DATA SHEET

TEA1506P; TEA1506AP; TEA1506T; TEA1506AT

GreenChip™II SMPS control IC

Product specification

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Philips Semiconductors

PHILIPS

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FEATURES

Distinctive features

- Universal mains supply operation (70 to 276 V AC)
- High level of integration; giving a low external component count.

Green features

- Valley or zero voltage switching for minimum switching losses
- Efficient quasi-resonant operation at high power levels
- Frequency reduction at low power standby for improved system efficiency (≤3 W)
- Cycle skipping mode at very low loads.

Protection features

- Safe restart mode for system fault conditions
- Continuous mode protection by means of demagnetization detection (zero switch-on current)
- Accurate and adjustable overvoltage protection (latched in TEA1506; safe restart in TEA1506A)
- Short winding protection
- Undervoltage protection (foldback during overload)
- Overtemperature protection
- Low and adjustable overcurrent protection trip level
- Soft (re)start.

APPLICATIONS

Besides typical application areas, i.e. TV and monitor supplies, the device can be used in adapters and chargers and all applications that demand an efficient and cost-effective solution up to 150 W. Unlike the other GreenChip™II control ICs, the TEA1506 has no internal high voltage start-up source and needs to be started by means of an external bleeder resistor.

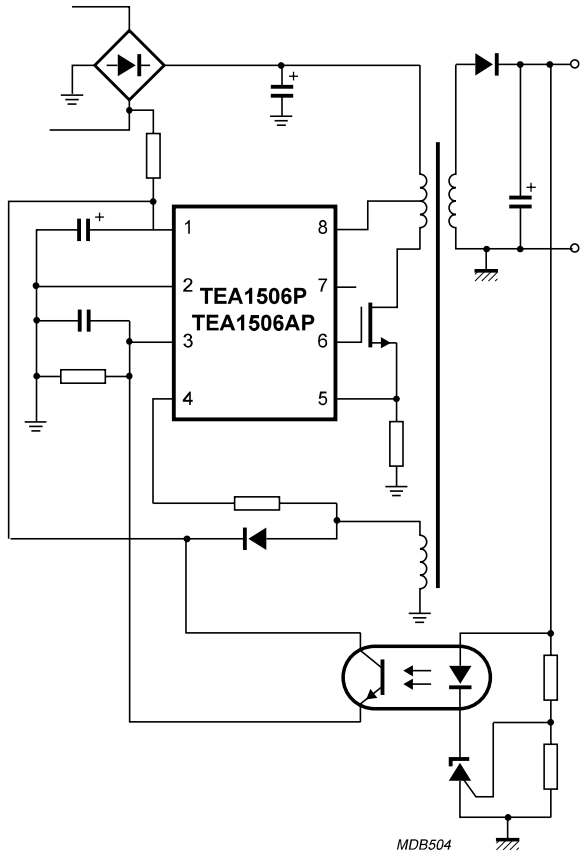

Fig.1 Basic application diagram.

GENERAL DESCRIPTION

The GreenChip™(1)II is the second generation of green Switched Mode Power Supply (SMPS) control ICs. A high level of integration leads to a cost effective power supply with a low number of external components.

(1) GreenChip is a trademark of Koninklijke Philips Electronics N.V.

The special built-in green functions allow the efficiency to be optimum at all power levels. This holds for quasi-resonant operation at high power levels, as well as fixed frequency operation with valley switching at medium power levels. At low power (standby) levels, the system operates at a reduced frequency and with valley detection.

Highly efficient and reliable supplies can easily be designed using the GreenChip™II control IC.

ORDERING INFORMATION

TYPE NUMBER	PACKAGE		
	NAME	DESCRIPTION	VERSION
TEA1506P	DIP8	plastic dual in-line package; 8 leads (300 mil)	SOT97-1
TEA1506AP			
TEA1506T	SO14	plastic small outline package; 14 leads; body width 3.9 mm	SOT108-1
TEA1506AT			

