GENERAL PURPOSE DIODES

Silicon planar epitaxial diodes in DO-35 envelopes; intended for switching and general purposes in industrial equipment e.g. oscilloscopes, digital voltmeters and video output stages in colour television.

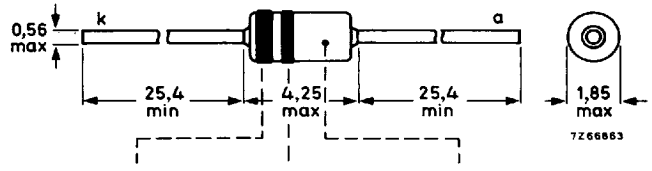
QUICK REFERENCE DATA

			BAV18	BAV19	BAV20	BAV21	
Continuous reverse voltage	V_R	max.	50	100	150	200	V
Forward current (d.c.)	I_F	max.		250			mA
Junction temperature	T_j	max.		175			°C
Thermal resistance from junction to ambient	$R_{th\ j\text{-}a}$	=		0,375			K/mW
Forward voltage at I_F = 100 mA	V_F	<		1,0			V
Reverse current at $V_R = V_{Rmax}$	I_R	<		100			nA
Diode capacitance at V_R = 0; f = 1 MHz	C_d	typ.		1,5			pF
		<		5,0			pF
Reverse recovery time when switched from I_F = 30 mA to I_R = 30 mA; R_L = 100 Ω; measured at I_R = 3 mA	t_{rr}	<		50			ns

MECHANICAL DATA

Dimensions in mm

Fig. 1 SOD-27 (DO-35).



BAV18:	**brown**	**grey**	**green**
BAV19:	**brown**	**white**	**green**
BAV20:	**red**	**black**	**green**
BAV21:	**red**	**brown**	**green**
	(cathode)		

Diodes may be either type-branded or colour coded.

Products approved to CECC 50 001-022.

RATINGS Limiting values in accordance with the Absolute Maximum System (IEC 134)

			BAV18	BAV19	BAV20	BAV21	
Continuous reverse voltage	V_R	max.	50	100	150	200	V
Repetitive peak reverse voltage	V_{RRM}	max.	60	120	200	250	V

Average rectified forward current	$I_{F(AV)}$	max.	250	mA 1)
Forward current (d.c.)	I_F	max.	250	mA
Repetitive peak forward current	I_{FRM}	max.	625	mA
Non-repetitive peak forward current				
$t < 1$ s ; $T_j = 25\ ^oC$	I_{FSM}	max.	1	A
$t = 1\ \mu s$; $T_j = 25\ ^oC$	I_{FSM}	max.	5	A
Total power dissipation up to $T_{amb} = 25\ ^oC$	P_{tot}	max.	400	mW
Storage temperature	T_{stg}		−65 to +175	^oC
Junction temperature	T_j	max.	175	^oC

THERMAL RESISTANCE

From junction to ambient in free air	$R_{th\ j-a}$	=	0,375	K/mW

1) For pulse operation see Figs 3 to 6. For sinusoidal operation see Figs 7 to 10.

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Forward voltage

I_F = 100 mA	V_F	<	1,0	V
I_F = 200 mA	V_F	<	1,25	V

Reverse breakdown voltage

			BAV18	BAV19	BAV20	BAV21	
I_R = 100 μA	$V_{(BR)R}$	>	60	120	200	250	V

Reverse current

$V_R = V_{Rmax}$	I_R	<	100	nA
$V_R = V_{Rmax}$; T_j = 150 °C	I_R	<	100	μA

Differential resistance

I_F = 10 mA	r_{diff}	typ.	5	Ω

Diode capacitance

V_R = 0; f = 1 MHz	C_d	typ.	1,5	pF
		<	5,0	pF

Reverse recovery time when switched from

I_F = 30 mA to I_R = 30 mA; R_L = 100 Ω; measured at I_R = 3 mA	t_{rr}	<	50	ns

Test circuit and waveforms:

