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Kind regards,

Team Nexperia

BAT754L

Schottky barrier triple diode

22 November 2012

Product data sheet

1. Product profile

1.1 General description

Three internal isolated planar Schottky barrier diodes with an integrated guard ring for stress protection, encapsulated in very small SOT363 Surface-Mounted Device (SMD) plastic package.

1.2 Features and benefits

- Low forward voltage
- Low capacitance
- AEC-Q101 qualified

1.3 Applications

- Ultra high-speed switching
- Line termination
- Voltage clamping
- Reverse polarity protection

1.4 Quick reference data

Table 1. Quick reference data

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
Per diode	Per diode						
V_R	reverse voltage			-	-	30	V
Per diode	Per diode						,
V _F	forward voltage	I_F = 100 mA; pulsed; $t_p \le 300$ μs; $δ \le 0.02$; T_{amb} = 25 °C		-	-	750	mV
I _R	reverse current	V_R = 25 V; pulsed; $t_p \le 300 \mu s$; $δ \le 0.02$; T_{amb} = 25 °C		-	-	2	μΑ





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2. Pinning information

Table 2. Pinning information

Pin	Symbol	Description	Simplified outline	Graphic symbol	
1	A1	anode (diode 1)	<u>654</u>	K1 K2 K3	
2	A2	anode (diode 2)			
3	A3	anode (diode 3)	TSSOP6 (SOT363)	A1 A2 aaa-	
4	K3	cathode (diode 3)			AT AZ AS aaa-005704
5	K2	cathode (diode 2)			
6	K1	cathode (diode 1)			

3. Ordering information

Table 3. Ordering information

Type number	Package				
	Name	Description	Version		
BAT754L	TSSOP6	plastic surface-mounted package; 6 leads	SOT363		

4. Marking

Table 4. Marking codes

Type number	Marking code [1]
BAT754L	L1%

^{[1] % =} placeholder for manufacturing site code

5. Limiting values

Table 5. Limiting values

In accordance with the Absolute Maximum Rating System (IEC 60134).

Symbol	Parameter	Conditions		Min	Max	Unit	
Per diode							
V _R	reverse voltage			-	30	V	
l _F	forward current			-	200	mA	
I _{FRM}	repetitive peak forward current	$t_p < 1 \text{ s}; \delta < 0.5$		-	300	mA	
I _{FSM}	non-repetitive peak forward current	t_p < 10 ms; $T_{j(init)}$ = 25 °C		-	600	mA	
Tj	junction temperature			-	125	°C	
T _{amb}	ambient temperature			-55	125	°C	

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Symbol	Parameter	Conditions	Min	Max	Unit
T _{stg}	storage temperature		-65	150	°C

6. Thermal characteristics

Table 6. Thermal characteristics

Symbol	Parameter	Conditions		Min	Тур	Max	Unit
R _{th(j-a)}	thermal resistance from junction to ambient	in free air	[1]	-	-	416	K/W

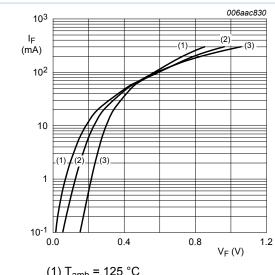
^[1] Device mounted on an FR4 Printed-Circuit Board (PCB), single-sided copper, tin-plated and standard footprint.

7. Characteristics

Table 7. Characteristics

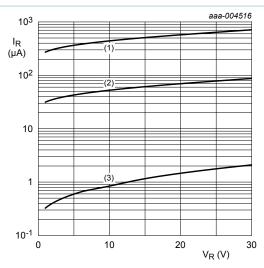
Symbol	Parameter	Conditions	Min	Тур	Max	Unit
Per diode	,		,			,
V _F forw	forward voltage	I_F = 0.1 mA; pulsed; $t_p \le 300 \ \mu s$; δ ≤ 0.02 ; T_{amb} = 25 °C	-	-	200	mV
		I_F = 1 mA; pulsed; $t_p \le 300 \ \mu s$; $\delta \le 0.02$; T_{amb} = 25 °C	-	-	260	mV
		I_F = 10 mA; pulsed; $t_p \le 300 \ \mu s$; $\delta \le 0.02$; T_{amb} = 25 °C	-	-	340	mV
		I_F = 30 mA; pulsed; $t_p \le$ 300 μs; $δ \le$ 0.02; T_{amb} = 25 °C	-	-	420	mV
		I_F = 100 mA; pulsed; $t_p \le 300$ μs; $\delta \le 0.02$; T_{amb} = 25 °C	-	-	750	mV
I _R	reverse current	V_R = 25 V; pulsed; $t_p \le 300 \ \mu s$; $\delta \le 0.02$; T_{amb} = 25 °C	-	-	2	μΑ
C _d	diode capacitance	V _R = 1 V; f = 1 MHz; T _{amb} = 25 °C	-	-	10	pF

