

STK730-010

Self-excitation Type Semi-Regulated Switching Regulator

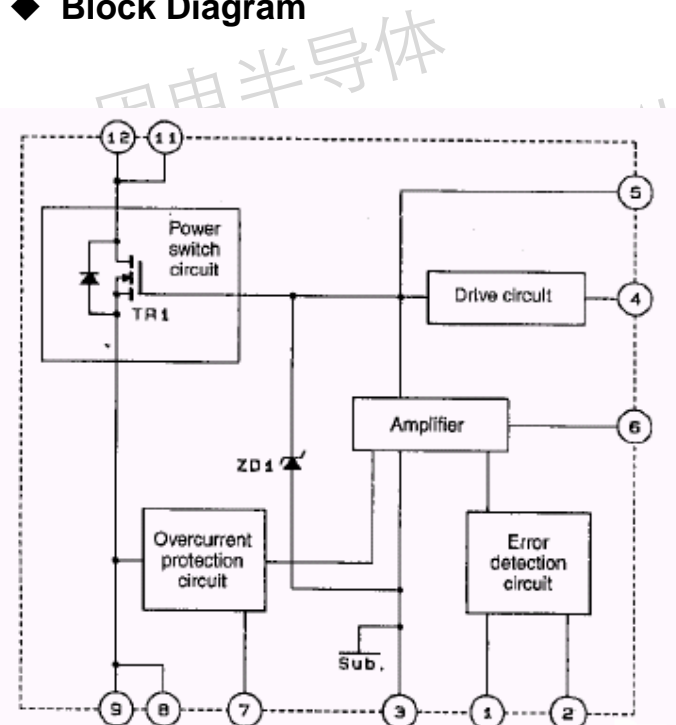
◆ Features

- 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

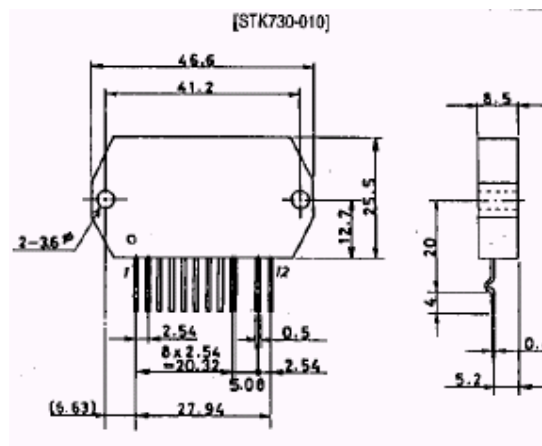
- CRT/CTV power supplies
- Office automation equipment power supplies

◆ 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 Ta=25 , Tc=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}		± 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 Ta=25

Parameter	Symbol	Conditions	Ratings	UNIT
Pin 4 input voltage	V ₄		± 8 to ± 24	V
Oscillator frequency	f _{osc}		20 to 120	kHz

◆ Operating characteristics at Ta=25 Tc=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 _{DSS} [V]	T _{stg} []	T _c max []	T _j max []	I _b [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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