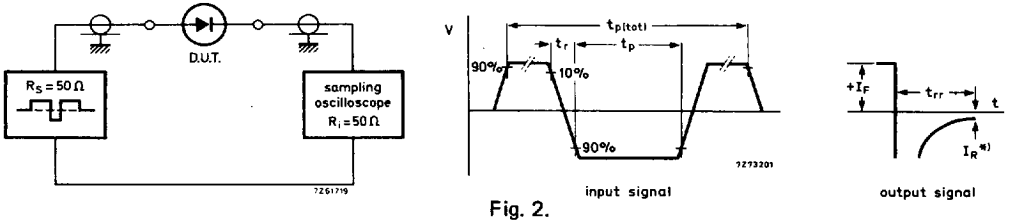


Fig. 2.

Input signal : Total pulse duration $t_{p(tot)}$ = 2 μs

Duty factor δ = 0,0025

Rise time of the reverse pulse t_r = 0,6 ns

Reverse pulse duration t_p = 100 ns

Oscilloscope: Rise time t_r = 0,35 ns

*) I_R = 3 mA

Circuit capacitance C ≤ 1 pF (C = oscilloscope input capacitance + parasitic capacitance)

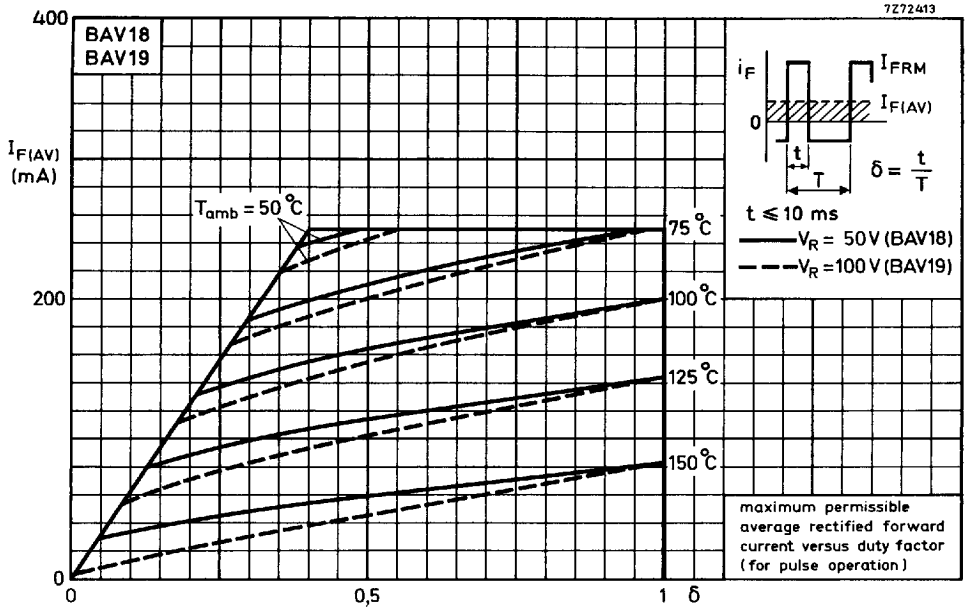


Fig. 3.