BLOCK DIAGRAM

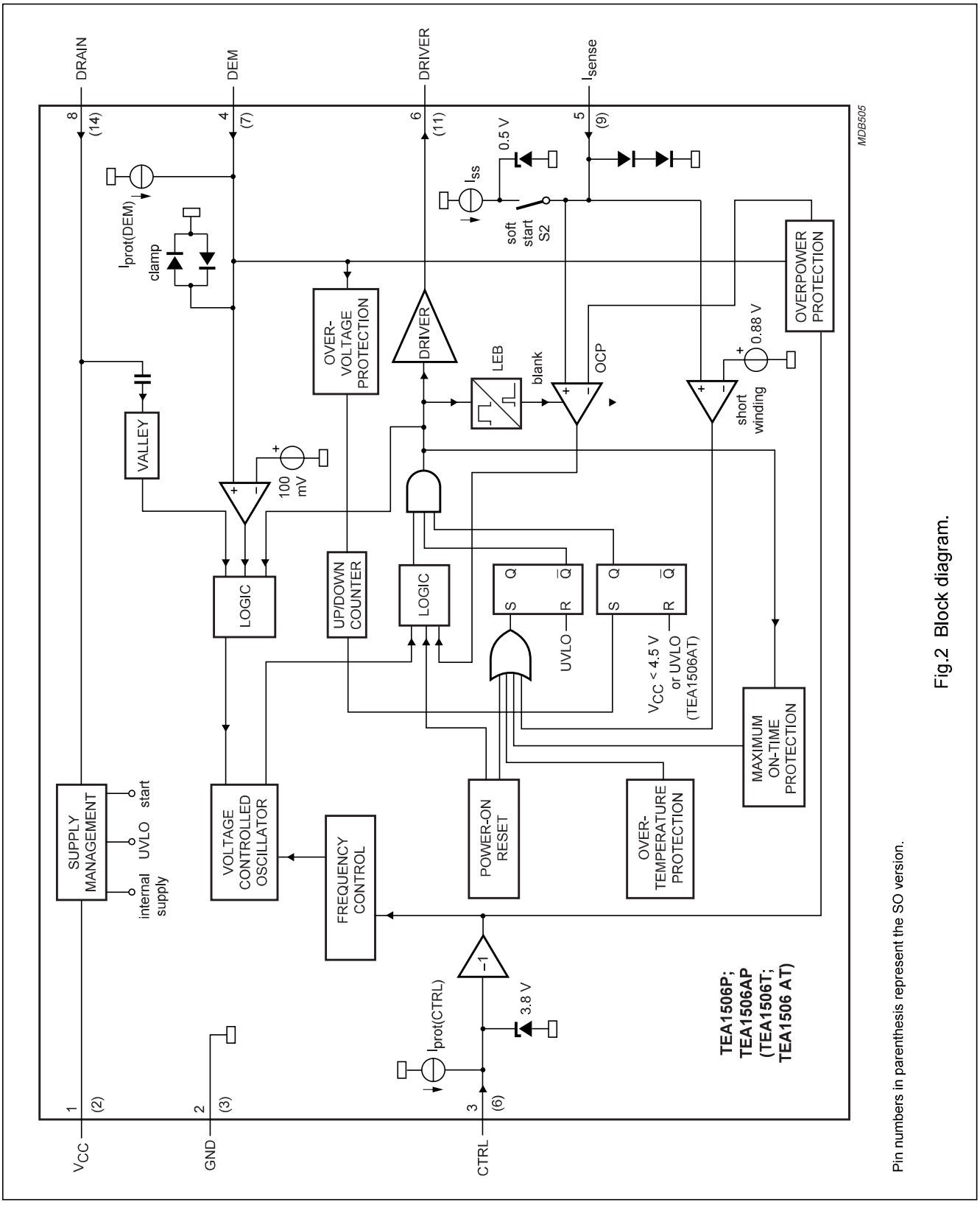

Fig.2 Block diagram.

Pin numbers in parenthesis represent the SO version.

PINNING

SYMBOL	PIN		DESCRIPTION
	DIP8	SO14	
V_{CC}	1	2	supply voltage
GND	2	3	ground
CTRL	3	6	control input
DEM	4	7	input from auxiliary winding for demagnetization timing; overvoltage and overpower protection
I_{sense}	5	9	programmable current sense input
DRIVER	6	11	gate driver output
HVS	7	12, 13	high voltage safety spacer; not connected
DRAIN	8	14	drain of external MOS switch; input for valley sensing and initial internal supply
n.c.	–	1, 4, 5, 8, 10	not connected

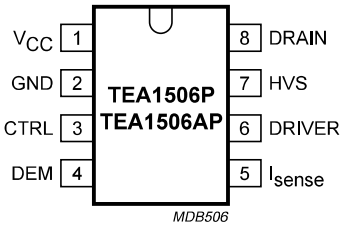

Fig.3 Pin configuration DIP8.

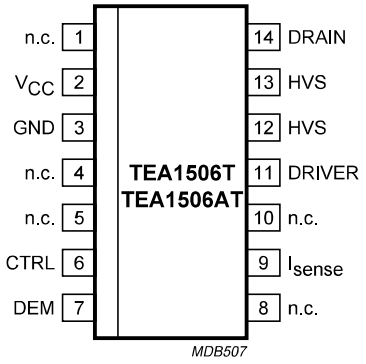

Fig.4 Pin configuration SO14.