



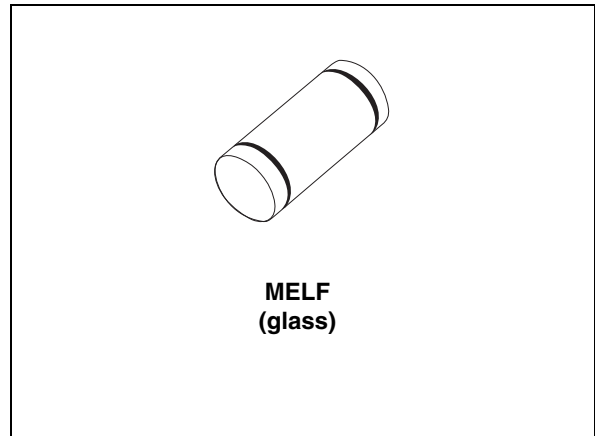
Small signal Schottky diode

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)

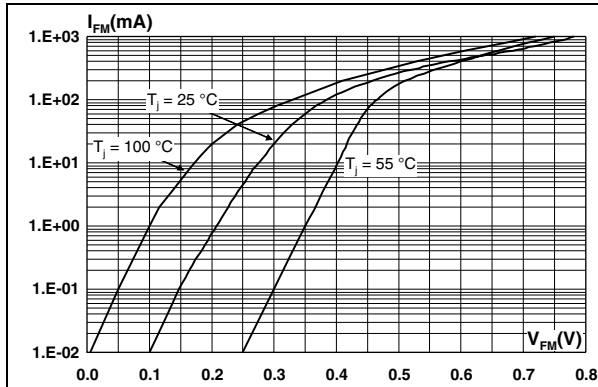


Figure 2. Forward voltage drop versus forward current (typical values, high level)

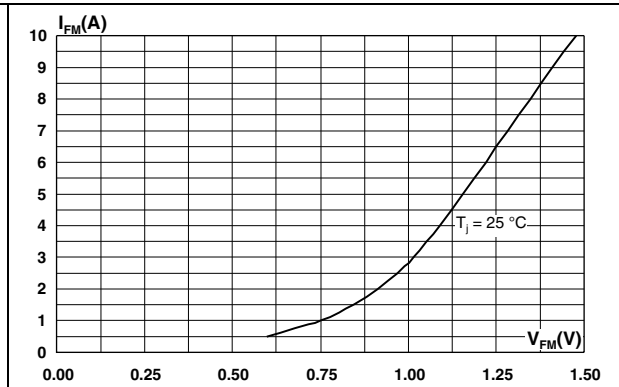


Figure 3. Reverse leakage current versus reverse voltage applied (typical values)

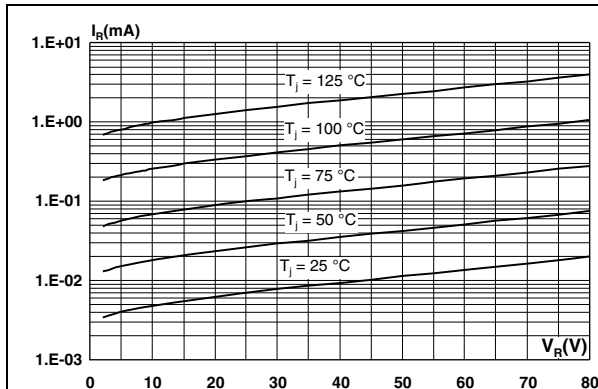


Figure 4. Junction capacitance versus reverse voltage applied (typical values)

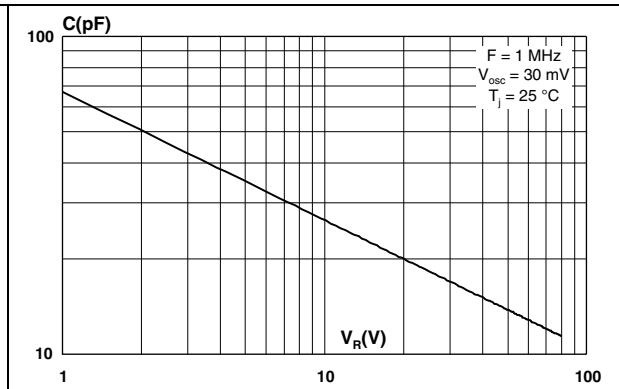


Figure 5. Non-repetitive peak surge forward current versus pulse duration (square waveform)