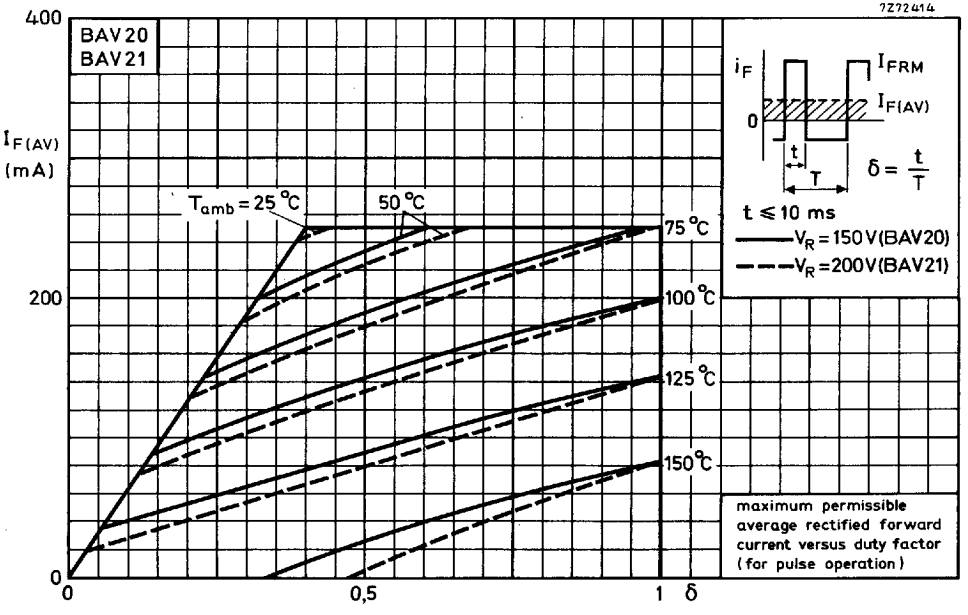


Fig. 4.

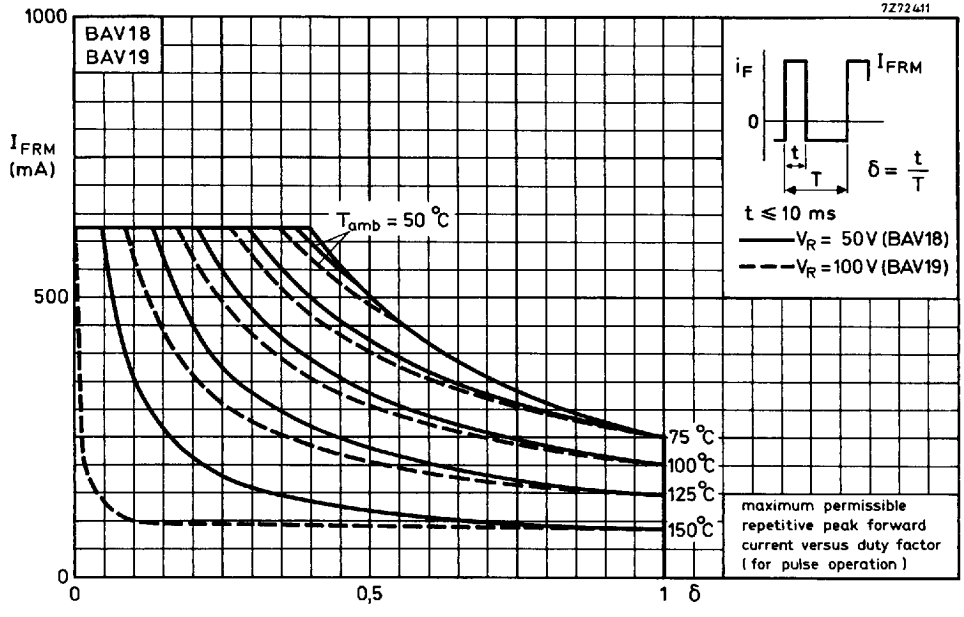


Fig. 5.

