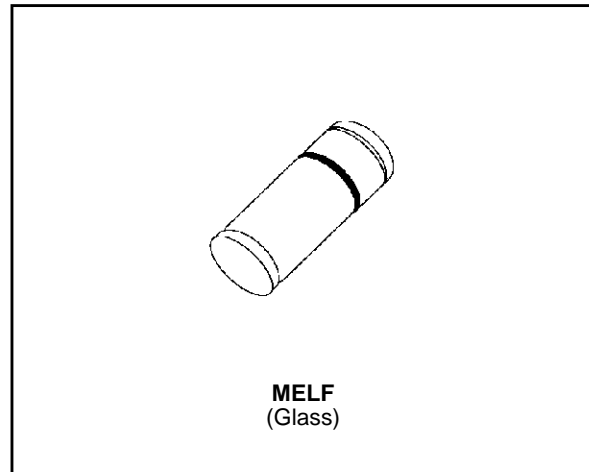


**SMALL SIGNAL SCHOTTKY DIODES**
**DESCRIPTION**

Metal to silicon rectifier diodes in glass case featuring very low forward voltage drop and fast recovery time, intended for low voltage switching mode power supply, polarity protection and high frequency circuits.


**ABSOLUTE MAXIMUM RATINGS (limiting values)**

Symbol	Parameter	Value	Unit
$I_{F(AV)}$	Average Forward Current	$T_i = 60\text{ }^\circ\text{C}$ 1	A
$I_{FSM}$	Surge non Repetitive Forward Current	$T_i = 25\text{ }^\circ\text{C}$ $t_p = 10\text{ms}$ 25 Sinusoidal Pulse	A
		$T_i = 25\text{ }^\circ\text{C}$ $t_p = 300\mu\text{s}$ 50 Rectangular Pulse	
$T_{stg}$ $T_j$	Storage and Junction Temperature Range	- 65 to 150 - 65 to 125	$^\circ\text{C}$ $^\circ\text{C}$
$T_L$	Maximum Lead Temperature for Soldering during 15s	260	$^\circ\text{C}$

Symbol	Parameter	BYV 10-20	BYV 10-30	BYV 10-40	Unit
$V_{RRM}$	Repetitive Peak Reverse Voltage	20	30	40	V

**THERMAL RESISTANCE**

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction-leads	110	$^\circ\text{C/W}$

\* Pulse test:  $t_p \leq 300\mu\text{s}$   $\delta < 2\%$ .

**ELECTRICAL CHARACTERISTICS**

**STATIC CHARACTERISTICS**

Symbol	Test Conditions		Min.	Typ.	Max.	Unit
$I_R^*$	$T_j = 25^\circ\text{C}$	$V_R = V_{RRM}$			0.5	mA
	$T_j = 100^\circ\text{C}$				10	
$V_F^*$	$I_F = 1\text{A}$	$T_j = 25^\circ\text{C}$			0.55	V
	$I_F = 3\text{A}$				0.85	

\*\* Pulse test:  $t_p \leq 300\mu\text{s}$   $\delta < 2\%$ .

**DYNAMIC CHARACTERISTICS**

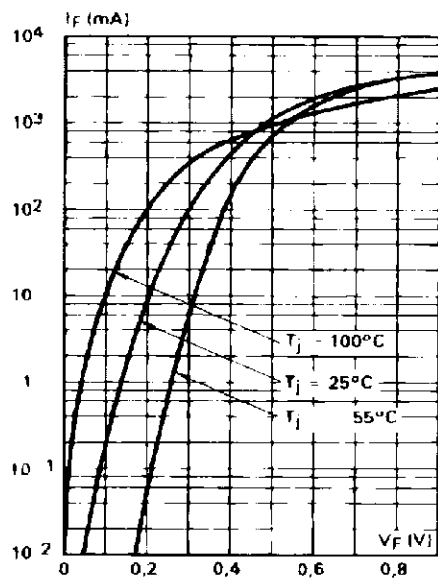
Symbol	Test Conditions		Min.	Typ.	Max.	Unit
C	$T_j = 25^\circ\text{C}$	$V_R = 0$		220		pF

Forward current flow in a Schottky rectifier is due to majority carrier conduction. So reverse recovery is not affected by storage charge as in conventional PN junction diodes.

