

EXHIBIT 3
CIRCUIT DESCRIPTION
2.1033(b)(4)



Retlif Testing Laboratories

Test Report Number R-7864-2

General Introduction

The transponder L34000 0000 is a compact transponder intended for installation on sites with a maximum speed of 250km/h . The transponder can work as a fixed telegram or as a controlled telegram transponder . It can be mounted either transversal or longitudinal with respect to the travel direction , witch can be useful where protection rails etc are mounted .

The transponder have a rigid construction in order to withstand heavy mechanical stress , it is not intended to be dismounted in the case of reconditioning of the ballast etc.

To the environment harmful materials has been avoided in the design of the plate .

The capacity of the internal default memory is 180 bits of information , smaller amount of information can also be possible , as the 12 bit system etc .This is only depending of the programming SW used .

The transponder can be controlled by an external encoder via a 2 wire cable up to 3km. When the transponder not get any information from the encoder (if it is a fixed transponder or in the case of failure in incomming encoder data) the transponder will send the programmed default information .

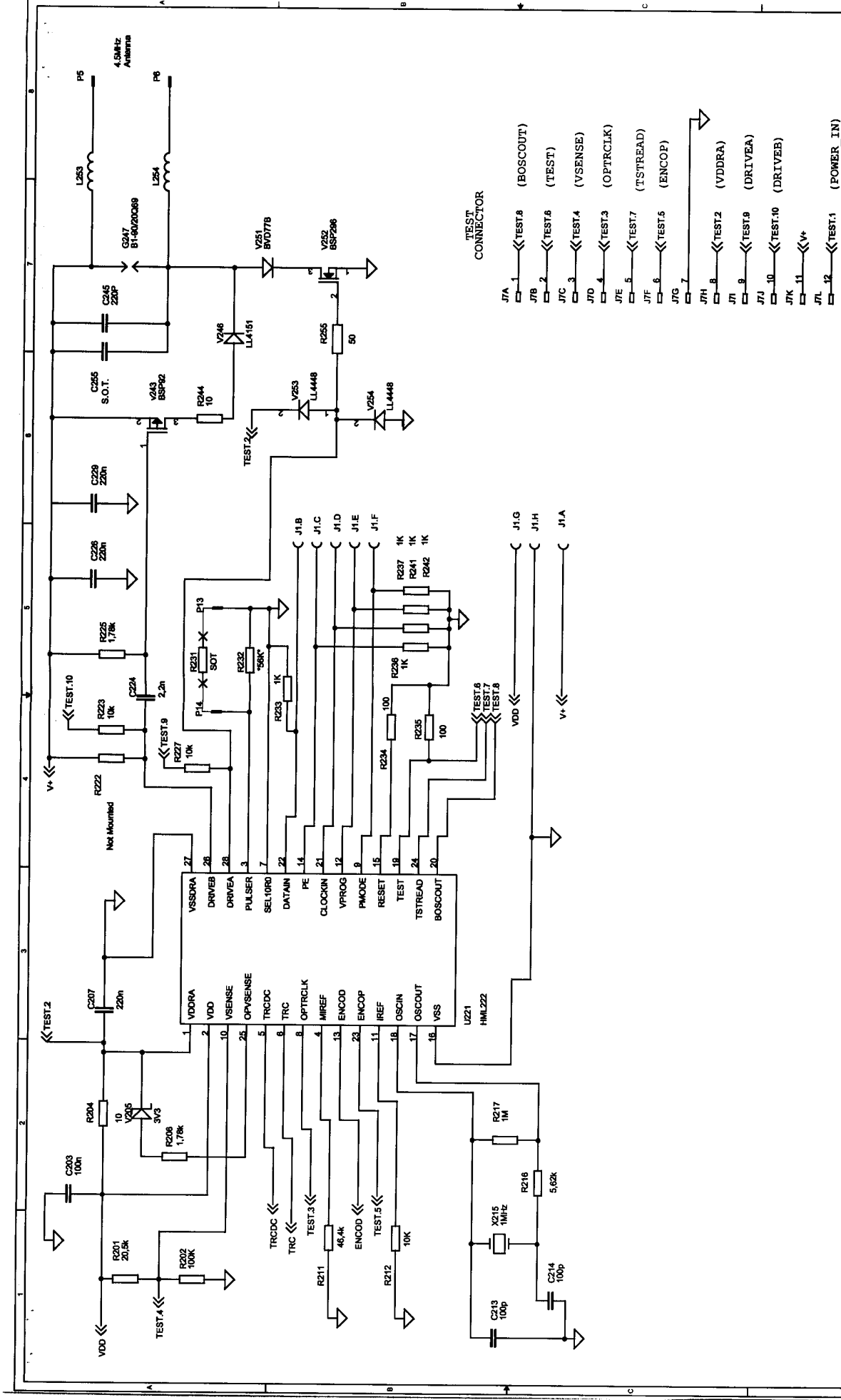
Programming of the transponder is made with a special tool and can be done in field . The transponder can also be tested and reprogrammed with the same tool , the transponder tester .

DOC \$ 2.DOC B42 991005					
ED	DATE-NO				
SIGNATURES					
ED	DATE-NO	Ed1	940111	Ed2	981030
SIGNATURES		SHd		SHd	
ATSS		Product spec. Mini transponder		Produktspec. Minibalis	
Copyright © 1998 AT Signal System AB. All rights reserved.				L340001080T	
				2/3	

Specification

Max. speed :	250km/h Worst case ; independent of mounting direction (transversal or longitudinal) and reduced antenna (L32044 0000)
Dinmensions :	Length 425 mm Width 250 mm Height 40 mm
Weight :	5,6 Kg
Hardware :	Fibre glass reinforced polyester .
Environment :	Temperature range -40 - +70 °C Humidity 0 - 100 % Water Water proof up to 400mm of water. Chock 50g 3*2000 bumps raisetime 2ms (2000 bumps in each direction , X,Y,Z) Debries : Water >100 mm Oil >1 mm Ballast , gravel >100 mm Exposure to ultra violet light >20 years Electrical stress 25 kVac (wire on top of unit) Surge protection IEC 571
MTBF :	>1E-06 hours
Programming:	ATSS programmer L34100 0000 or eqv. (See L34000 1160T) Reprogrammable 500 times (within safety) .
Maintenance :	No maintenance , units shall not be repaired . (See L34000 1160T)
Mounting :	Horizontal on sleeper , either direction . (Details se L34000 1150T) Two boults and washers into Sleeper. (M12 recommended)
General :	Compatible with ABB EBICAB900 and EBICAB700 system .

DOC. S. 2.DOC B42 931005							
ED	DATE-NO						
SIGNATURES							
ED	DATE-NO	Ed1	940111	Ed2	981030		
SIGNATURES		SHd		SHd			
ATSS		Product spec. Mini transponder			Produktspec. Minibalis		
Copyright © 1993 AT Signal System AB. All rights reserved.				L340001080T		3/3	



AT Signal System AB

180 bit Serial Beacon

Revision 1.0

This document and parts thereof must not be reproduced or copied by any means without the written consent of AT Signal System AB, and the contents thereof must not be used for any unauthorized purposes. Any infringement will lead to legal action.

COPYRIGHT