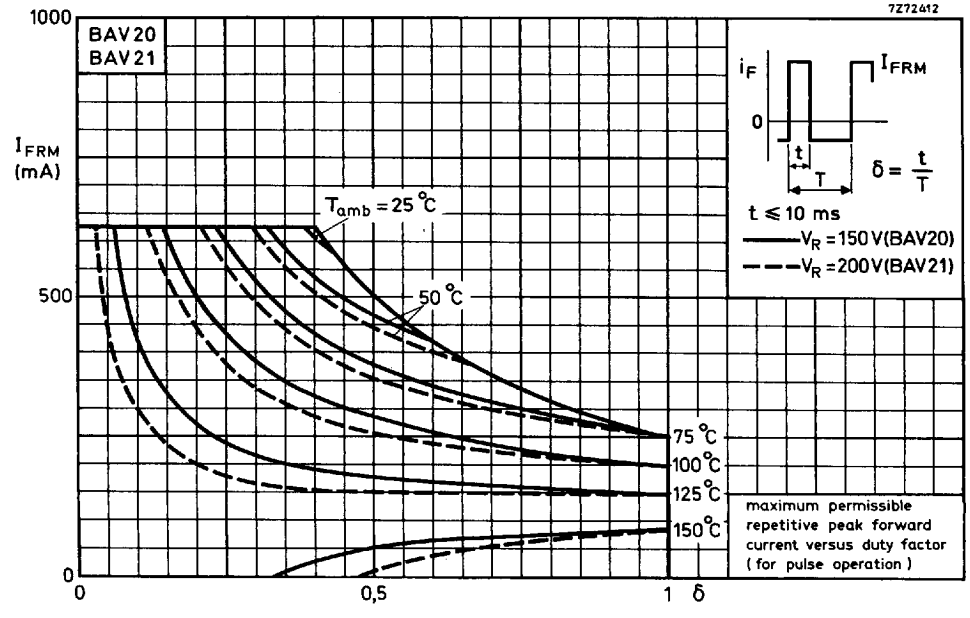


Fig. 6.

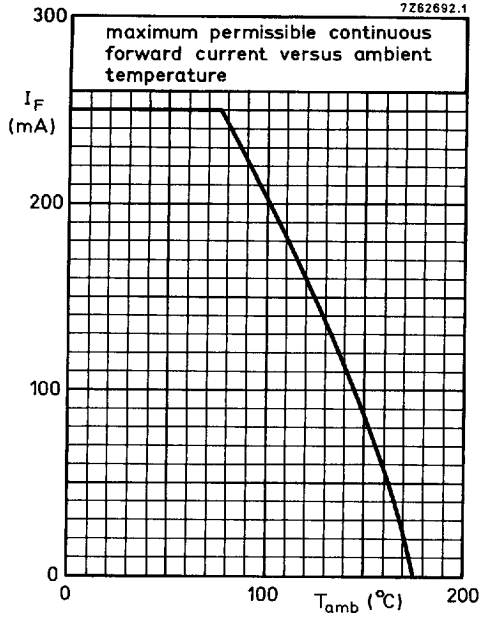


Fig. 7.

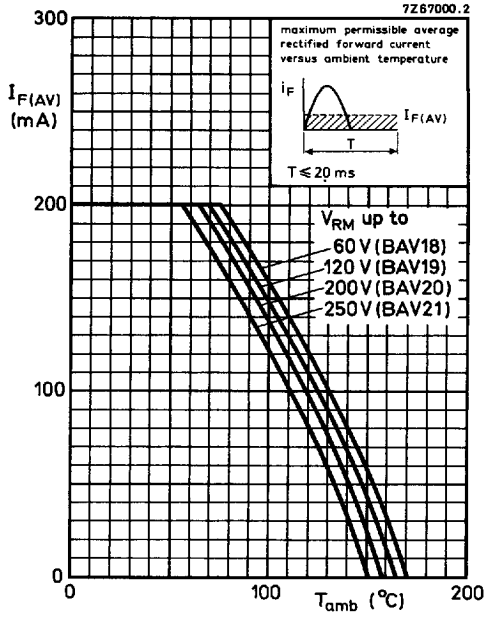


Fig. 8.

