HIGH-SPEED SILICON DIODES FOR SURFACE MOUNTING

These diodes are primarily designed for fast logic applications.

These SM diodes are leadless diodes in a hermetically sealed SOD80C envelope with tin-plated metal discs at each end. They are suitable for "automatic placement" and as such it can withstand immersion soldering.

The diodes are delivered in "super 8" tape.

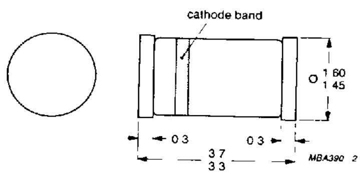
QUICK REFERENCE DATA

Continuous reverse voltage	V_R	max.	75 V
Repetitive peak reverse voltage	V_{RRM}	max.	75 V
Repetitive peak forward current	I_{FRM}	max.	450 mA
Forward voltage PMLL4148: I_F = 10 mA PMLL4446: I_F = 20 mA PMLL4448: I_F = 100 mA	V_F	<	1 V
Reverse recovery time when switched from I_F = 10 mA to I_R = 60 mA; R_L = 100 Ω; measured at I_R = 1 mA	t_{rr}	<	4 ns

MECHANICAL DATA

Dimensions in mm

Fig. 1 SOD80C.



Cathode indicated by black band.

RATINGS

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

Continuous reverse voltage	V_R	max.	75	V
Repetitive peak reverse voltage	V_{RRM}	max.	75	V
Average rectified forward current	$I_{F(AV)}$	max.	150	mA
Forward current (d.c.)	I_F	max.	200	mA
Repetitive peak forward current	I_{FRM}	max.	450	mA
Non-repetitive peak forward current				
t = 1 μs	I_{FSM}	max.	2000	mA
t = 1 s	I_{FSM}	max.	500	mA
Total power dissipation up to T_{amb} = 25 °C	P_{tot}	max.	500	mW
Derating factor			2,85	mW/K
Storage temperature	T_{stg}	−65 to + 200		°C
Junction temperature	T_j	max.	200	°C

CHARACTERISTICS

T_j = 25 °C unless otherwise specified

Forward voltages					
PMLL4148: I_F = 10 mA; PMLL4446: I_F = 20 mA; PMLL4448: I_F = 100 mA		V_F	<	1	V
PMLL4448: I_F = 5 mA		V_F	0,62 to 0,72		V
Reverse avalanche breakdown voltage					
I_R = 100 μA		$V_{(BR)R}$	>	100	V
I_R = 5 μA		$V_{(BR)R}$	>	75	V
Reverse currents					
V_R = 20 V		I_R	<	25	nA
V_R = 20 V; T_j = 100 °C	PMLL4448	I_R	<	3	μA
V_R = 20 V; T_j = 150 °C		I_R	<	50	μA
Diode capacitance					
V_R = 0; f = 1 MHz		C_d	<	4	pF
Forward recovery voltage when switched					
to I_F = 50 mA; t_r = 20 ns		V_{fr}	<	2,5	V

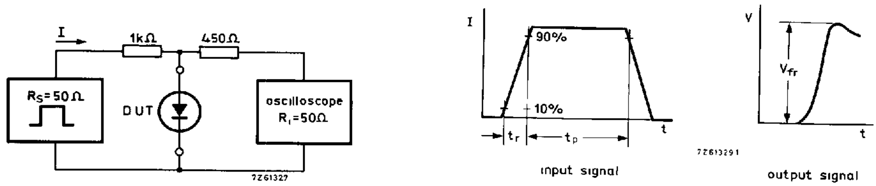


Fig. 2 Forward recovery voltage test circuit and waveforms.

Input signal:	Rise time of the forward pulse	t_r = 20 ns
	Forward current pulse duration	t_p = 120 ns
	Duty factor	δ = 0,01
Oscilloscope:	Rise time	t_r = 0,35 ns

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

Reverse recovery time when switched from
I_F = 10 mA to I_R = 60 mA; R_L = 100 Ω;
measured at I_R = 1 mA $\quad t_{rr} < 4$ ns

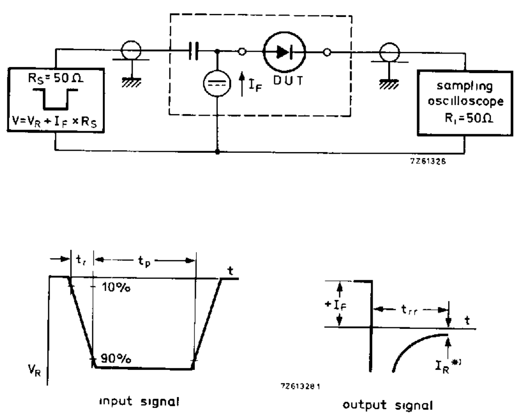


Fig. 3 Reverse recovery time test circuit and waveforms.

Input signal:	Rise time of the reverse pulse	t_r = 0,6 ns	* I_R = 1 mA
	Reverse pulse duration	t_p = 100 ns	
	Duty factor	δ = 0,05	
Oscilloscope:	Rise time	t_r = 0,35 ns	

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