

# STK730-010

## Self-excitation Type Semi-Regulated Switching Regulator

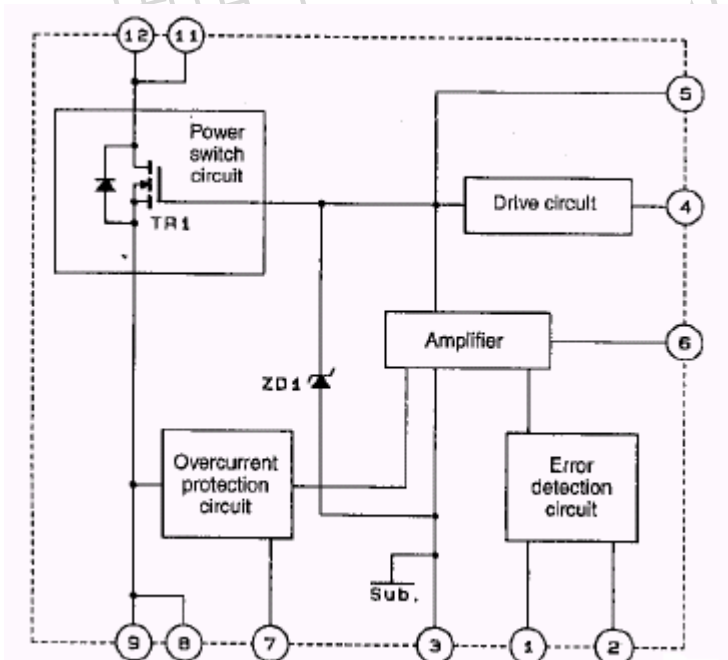
### ◆ Features

- . Power MOSFET devices
- . Ideal for semi-regulated control switching supplies
- . Error detection circuit on-chip ( $40.5 \pm 0.5V$  set reference voltage)
- . Pin compatible with all other devices in the same series of devices with 110 to 280W power ratings
- . Higher oscillator frequency allows the use of smaller pulse transformers

### ◆ Applications

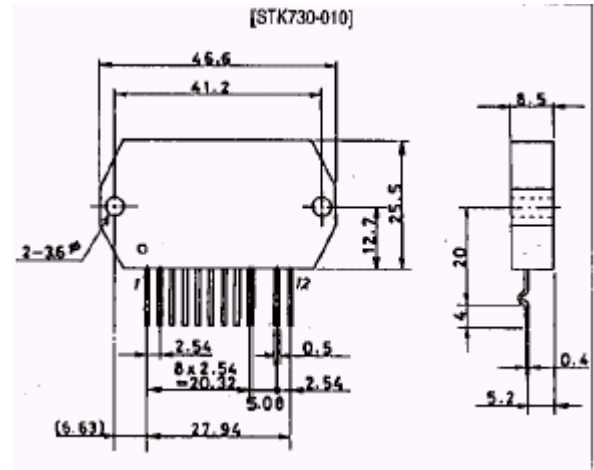
- . CRT/CTV power supplies
- . Office automation equipment power supplies

### ◆ Block Diagram



### Package Dimensions

unit:mm



### Pin Functions

- (1) Vref(40.5V typ) input
- (2) Error detection level
- (3) Ground
- (4) Drive voltage input
- (5) TR1 gate
- (6) Amplifier circuit control
- (7) OCP setting level input
- (8) TR1 source
- (9) TR1 source
- (11) TR1 drain
- (12) TR1 drain

## Specifications

### ◆ Maximum Ratings at $T_a=25$ , $T_c=25$ unless otherwise specified

Parameter	Symbol	Conditions	Ratings	UNIT
Operating substrate temperature	$T_C$ max	Recommended value is 105	115	
AC input voltage	$V_{AC}$	Specified test circuit	140	Vrms
Operating temperature	$T_{opr}$		-10 to+85	
Storage temperature	$T_{stg}$		-30 to+115	
Maximum output power	$W_o$ max	Specified test circuit $V_O=135V$	110	W

#### (TR1)

Drain current	$I_D$		6	A
Pulse drain current	$I_{D(Pulse)}$		20	A
Drain reverse current	$I_{DR}$		6	A
Gate-source voltage	$V_{GSS}$		$\pm 30$	V
Allowable power dissipation	$P_D$		78.1	W
Chip junction temperature	$T_j$ max		150	
Thermal resistance	j-c		1.6	/W

#### (ZD1)

Allowable power dissipation	$P_{ZD1}$		500	mW
Chip junction temperature	$T_j(ZD1)_{max}$		125	
Thermal resistance	j-c(ZD1)		0.2	/mW

### ◆ Allowable operating ranges at $T_a=25$

Parameter	Symbol	Conditions	Ratings	UNIT
Pin 4 input voltage	$V_4$		$\pm 8$ to $\pm 24$	V
Oscillator frequency	$f_{osc}$		20 to 120	kHz

### ◆ Operating characteristics at $T_a=25$ $T_c=25$

( unless otherwise specified,specified test circuits)

Parameter	Symbol	Conditions	min	Typ	max	UNIT
Output voltage setting		$I_{IN}=8mA$	40.0	40.5	41.0	V
Output voltage temperature coefficient		$T_C=0$ to 105 , $I_{IN}=8mA$		7		mV/

#### (TR1)

Drain-source breakdown voltage	$V_{(BR)DSS}$	$I_D=10mA, V_{GS}=0V$	500			V
Gate-source cutoff voltage	$V_{GS(off)}$	$I_D=1mA, V_{DS}=10V$	2.0		3.0	V
ON resistance	$R_{DS(on)}$	$I_D=2.5A, V_{GS}=10V$		1.4	1.8	
Input capacitance	$C_{iss}$	$V_{DS}=10V, V_{GS}=0V, f=1MHz$		800		pF

#### (ZD1)

Zener voltage	$V_Z$	$I_Z=5mA$	23.7		26.3	V
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### ◆ Series organization

These devices form a series with varying output power ratings

Device	Maximum ratings					Operating characteristics		
	V <sub>DSS</sub> [V]	T <sub>stg</sub> [ ]	T <sub>c</sub> max [ ]	T <sub>j</sub> max [ ]	I <sub>b</sub> [A]	Input voltage [V]	Output power [W]	ON resistance [ ]
STK730-010	500	-30 to +115	+115	+150	6.0	85 to 132	110	1.4
STK730-020					8.0		145	0.8
STK730-030					10.0		180	0.7
STK730-040					12.0		210	0.55
STK730-050					15.0		280	0.3
STK730-060	900				3.0	170 to 264	110	5.0
STK730-070					5.0		180	3.0
STK730-080					6.0		210	2.0
STJ730-090					8.0		280	1.2

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