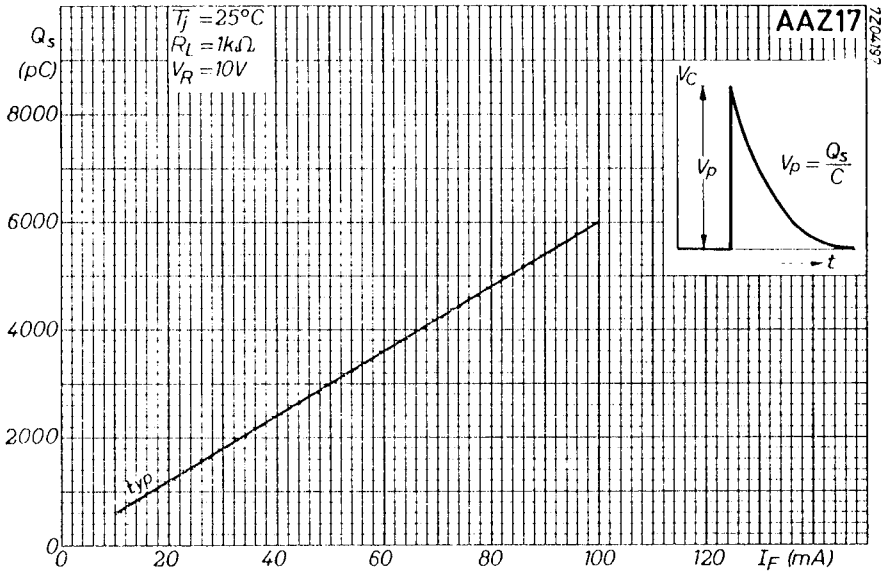

7Z04188
AAZ15
max
typ
max
typ
V_R=100V
100V
10V
1V
10^4
I_R (μA)
10^3
10^2
10
1
0
20
40
60
80
T_j (°C)
100

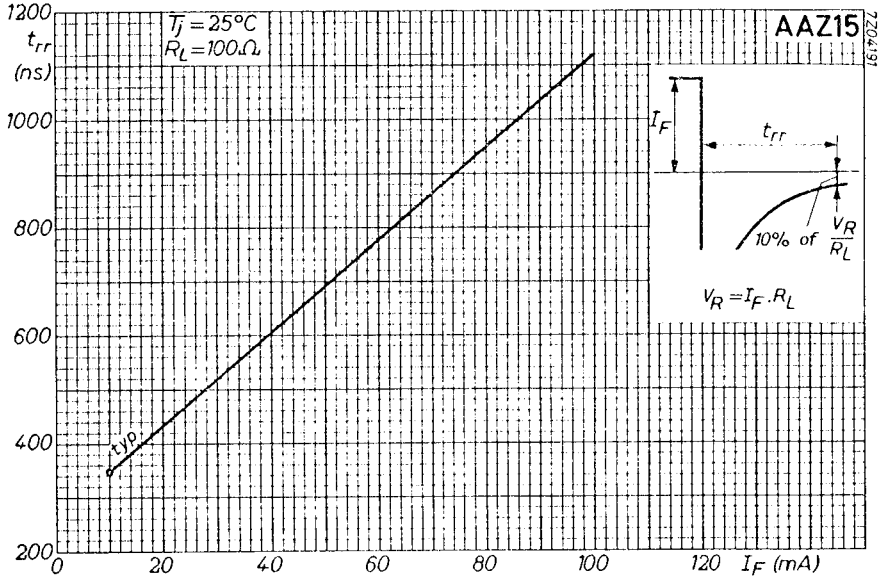

2204194-11.26.ae
$T_j = 25°C$
I_F (mA)
1000
100
10
1
0.1
V_F (V)
0
0.5
1
1.5
2
max. voltage
typ.