Nevertheless, when the device switches from forward biased condition to reverse blocking state, current is required to charge the depletion capacitance of the diode.

This current depends only of diode capacitance and external circuit impedance. Satisfactory circuit behaviour analysis may be performed assuming that Schottky rectifier consists of an ideal diode in parallel with a variable capacitance equal to the junction capacitance (see fig. 5 page 4/4).

**Figure 1. Forward current versus forward voltage at low level (typical values).**



**Figure 2. Forward current versus forward voltage at high level (typical values).**

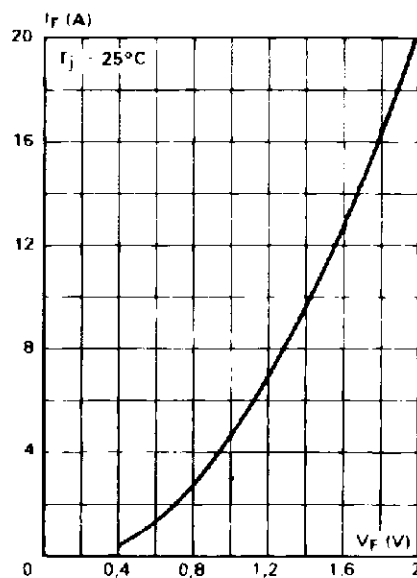


Figure 3. Reverse current versus junction temperature.

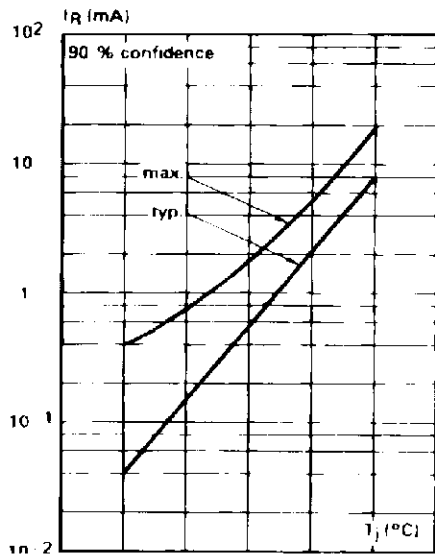


Figure 4. Reverse current versus  $V_{RRM}$  in per cent.

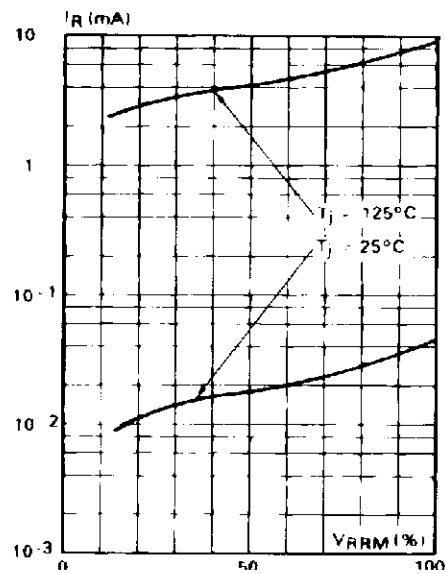


Figure 5. Capacitance C versus reverse applied voltage  $V_R$  (typical values)

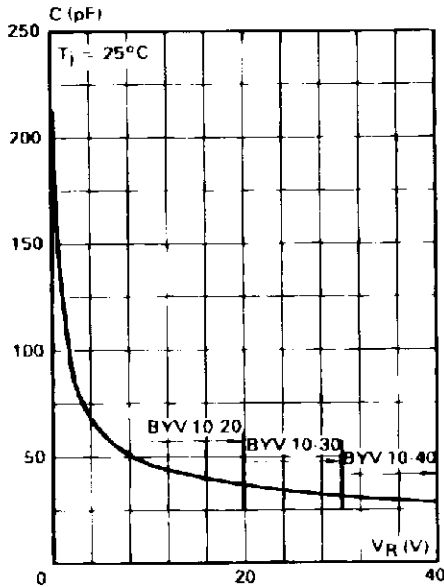


Figure 6. Surge non repetitive forward current for a rectangular pulse with  $t \leq 10$  ms.

