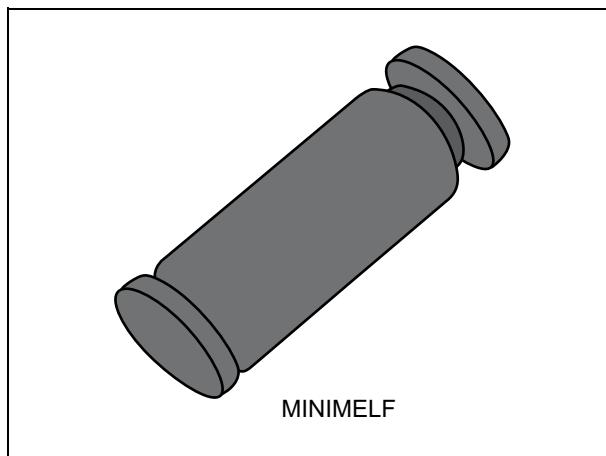


Small signal Schottky diodes

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_F	Forward continuous current	$T_J = 25^\circ\text{C}$	200	mA
I_{FRM}	Repetitive peak forward current	$t_p \leq 1\text{ s}$ $\delta \leq 0.5$	500	mA
I_{FSM}	Surge non repetitive forward current	$t_p = 10\text{ ms}$	4	A
P_{tot}	Power dissipation	$T_J = 65^\circ\text{C}$	200	mW
T_{stg}	Storage temperature range		-65 to + 150	°C
T_j	Operating junction temperature range		-65 to + 125	°C
T_L	Maximum temperature for soldering during 15 s		260	°C

Table 2. Thermal resistance

Symbol	Parameter		Value	Unit
$R_{th(j-l)}$	Junction to leads		300	°C/W

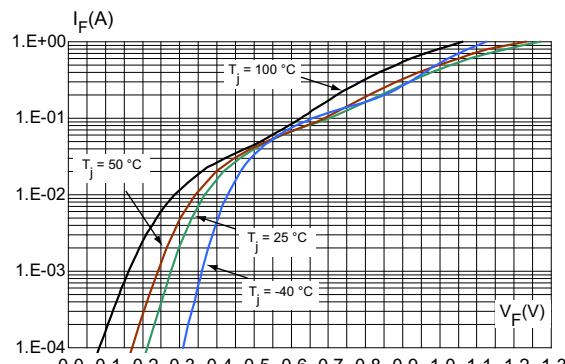
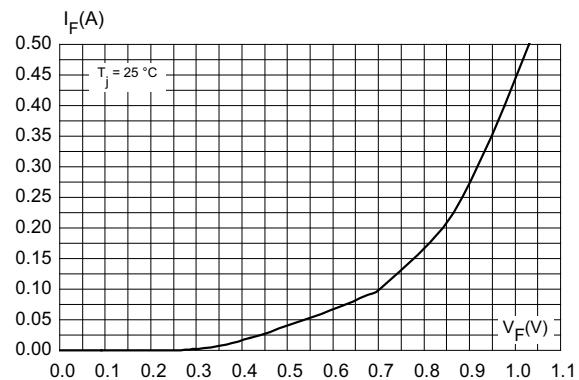
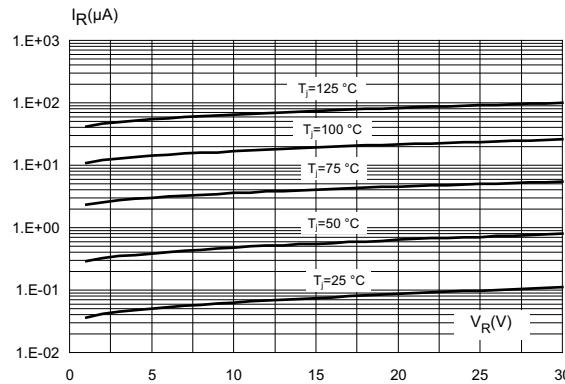
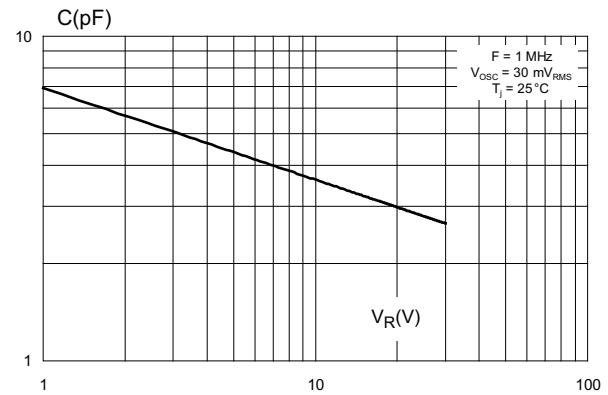
Table 3. Static electrical characteristics

