TMBAT49

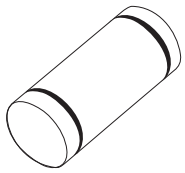
Small signal Schottky diode

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.



MELF
(glass)

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 °C	500	mA
I_{FRM}	Repetitive peak forward current	t_p = 1 s $\delta \leq 0.5$	3	A
I_{FSM}	Surge non repetitive forward current	t_p = 10 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 °C	V_R = 80 V	-	-	200	µA
V_F(1)	Forward voltage drop	T_j = 25 °C	I_F = 10 mA	-	-	0.32	V
			I_F = 100 mA	-	-	0.42	
			I_F = 1 A	-	-	1	

1. Pulse test: $t_p \leq 300$ µs, $\delta < 2\%$

Table 4. Dynamic characteristics (T_j = 25 °C)

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

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

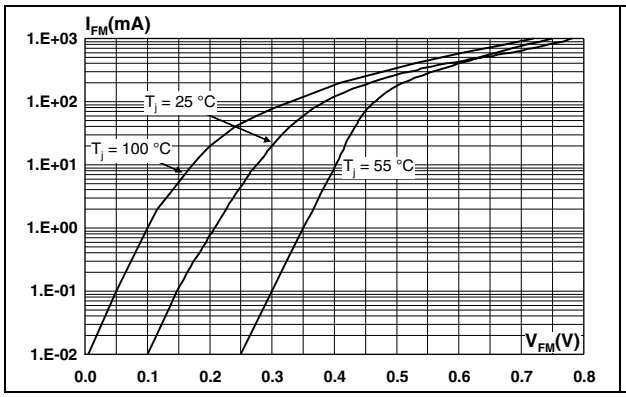


Figure 2. Forward voltage drop versus forward current (typical values, high level)

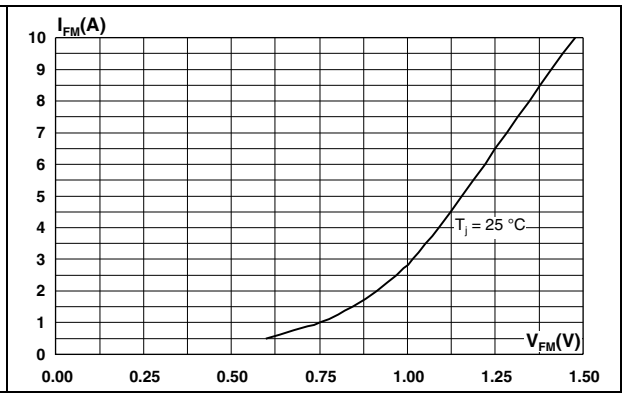


Figure 3. Reverse leakage current versus reverse voltage applied (typical values)

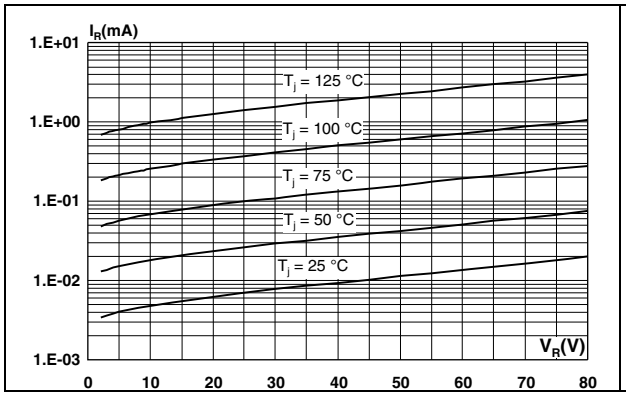


Figure 4. Junction capacitance versus reverse voltage applied (typical values)

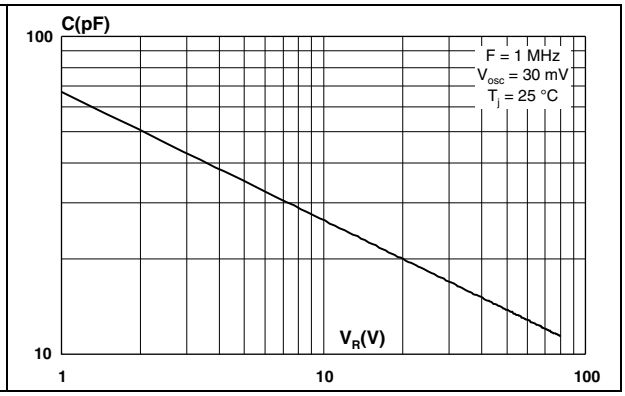


Figure 5. Non-repetitive peak surge forward current versus pulse duration (square waveform)

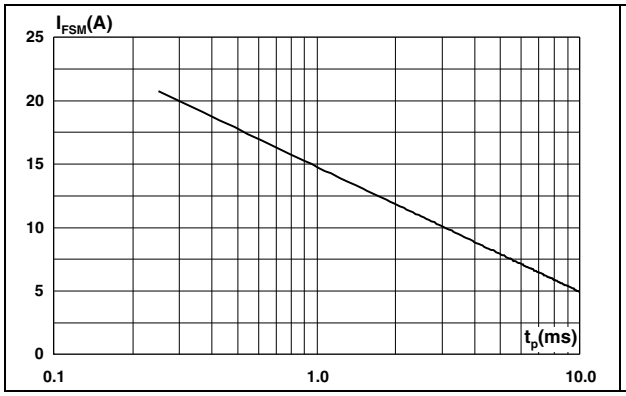
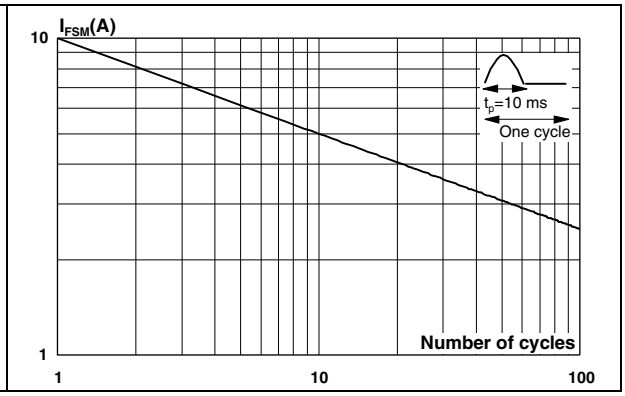


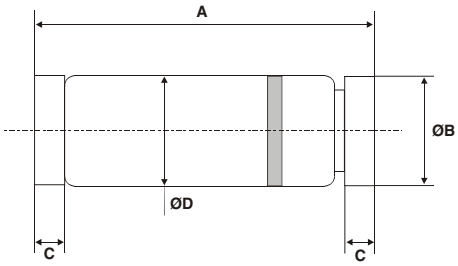
Figure 6. Non-repetitive peak surge forward current versus number of cycles



2 Package information

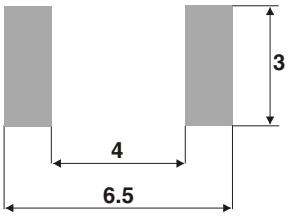
In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® packages, depending on their level of environmental compliance. ECOPACK® specifications, grade definitions and product status are available at: *www.st.com*. ECOPACK® is an ST trademark.

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 *Section 1*.

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