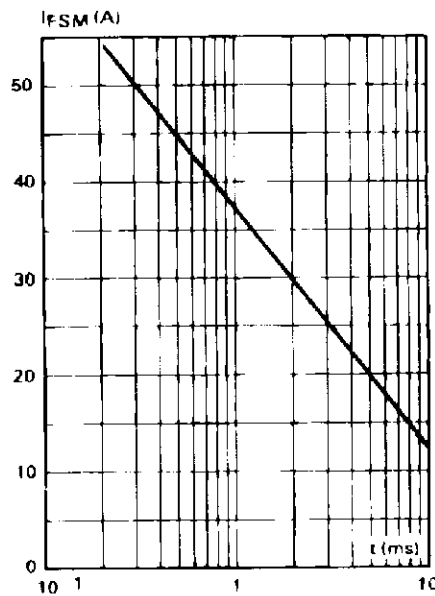
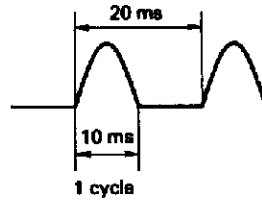
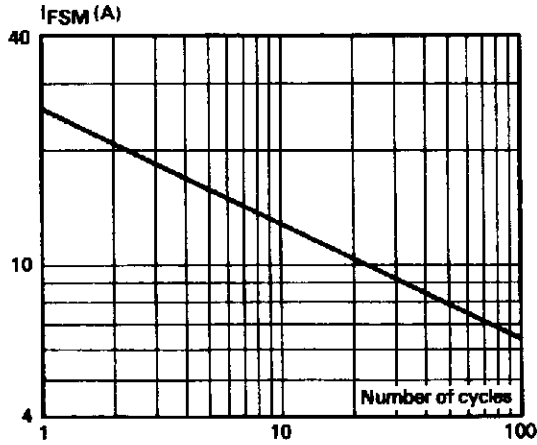


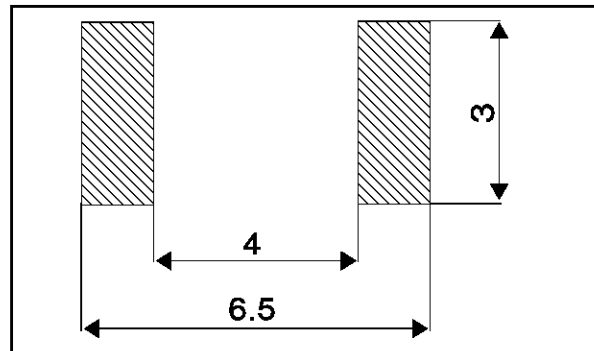
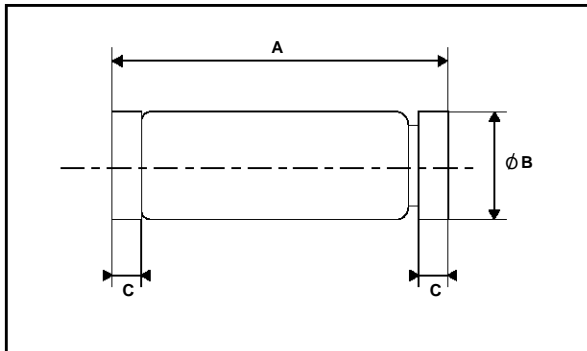
Figure 7. Surge non repetitive forward current versus number of cycles.



PACKAGE MECHANICAL DATA

FOOT PRINT DIMENSIONS (Millimeter)

MELF Glass



REF.	DIMENSIONS			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.80	5.20	0.19	0.20
B	2.55	2.65	0.10	0.10
C	0.45	0.55	0.02	0.02

Cooling method: by convection and conduction  
 Marking: ring at cathode end.  
 Weight: 0.15g

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