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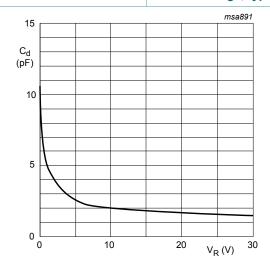
- (1) $T_{amb} = 125 \, ^{\circ}C$
- (2) T_{amb} = 85 °C
- (3) $T_{amb} = 25 \, ^{\circ}C$

Fig. 1. Forward current as a function of forward voltage; typical values



- (1) $T_{amb} = 125 \, ^{\circ}C$
- (2) T_{amb} = 85 °C
- $(3) T_{amb} = 25 °C$

Fig. 2. Reverse current as a function of reverse voltage; typical values



 $f = 1 MHz; T_{amb} = 25 °C$

Fig. 3. Diode capacitance as a function of reverse voltage; typical values

Test information 8.

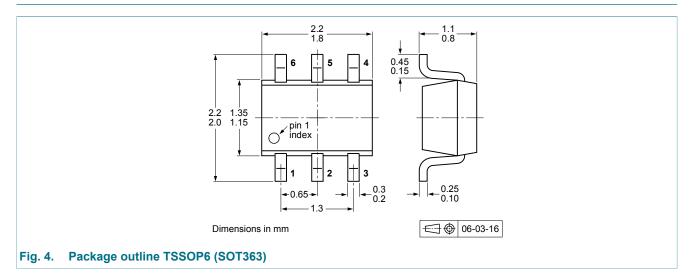
8.1 Quality information

This product has been qualified in accordance with the Automotive Electronics Council (AEC) standard Q101 - Stress test qualification for discrete semiconductors, and is suitable for use in automotive applications.

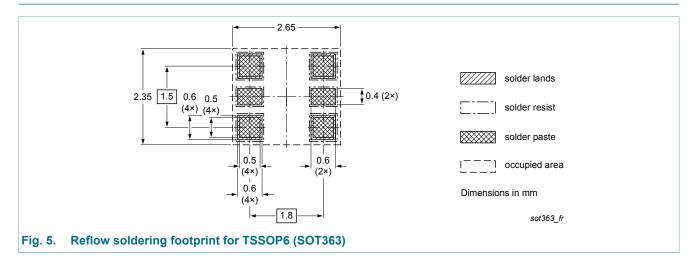
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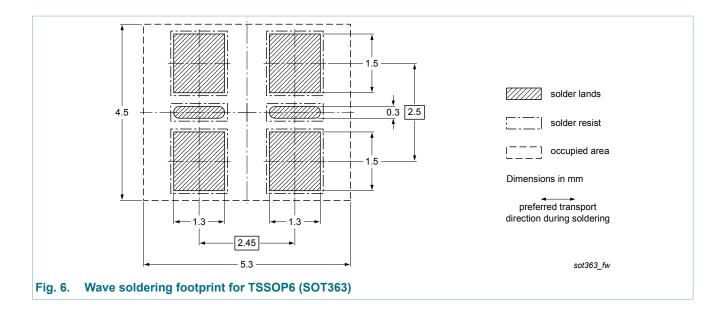
9. Package outline



10. Soldering



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11. Revision history

Table 8. Revision history

			i e	
Data sheet ID	Release date	Data sheet status	Change notice	Supersedes
BAT754L v.2	20121122	Product data sheet	-	BAT754L v.1
Modifications:	of NXP Semicondu Legal texts have be Section 1 Product Section 4 Marking: Table 5 Limiting va Figure 1 and 2: upo Section 8 Test infor Figure 4: supersed Section 10 Solderin	een adapted to the new co profile: updated updated lues: changed T _{amb} minim dated rmation: added ed by minimized package	ompany name where app num value to -55 °C acco	propriate.
BAT754L v.1	20010118	Product specification	-	-

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12. Legal information

12.1 Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

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