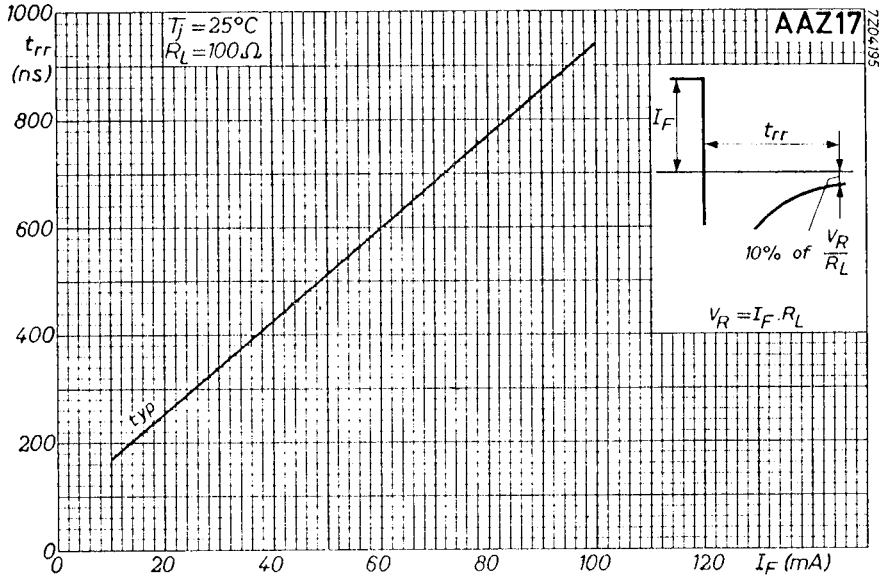

$T_j = 25°C$
$f = 1MHz$
C_d (pF)
max
typ
V_R (V)
7204199-1126.0e

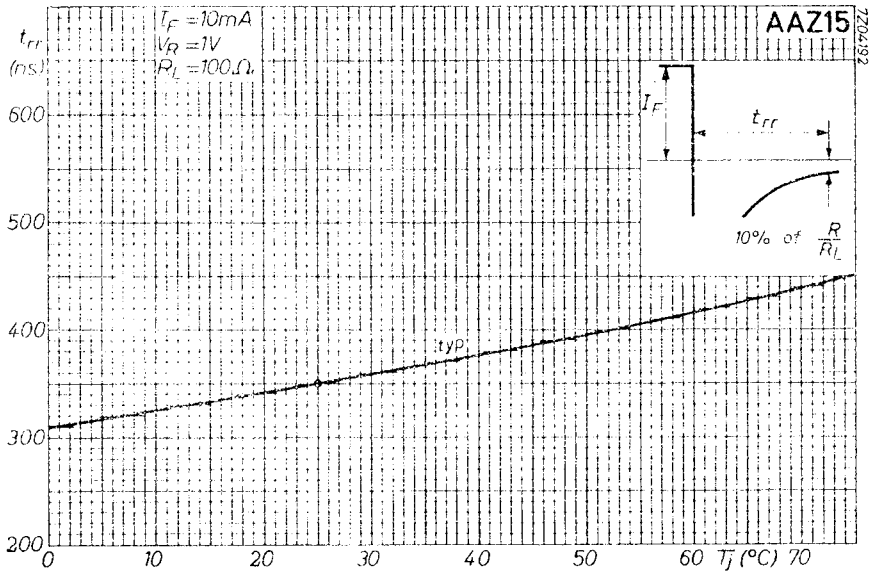

V_F (V)
typ
$I_F = 250mA$
typ
10mA
typ
0.1mA
T_j (°C)
7204200-1126.0e

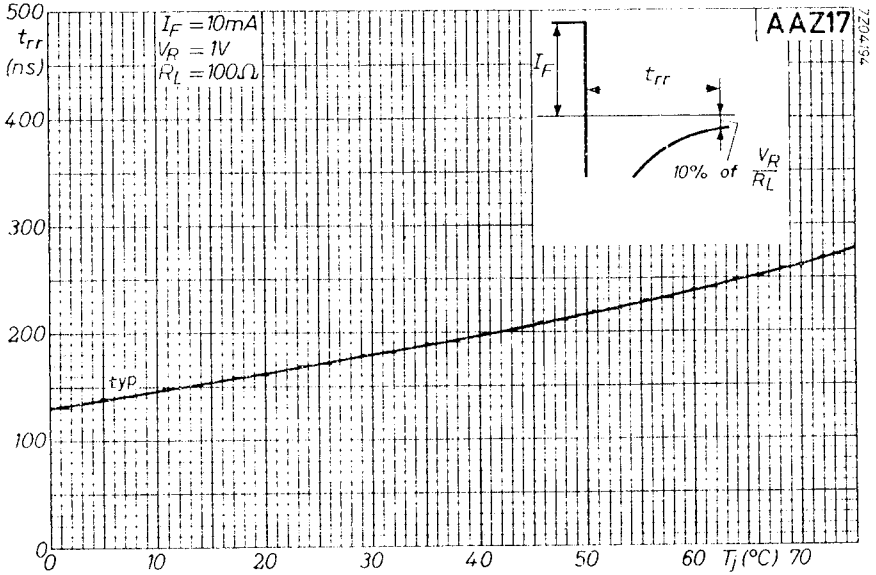

AAZ15
7Z04190
T_j = 25°C
R_L = 1kΩ
V_R = 10V
Q_s (pC)
8000
6000
4000
2000
0
typ.
0
20
40
60
80
100
120
I_F (mA)
V_C
V_p
$V_p = \frac{Q_s}{C}$
t


AAZ17
7Z04197
T_j = 25°C
R_L = 1kΩ
V_R = 10V
Q_s (pC)
8000
6000
4000
2000
0
typ.
0
20
40
60
80
100
120
I_F (mA)
V_C
V_p
$V_p = \frac{Q_s}{C}$
t


AAZ15
$T_j = 25°C$
$R_L = 100\Omega$
t_{rr} (ns)
1200
1000
800
600
400
200
typ.
0
20
40
60
80
100
120
I_F (mA)
I_F
t_{rr}
10% of $\frac{V_R}{R_L}$
$V_R = I_F . R_L$
2Z04619


AAZ17
$T_j = 25°C$
$R_L = 100\Omega$
t_{rr} (ns)
1000
800
600
400
200
0
typ.
0
20
40
60
80
100
120
I_F (mA)
I_F
t_{rr}
10% of $\frac{V_R}{R_L}$
$V_R = I_F . R_L$
2Z04595


AAZ15
I_F = 10mA
V_R = 1V
R_L = 100Ω
t_{rr} (ns)
600
500
400
300
200
typ
0
10
20
30
40
50
60
T_j (°C)
70
I_F
t_{rr}
10% of $\frac{R}{R_L}$
2704.192


AAZ17
I_F = 10mA
V_R = 1V
R_L = 100Ω
t_{rr} (ns)
500
400
300
200
100
0
typ
0
10
20
30
40
50
60
T_j (°C)
70
I_F
t_{rr}
10% of $\frac{V_R}{R_L}$
2704.194