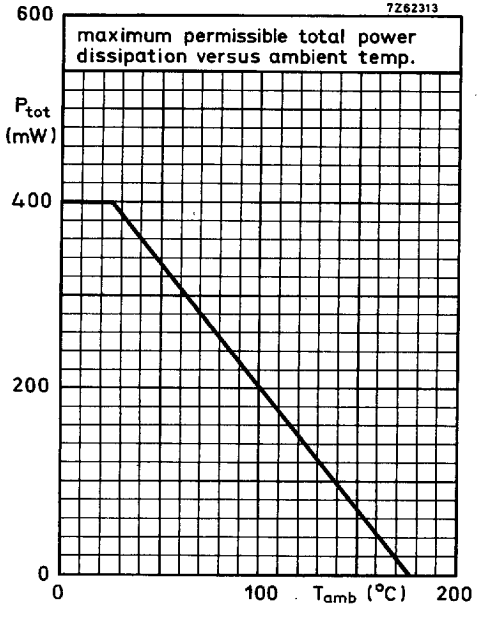


Fig. 9.

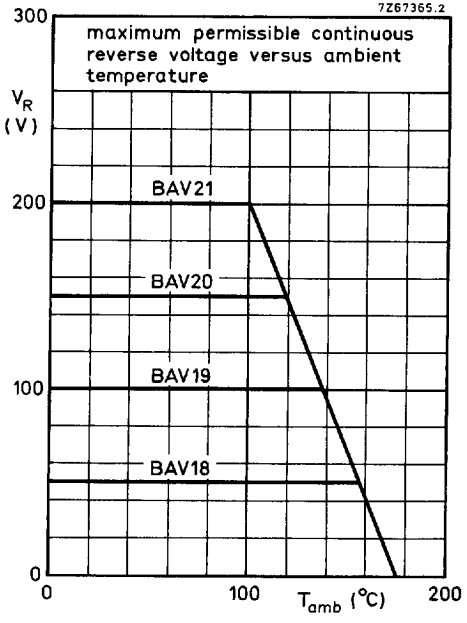


Fig. 10.

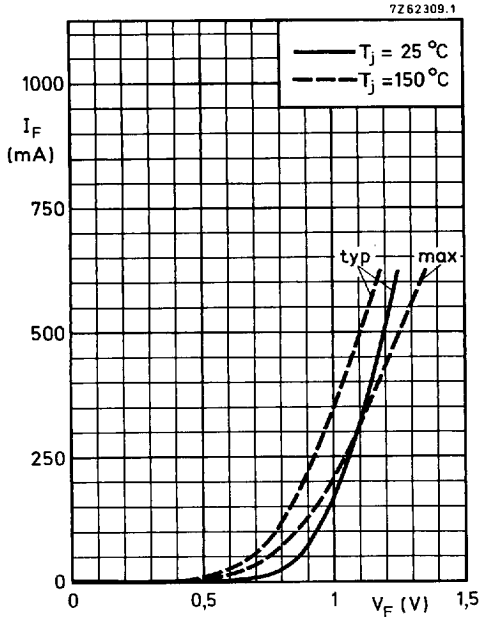


Fig. 11.

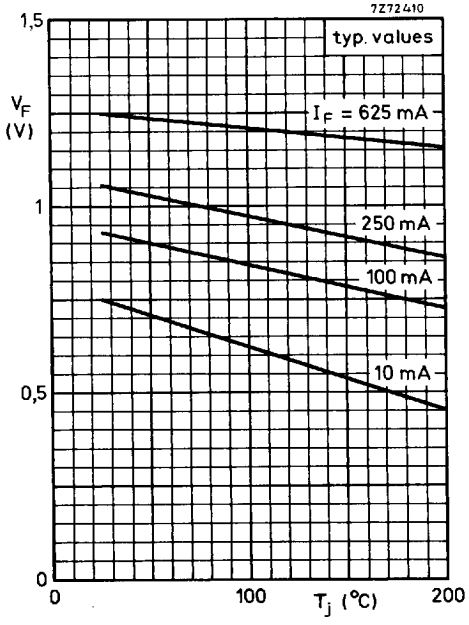


Fig. 12.

