STK73902

Self-excitation Type Feedback Control Switching Regulator

◆ Features

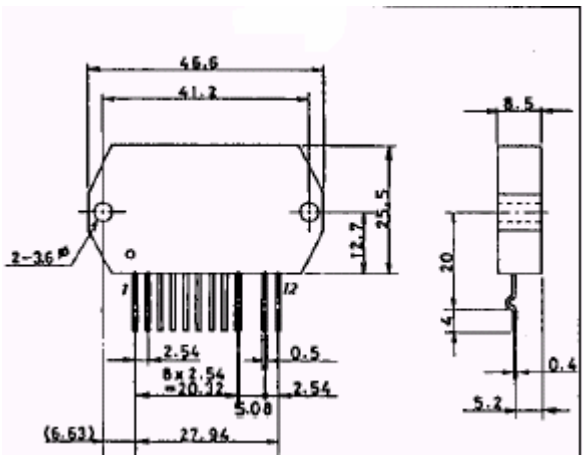
. Power MOSFET devices
. Feedback control for high output voltage precision
. Driver circuit on-chip
. Overcurrent protection circuit on-chip
. Pin compatible with all other devices in the same series of devices with 110 to 280W power ratings
. Higher oscillator frequency allows the use of smaller pulse transformers

◆ Applications

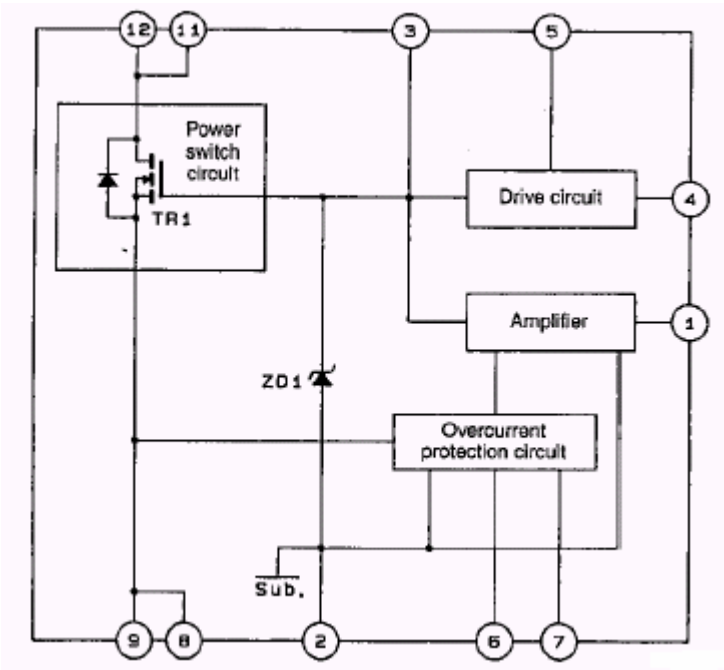
. CRT/CTV power supplies
. Office automation equipment power supplies

Package Dimensions

unit:mm



◆ Block Diagram



Pin Functions

(1) Amplifier circuit control
(2) Ground
(3) TR1 gate
(4) Drive voltage input
(5) Starting voltage input
(6) OCP setting level input
(7) OCP input-voltage dependency detection 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	180	W
(TR1)				
Drain current	I_D		10	A
Pulse drain current	$I_{D(Pulse)}$		35	A
Drain reverse current	I_{DR}		10	A
Gate-source voltage	V_{GSS}		±30	V
Allowable power dissipation	P_D		100	W
Chip junction temperature	Tj max		150	℃
(ZD1)				
Allowable power dissipation	P_{ZD1}		500	mW
Chip junction temperature	Tj(ZD1)max		125	℃

◆ Recommended 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 100	kHz

◆ Operating characteristics at Ta=25℃,Tc=25℃

(unless otherwise specified,specified test circuits)

Parameter	Symbol	Conditions	min	Typ	max	UNIT
(TR1)						
Drain-source breakdown voltage	$V_{(BR)DSS}$	I_D=1mA,V_{GS}=0V	500			V
Gate-source cutoff voltage	$V_{GS(off)}$	I_D=1mA,V_{DS}=10V	2.5	3.5	5.0	V
ON resistance	$R_{DS(on)}$	I_D=5A,V_{GS}=10V		0.6	0.9	Ω
Input capacitance	Ciss	V_{DS}=25V,V_{GS}=0V,f=1MHz		1400		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

Type No.	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]
STK73902	500	-30 to +115	+115	+150	6.0	85 to 132	110	1.4
STK73903					10.0		180	0.6
STK73904					12.0		210	0.55
STK73905					15.0		280	0.3
STK73906	900				3.0	170 to 264	110	5.0
STK73907					5.0		180	3.0
STK73908					6.0		210	2.0
STK73909					8.0		280	1.2