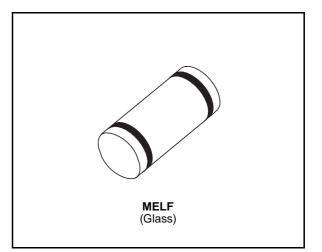


# **TMBYV 10-40**

# 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.

#### Symbol **Parameter** Value Unit Repetitive Peak Reverse Voltage 40 V V<sub>RRM</sub> Average Forward Current $T_i = 60 \ ^{\circ}C$ А 1 I<sub>F (AV)</sub> Surge non Repetitive Forward Current $T_i = 25 \ ^{\circ}C$ 25 А I<sub>FSM</sub> Sinusoïdal Pulse $t_p = 10ms$ $T_i = 25 \ ^{\circ}C$ 50 **Rectangular Pulse** $t_{p} = 300 \mu s$ T<sub>stg</sub> Tj Storage and Junction Temperature - 65 to 150 °C - 65 to 125 °C Range Maximum Lead Temperature for Soldering during 15s 260 °C ΤL

# ABSOLUTE MAXIMUM RATINGS (limiting values)

# THERMAL RESISTANCE

	Symbol	Parameter	Value	Unit		
	R <sub>th (j</sub> - I)	Junction-leads	110	°C/W		
* Pulso tot: $t < 300 \text{ us}$ $\delta < 2\%$						

\* 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> *	$T_j = 25^{\circ}C$	V <sub>R</sub> = V <sub>RRM</sub>			0.5	mA
	T <sub>j</sub> = 100°C				10	
V <sub>F</sub> *	IF = 1A	T <sub>j</sub> = 25°C			0.55	V
	IF = 3A				0.85	

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

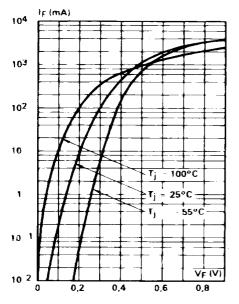
### DYNAMIC CHARACTERISTICS

Symbol		Test Conditions	Min.	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.

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



tion capacitance (see fig. 5 page 4/4).

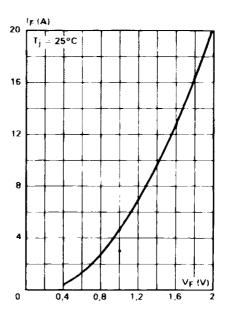
This current depends only of diode capacitance and

external circuit impedance. Satisfactory circuit be-

haviour analysis may be performed assuming that

Schottky rectifier consists of an ideal diode in parallel with a variable capacitance equal to the junc-

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



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Fig. 3 : Reverse current versus junction temperature.

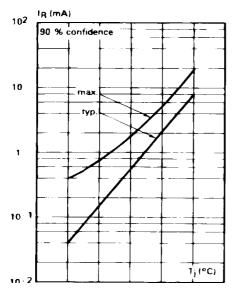


Fig. 5 : Capacitance C versus reverse applied voltage  $V_{\mathsf{R}}$  (typical values)

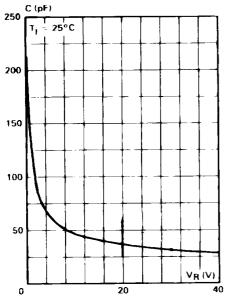


Fig. 4 : Reverse current versus VRRM in per cent.

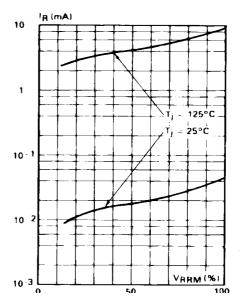
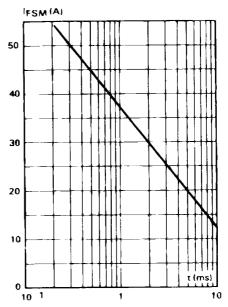
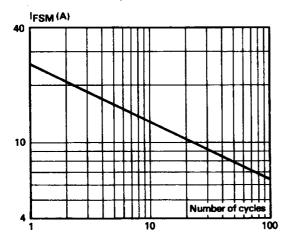


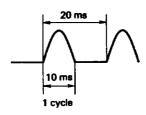
Fig. 6 : Surge non repetitive forward current for a rectangular pulse with t  $\hat{a}$  10 ms.



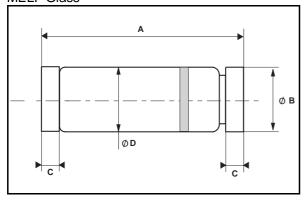
# **TMBYV10-40**

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

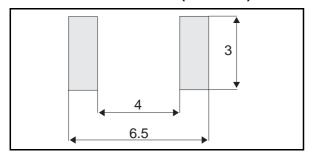




#### PACKAGE MECHANICAL DATA MELF Glass



### FOOT PRINT DIMENSIONS (Millimeter)



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

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

**ORDERING CODE : TMBYV10-40 FILM** 

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