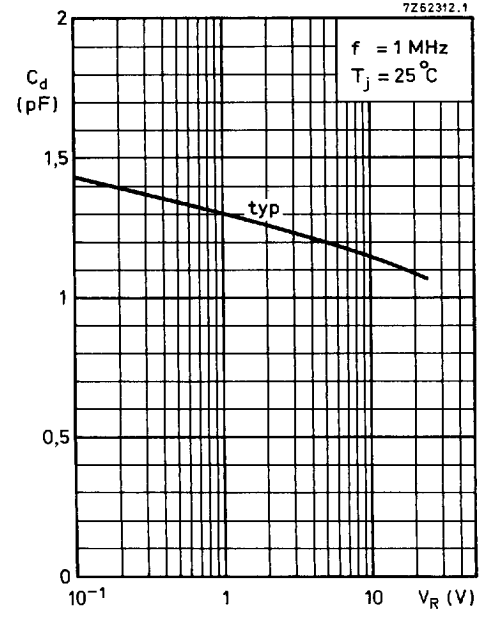


Fig. 13.

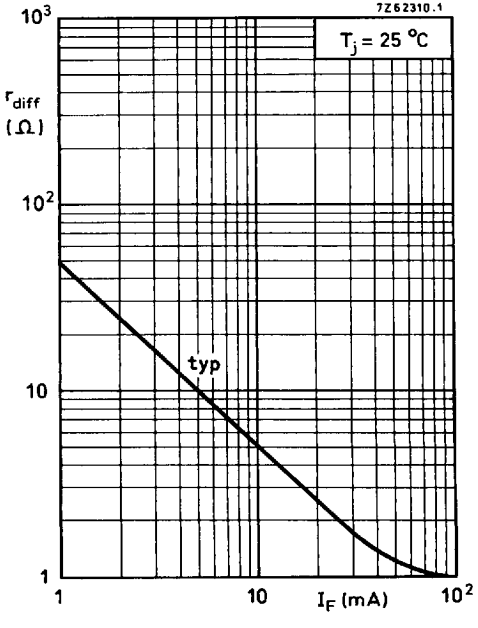


Fig. 14.

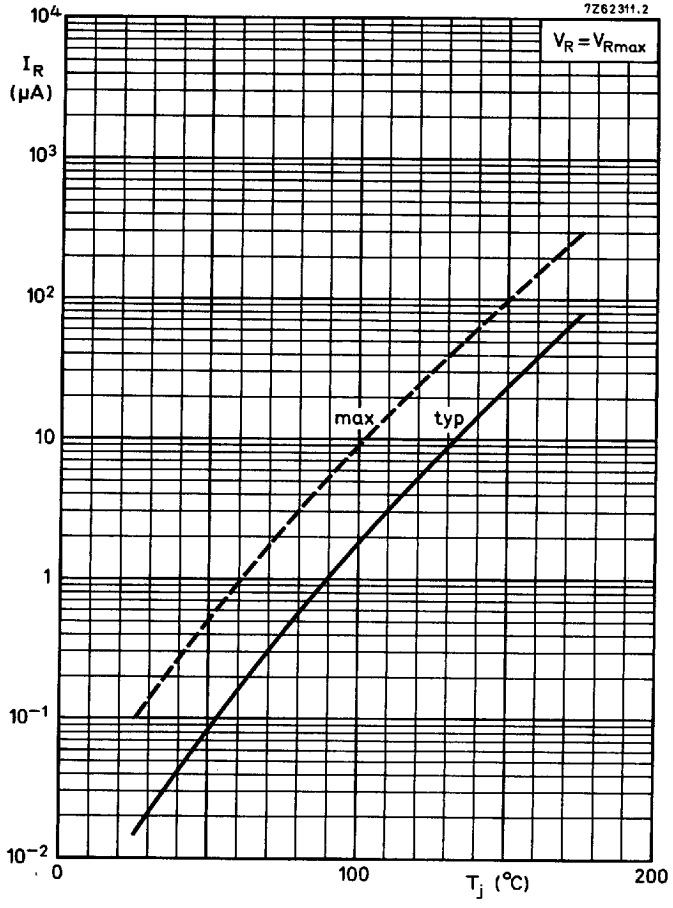


Fig. 15.