STK730-010

Self-excitation Type Semi-Regulated Switching Regulator

◆ Features

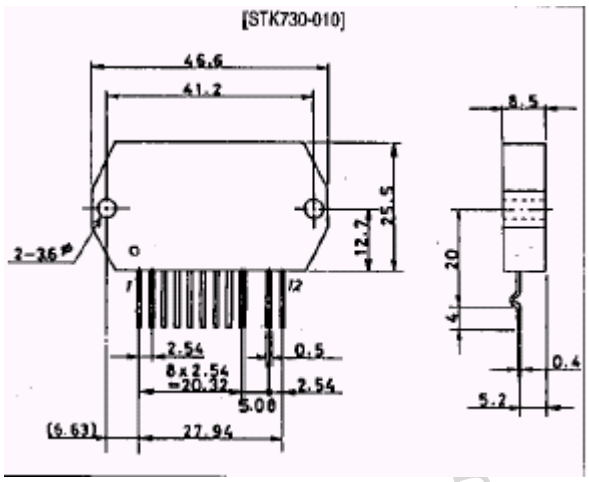
. Power MOSFET devices
. Ideal for semi-regulated control switching supplies
. Error detection circuit on-chip (40.5±0.5V set reference voltage)
. Pin compatible with all other devices in the same series of devices with 110 to 280W power ratings
. Higher oscillator frequency allows the use of smaller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

◆ Applications

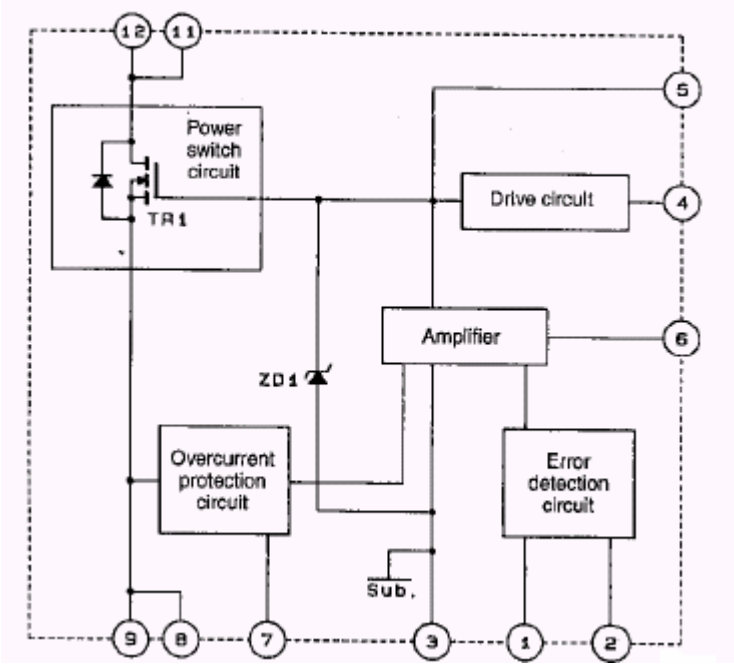
. CRT/CTV power supplies
. Office automation equipment power supplies

Package Dimensions

unit:mm



◆ Block Diagram



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	Topr		-10 to+85	℃
Storage temperature	Tstg		-30 to+115	℃
Maximum output power	Wo 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	Tj max		150	℃
Thermal resistance	θj-c		1.6	℃/W
(ZD1)				
Allowable power dissipation	P_{ZD1}		500	mW
Chip junction temperature	Tj(ZD1)max		125	℃
Thermal resistance	θj-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	Ω
Input capacitance	Ciss	V_{DS}=10V,V_{GS}=0V,f=1MHz		800		pF
(ZD1)						
Zener voltage	V_Z	I_Z=5mA	23.7		26.3	V

◆ Series organization

These devices form a series with varying output power ratings

Device	Maximum ratings					Operating characteristics		
	V_{DSS} [V]	Tstg [℃]	T_C max [℃]	Tj max [℃]	I_D [A]	Input voltage [V]	Output power [W]	ON resistance [Ω]
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