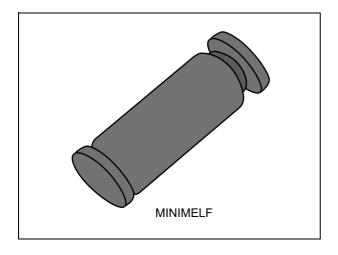


## TMMBAT42 - TMMBAT43

## Small signal Schottky diodes

Datasheet - production data



### **Description**

General purpose metal to silicon diode featuring very low turn-on voltage and fast switching.

These devices have integrated protection against excessive voltage such as electrostatic discharges.

### **Features**

- Very small conduction losses
- Negligible switching losses
- Low forward voltage drop

## 1 Characteristics

Table 1. Absolute maximum ratings at 25 °C unless otherwise specified

Symbol	Parameter	Value	Unit	
$V_{RRM}$	Repetitive peak reverse voltage	30	V	
I <sub>F</sub>	Forward continuous current	200	mA	
I <sub>FRM</sub>	Repetitive peak forward current $ \begin{array}{c} t_p \leq 1 \ s \\ \delta \leq 0.5 \end{array} $		500	mA
I <sub>FSM</sub>	Surge non repetitive forward current	4	Α	
P <sub>tot</sub>	Power dissipation	200	mW	
T <sub>stg</sub>	Storage temperature range	-65 to + 150	°C	
Tj	Operating junction temperature range	-65 to + 125	°C	
T <sub>L</sub>	Maximum temperature for soldering during 15 s	260	°C	

Table 2. Thermal resistance

	Symbol	Parameter	Value	Unit
ĺ	R <sub>th(j-l)</sub>	Junction to leads	300	°C/W

Table 3. Static electrical characteristics

Symbol	Test condition	Min.	Тур.	Max.	Unit	
$V_{BR}$	$T_j = 25  ^{\circ}\text{C};  I_R = 100  \mu\text{A}$			-		V
	$T_j = 25$ °C; $I_F = 200$ mA All types		-	1		
V <sub>F</sub> <sup>(1)</sup>	$T_j = 25  ^{\circ}\text{C}; I_F = 10  \text{mA}$	TMMBAT42FILM		-	0.4	V
	$T_j = 25  ^{\circ}\text{C}; I_F = 50  \text{mA}$	TIVIIVIDAT42FILIVI		-	0.65	
	T <sub>j</sub> = 25 °C; I <sub>F</sub> = 2 mA	TMMBAT43FILM	0.26	-	0.33	
	$T_j = 25  ^{\circ}\text{C}; I_F = 15  \text{mA}$	TIVIIVIDAT43FILIVI		-	0.45	
I <sub>R</sub> <sup>(1)</sup>	T <sub>j</sub> = 25 °C, V <sub>R</sub> = 25 V			-	0.5	
	T <sub>j</sub> = 100 °C, V <sub>R</sub> = 25 V			-	100	μΑ

<sup>1.</sup> Pulse test:  $t_p = 380 \,\mu s \, \delta < 2\%$ 

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**Table 4. Dynamic characteristics** 

Symbol	Test conditions		Тур.	Max.	Unit
С	$T_j = 25 \text{ °C}; V_{R} = 1 \text{ V}; f = 1 \text{ MHz}$		7		pF
t <sub>rr</sub>	$T_j$ = 25 °C; $I_F$ =10 mA; $I_R$ = 10 mA; $I_{RR}$ = 1 mA $R_L$ = 100 $\Omega$			5	ns



1.E-03

1.E-01

1.E-01

1.E-01

1.E-01

1.E-01

1.E-01

1.E-01

Figure 1. Forward voltage drop versus forward

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

0.0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 1.1 1.2 1.3

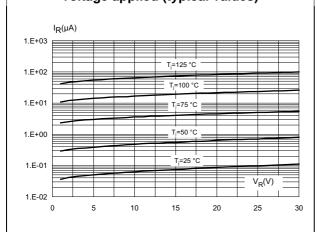
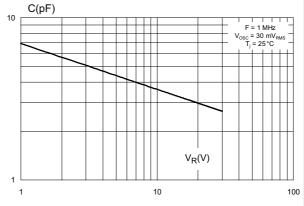


Figure 4. Junction capacitance versus reverse voltage applied (typical values)



#### **Package information** 2

• Ring at cathode end.

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*. ECOPACK<sup>®</sup> is an ST trademark.

#### **MINIMELF** package information 2.1

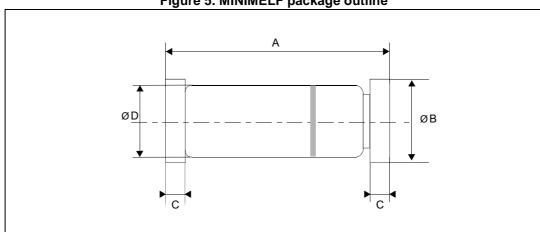


Figure 5. MINIMELF package outline

Table 5. MINIMELF mechanical data

	Dimensions						
Ref.	Millimeters			Inches			
	Min.	Тур.	Max.	Min.	Тур.	Max.	
Α	3.30	3.50	3.70	0.130	0.138	0.146	
ØB	1.59	1.65	1.70	0.063	0.065	0.069	
С	0.40	0.50	0.60	0.016	0.020	0.024	
ØD		1.50			0.059		

2.5 5

Figure 6. Foot print dimensions (in millimeters)

# 3 Ordering information

**Table 6. Ordering information** 

Order code	Package	Weight	Base qty	Delivery mode
TMMBAT42FILM	MINIMELF	40 mg	2500	Tape and reel
TMMBAT43FILM	WIIIVIIVIEEF	40 mg	2500	rape and reer

## 4 Revision history

**Table 7. Document revision history** 

Date	Revision	Changes
Aug-1999	1A	Last issue.
31-Jul-2014	2	Reformatted to current standards. Added ordering information.
27-Jul-2015	3	Updated MINIMELF package information and reformatted to current standard. Updated <i>Figure 1</i> , <i>Figure 2</i> , <i>Figure 3</i> , and <i>Figure 4</i> .

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