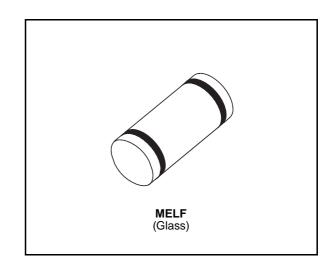




# SMALL SIGNAL SCHOTTKY DIODES



#### **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
V <sub>RRM</sub>	Repetitive Peak Reverse Voltage	40	V
I <sub>F (AV)</sub>	Average Forward Current	1	Α
I <sub>FSM</sub>	Surge non Repetitive Forward Current	25 Sinusoïdal Pulse	А
		50 Rectangular Pulse	
T <sub>stg</sub> T <sub>j</sub>	Storage and Junction Temperature Range	- 65 to 150 - 65 to 125	ပို့
TL	Maximum Lead Temperature for Soldering	260	°C

#### THERMAL RESISTANCE

Symbol	Parameter	Value	Unit
R <sub>th (j - I)</sub>	Junction-leads	110	°C/W

<sup>\*</sup> Pulse test:  $t_p \le 300 \mu s$   $\delta < 2\%$ .

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#### **ELECTRICAL CHARACTERISTICS**

STATIC CHARACTERISTICS

Synbol	Test Conditions			Тур.	Max.	Unit
I <sub>R</sub> *	T <sub>j</sub> = 25°C	$V_R = V_{RRM}$			0.5	mA
	T <sub>j</sub> = 100°C				10	IIIA
V <sub>F</sub> *	IF = 1A	T <sub>j</sub> = 25°C			0.55	٧
	I <sub>F</sub> = 3A				0.85	

<sup>\* \*</sup> Pulse test:  $t_p \le 300 \mu s \ \delta < 2\%$ .

#### DYNAMIC CHARACTERISTICS

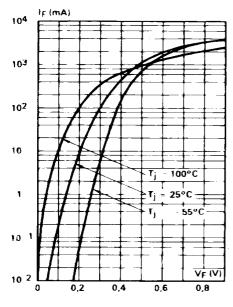
Symbol	Test Conditions			Тур.	Max.	Unit
С	$T_j = 25^{\circ}C$	$V_R = 0$		220		pF

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.

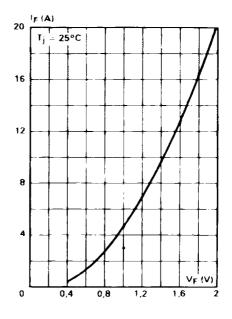
Nevertheless, when the device switches from forward biased condition to reverse blocking state, current is required to charge the depletion capacitance of the diode.

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).

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

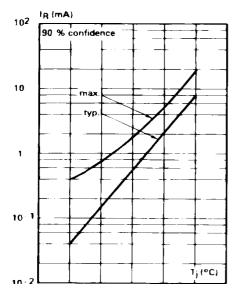


**Fig. 2**: Forward current versus forward voltage at high level (typical values).

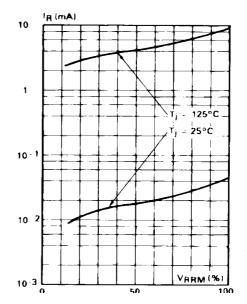


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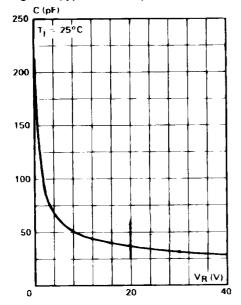
**Fig. 3**: Reverse current versus junction temperature.



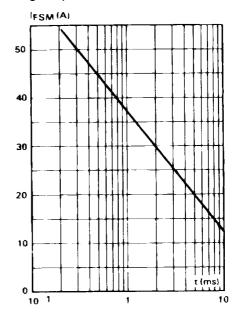
**Fig. 4 :** Reverse current versus VRRM in per cent.



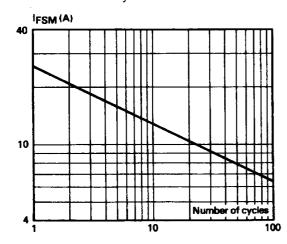
 $\label{eq:Fig. 5: Capacitance C versus reverse applied voltage $V_R$ (typical values)}$ 

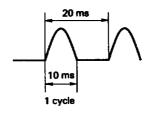


**Fig. 6 :** Surge non repetitive forward current for a rectangular pulse with t â 10 ms.



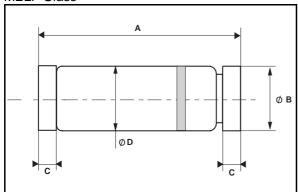
**Fig. 7:** Surge non repetitive forward current versus number of cycles.





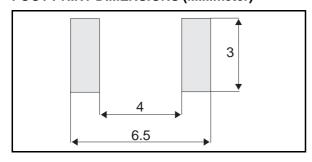
### **PACKAGE MECHANICAL DATA**

**MELF Glass** 



REF.	DIMENSIONS					
	Millimeters				Inches	
	Min.	Тур.	Max.	Min.	Тур.	Max.
Α	4.80		5.20	0.189		0.205
ØB	2.50		2.65	0.098		0.104
С	0.45		0.60	0.018		0.024
ØD		2.50			0.098	

### **FOOT PRINT DIMENSIONS (Millimeter)**



Cooling method: by convection and conduction Marking: ring at cathode end. Weight: 0.139g

**ORDERING CODE: TMBYV10-40 FILM** 

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