Symbol	Test conditions		Min.	Typ.	Max.	Unit
V_{BR}	$T_j = 25^\circ\text{C}$; $I_R = 100\text{ }\mu\text{A}$		30	-		V
$V_F^{(1)}$	$T_j = 25^\circ\text{C}$; $I_F = 200\text{ mA}$	All types		-	1	V
	$T_j = 25^\circ\text{C}$; $I_F = 10\text{ mA}$	TMMBAT42FILM		-	0.4	
	$T_j = 25^\circ\text{C}$; $I_F = 50\text{ mA}$			-	0.65	
	$T_j = 25^\circ\text{C}$; $I_F = 2\text{ mA}$	TMMBAT43FILM	0.26	-	0.33	
	$T_j = 25^\circ\text{C}$; $I_F = 15\text{ mA}$			-	0.45	
$I_R^{(1)}$	$T_j = 25^\circ\text{C}$, $V_R = 25\text{ V}$			-	0.5	μA
	$T_j = 100^\circ\text{C}$, $V_R = 25\text{ V}$			-	100	

1. Pulse test: $t_p = 380\text{ }\mu\text{s}$ $\delta < 2\%$

Table 4. Dynamic characteristics

Symbol	Test conditions		Min.	Typ.	Max.	Unit
C	$T_j = 25^\circ\text{C}$; $V_R = 1\text{ V}$; $f = 1\text{ MHz}$			7		pF
t_{rr}	$T_j = 25^\circ\text{C}$; $I_F = 10\text{ mA}$; $I_R = 10\text{ mA}$; $I_{RR} = 1\text{ mA}$ $R_L = 100\text{ }\Omega$				5	ns

Figure 1. Forward voltage drop versus forward current (typical values, high level)**Figure 2. Forward voltage drop versus forward current (typical values)****Figure 3. Leakage current versus reverse voltage applied (typical values)****Figure 4. Junction capacitance versus reverse voltage applied (typical values)**

2 Package information

- Ring at cathode end.

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.

2.1 MINIMELF package information

Figure 5. MINIMELF package outline

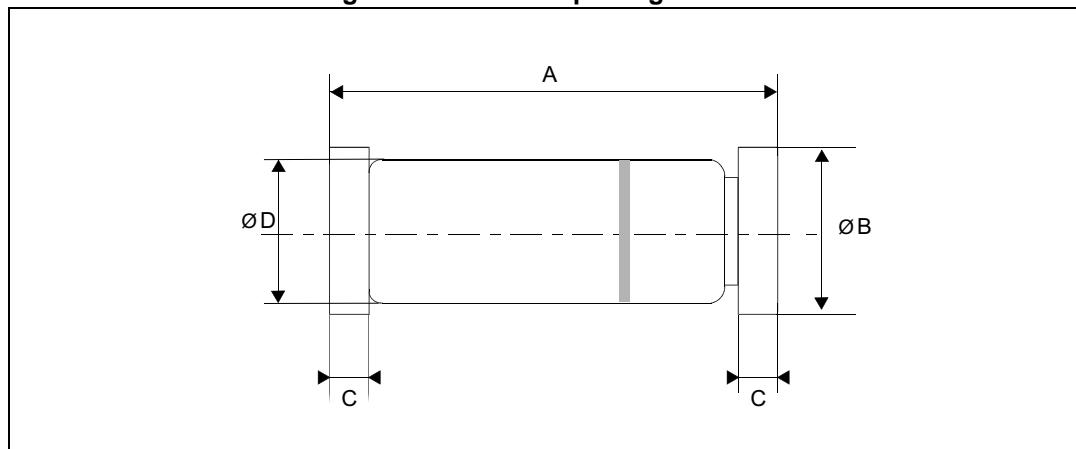
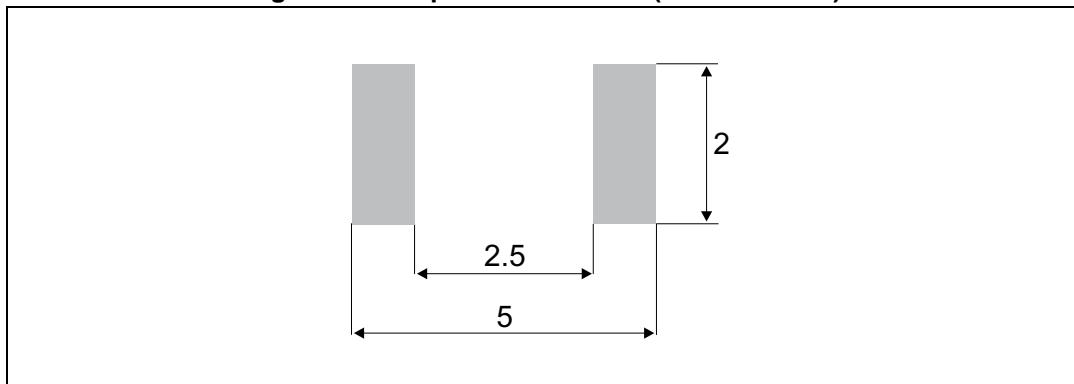


Table 5. MINIMELF mechanical data

Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	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
C	0.40	0.50	0.60	0.016	0.020	0.024
ØD		1.50			0.059	

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				

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 Figure 1 , Figure 2 , Figure 3 , and Figure 4 .

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