

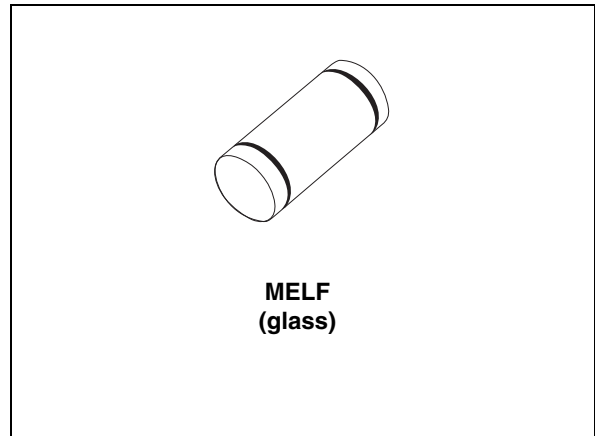
## Small signal Schottky diode

### Features

- very low turn-on voltage
- fast switching

### Description

The TMBAT49 is a general purpose metal to silicon diode. This device has integrated protection against excessive voltage such as electrostatic discharges.



# 1 Characteristics

**Table 1. Absolute ratings (limiting values)**

Symbol	Parameter	Value	Unit
$V_{RRM}$	Repetitive peak reverse voltage	80	V
$I_F$	Forward continuous current	$T_j = 70\text{ °C}$	500 mA
$I_{FRM}$	Repetitive peak forward current	$t_p = 1\text{ s}$ $\delta \leq 0.5$	3 A
$I_{FSM}$	Surge non repetitive forward current	$t_p = 10\text{ ms}$	10 A
$T_{stg}$	Storage temperature range	- 65 to +150	°C
$T_j$	Operating junction temperature range	- 65 to +125	°C
$T_L$	Maximum lead soldering temperature during 15 s	260	°C

**Table 2. Thermal parameter**

Symbol	Parameter	Value	Unit
$R_{th(j-l)}$	Junction to lead	110	°C/W

**Table 3. Static electrical characteristics**

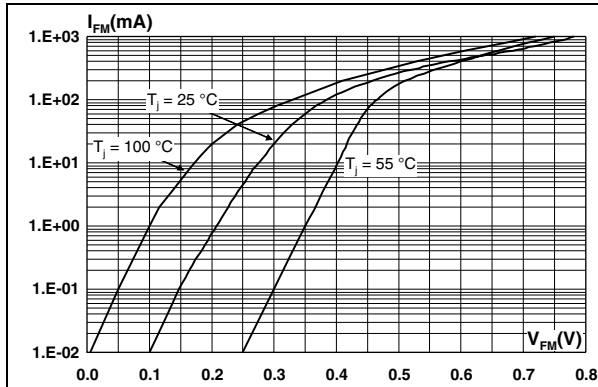
Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit	
$I_R^{(1)}$	Reverse leakage current	$T_j = 25\text{ °C}$ $V_R = 80\text{ V}$	-	-	200	μA	
$V_F^{(1)}$	Forward voltage drop	$T_j = 25\text{ °C}$	$I_F = 10\text{ mA}$	-	-	0.32	V
			$I_F = 100\text{ mA}$	-	-	0.42	
			$I_F = 1\text{ A}$	-	-	1	

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

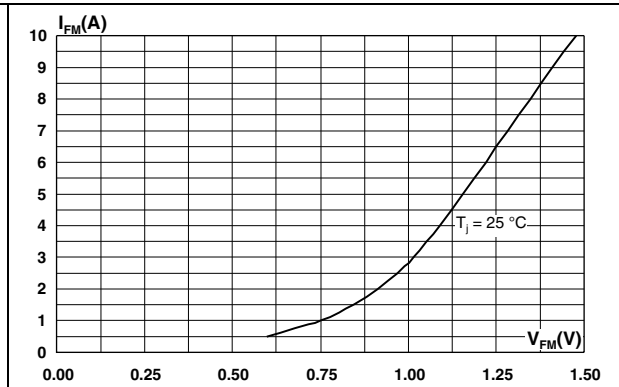
**Table 4. Dynamic characteristics ( $T_j = 25\text{ °C}$ )**

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit	
C	Diode capacitance	F = 1 MHz	$V_R = 0\text{ V}$	-	120	-	pF
			$V_R = 5\text{ V}$	-	35	-	

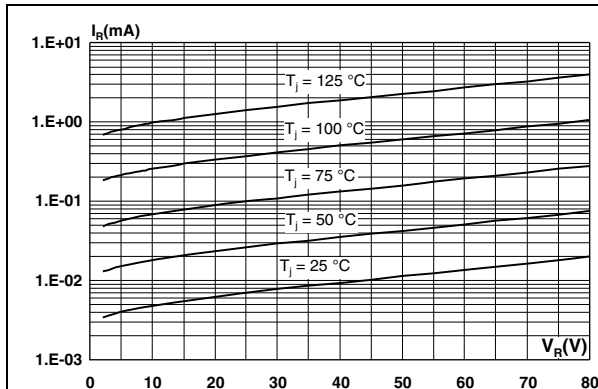
**Figure 1. Forward voltage drop versus forward current (typical values, low level)**