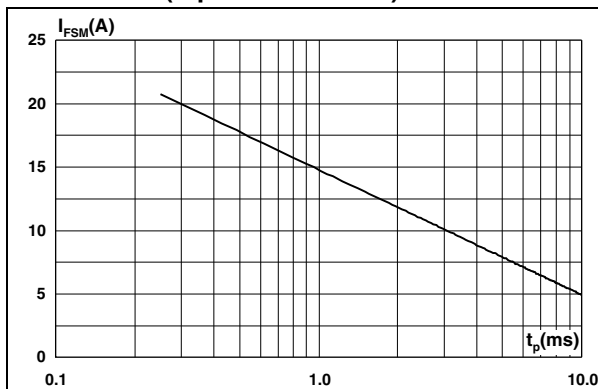
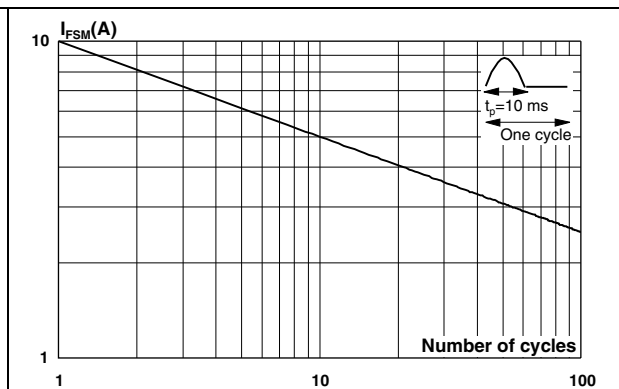


Figure 6. Non-repetitive peak surge forward current versus number of cycles



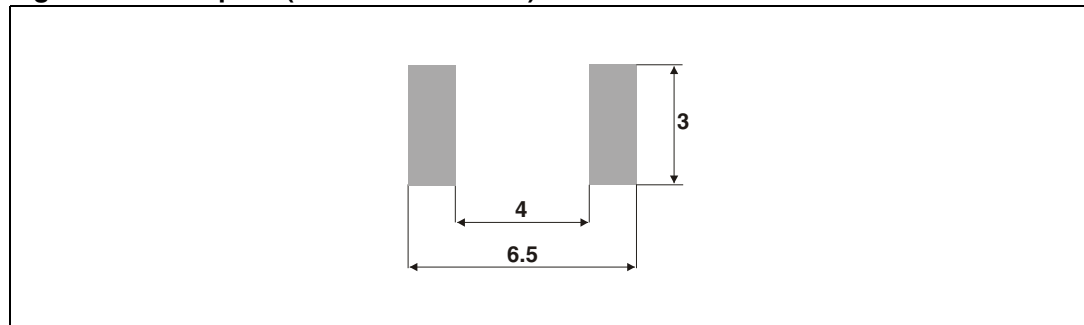
2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK® 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 .

Please Read Carefully:

Information in this document is provided solely in connection with ST products. STMicroelectronics NV and its subsidiaries ("ST") reserve the right to make changes, corrections, modifications or improvements, to this document, and the products and services described herein at any time, without notice.

All ST products are sold pursuant to ST's terms and conditions of sale.

Purchasers are solely responsible for the choice, selection and use of the ST products and services described herein, and ST assumes no liability whatsoever relating to the choice, selection or use of the ST products and services described herein.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted under this document. If any part of this document refers to any third party products or services it shall not be deemed a license grant by ST for the use of such third party products or services, or any intellectual property contained therein or considered as a warranty covering the use in any manner whatsoever of such third party products or services or any intellectual property contained therein.

UNLESS OTHERWISE SET FORTH IN ST'S TERMS AND CONDITIONS OF SALE ST DISCLAIMS ANY EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE USE AND/OR SALE OF ST PRODUCTS INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE (AND THEIR EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION), OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT.

UNLESS EXPRESSLY APPROVED IN WRITING BY AN AUTHORIZED ST REPRESENTATIVE, ST PRODUCTS ARE NOT RECOMMENDED, AUTHORIZED OR WARRANTED FOR USE IN MILITARY, AIR CRAFT, SPACE, LIFE SAVING, OR LIFE SUSTAINING APPLICATIONS, NOR IN PRODUCTS OR SYSTEMS WHERE FAILURE OR MALFUNCTION MAY RESULT IN PERSONAL INJURY, DEATH, OR SEVERE PROPERTY OR ENVIRONMENTAL DAMAGE. ST PRODUCTS WHICH ARE NOT SPECIFIED AS "AUTOMOTIVE GRADE" MAY ONLY BE USED IN AUTOMOTIVE APPLICATIONS AT USER'S OWN RISK.

Resale of ST products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by ST for the ST product or service described herein and shall not create or extend in any manner whatsoever, any liability of ST.

ST and the ST logo are trademarks or registered trademarks of ST in various countries.

Information in this document supersedes and replaces all information previously supplied.

The ST logo is a registered trademark of STMicroelectronics. All other names are the property of their respective owners.

© 2010 STMicroelectronics - All rights reserved

STMicroelectronics group of companies

Australia - Belgium - Brazil - Canada - China - Czech Republic - Finland - France - Germany - Hong Kong - India - Israel - Italy - Japan - Malaysia - Malta - Morocco - Philippines - Singapore - Spain - Sweden - Switzerland - United Kingdom - United States of America

www.st.com