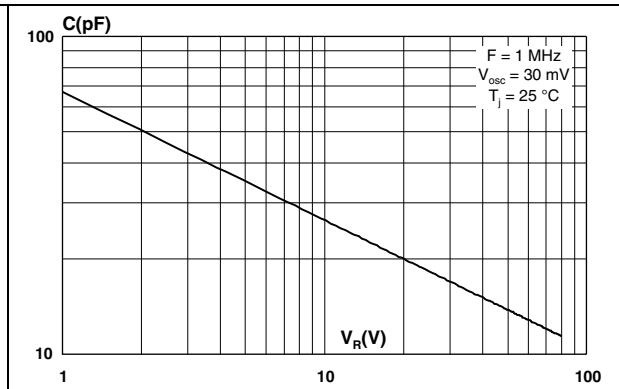
**Figure 2. Forward voltage drop versus forward current (typical values, high level)**



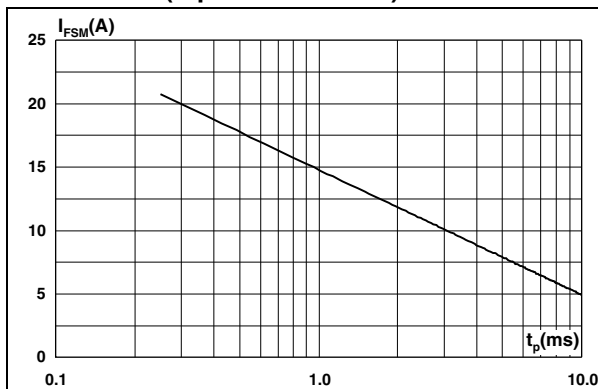
**Figure 3. Reverse leakage current versus reverse voltage applied (typical values)**



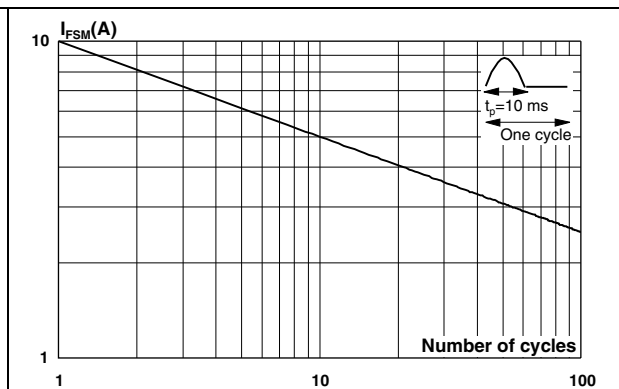
**Figure 4. Junction capacitance versus reverse voltage applied (typical values)**



**Figure 5. Non-repetitive peak surge forward current versus pulse duration (square waveform)**



**Figure 6. Non-repetitive peak surge forward current versus number of cycles**



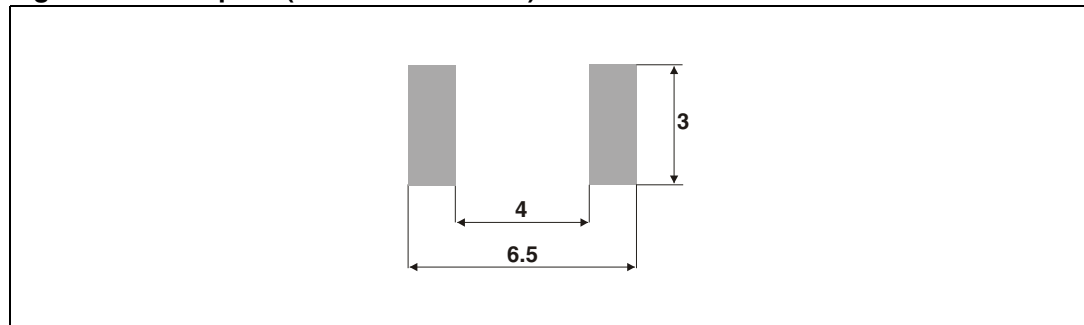
## 2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK<sup>®</sup> packages, depending on their level of environmental compliance. ECOPACK<sup>®</sup> specifications, grade definitions and product status are available at: [www.st.com](http://www.st.com). ECOPACK<sup>®</sup> is an ST trademark.

**Table 5. MELF package dimensions**

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.80		5.20	0.189		0.205
ø B	2.50		2.65	0.098		0.104
C	0.45		0.60	0.018		0.024
ø D		2.50			0.098	

**Figure 7. Footprint (dimensions in mm)**



### 3 Ordering information

Table 6. Ordering information

Order code	Marking	Package	Weight	Base qty	Delivery mode
TMBAT49FILM	Cathode ring	MELF (glass)	0.15 g	1500	Bulk

### 4 Revision history

Table 7. Document revision history

Date	Revision	Changes
Aug-1999	1A	Previous release.
12-Nov-2010	2	Added ECOPACK statement. Updated graphics in <a href="#">Section 1</a> .

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