Ordering number : ENN8033

SANYO Semiconductors
DATA SHEET

ExPD (Excellent Power Device)

TN6R03 — Switching Regulator IC for RCC Method Power Supplies Applications

Features

- Original contorol IC for Delay RCC-type.
- High voltage power MOSFET with current sense.
- Overload protection.
- Only few external components required.
- Small Full-Isolation package : TO-220FI5H.

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DS}		650	V
Drain Current (DC)	I_D		4.5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	13.5	A
IC Input Voltage	V_{IN}		30	V
Allowable Power Dissipation	P_D		2.0	W
		Tc=25°C	30	W
Operating Temperature	Topr		-25 to +125	°C
Junction Temperature	Tj		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[MOSFET]						
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{DELAY}=0	650			V
Zero-Gate Voltage Drain Current	I_{DSS}	V_{DS}=650V, V_{DELAY}=0			1.0	mA
Cutoff Voltage	$V_{GS}(off)$	V_{DS}=10V, I_D=1mA	3.0		4.0	V
Static Drain-to-Source On-State Resistance	$R_{DS}(on)$	I_D=2.3A, V_{DELAY}=15V		1.55	2.0	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1150		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		200		pF
[IC]						
Restriction of Drive Voltage	$V_{IN(OV)}$	I_{IN}=1mA, V_{FB}=0	30			V
Detection Voltage of Feedback and Overload Amplifier	V_{FB}	V_{DELAY}, V_{IN}=10V, I_{IN}=50mA		2.0		V

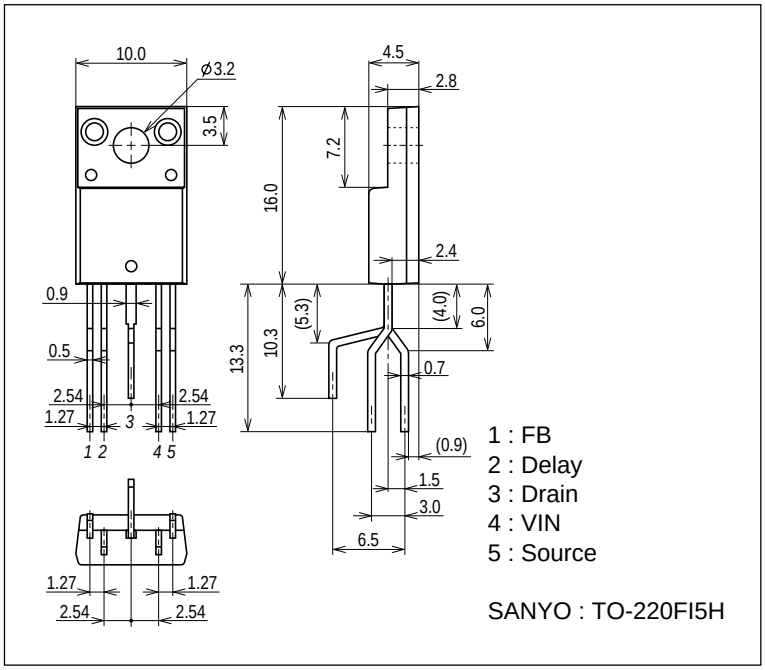
Recommend Operating Conditions at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
IC Input Voltage	V_{IN}		±10 to ±25	V
Operating Frequency	F_{OSC}		20 to 200	kHz

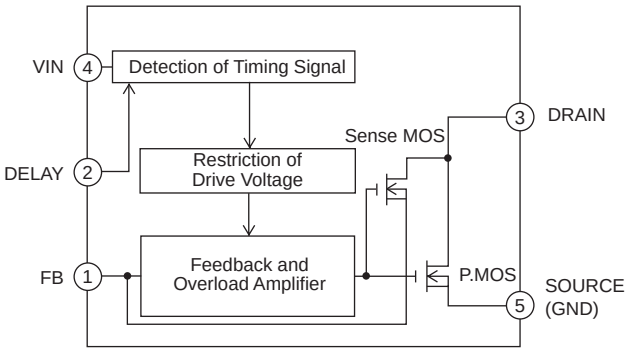
Package Dimensions

unit : mm

2226



Block Diagram

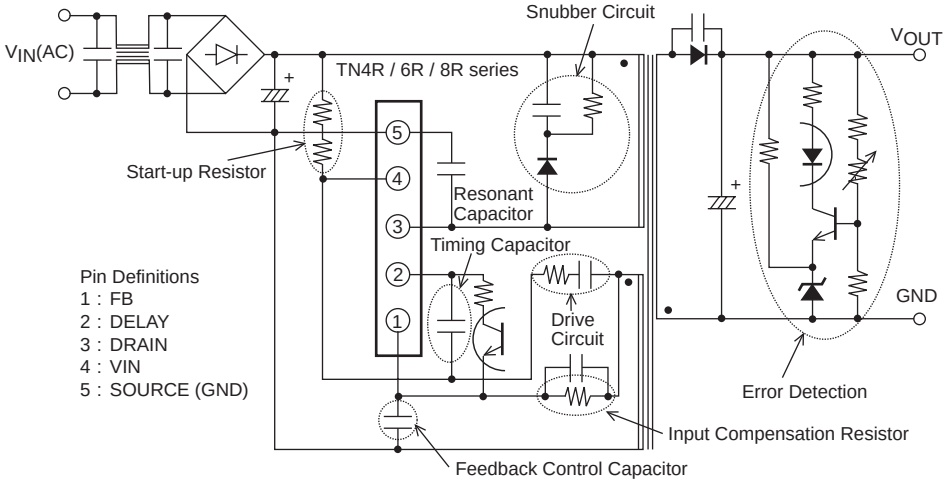


Pin Functions

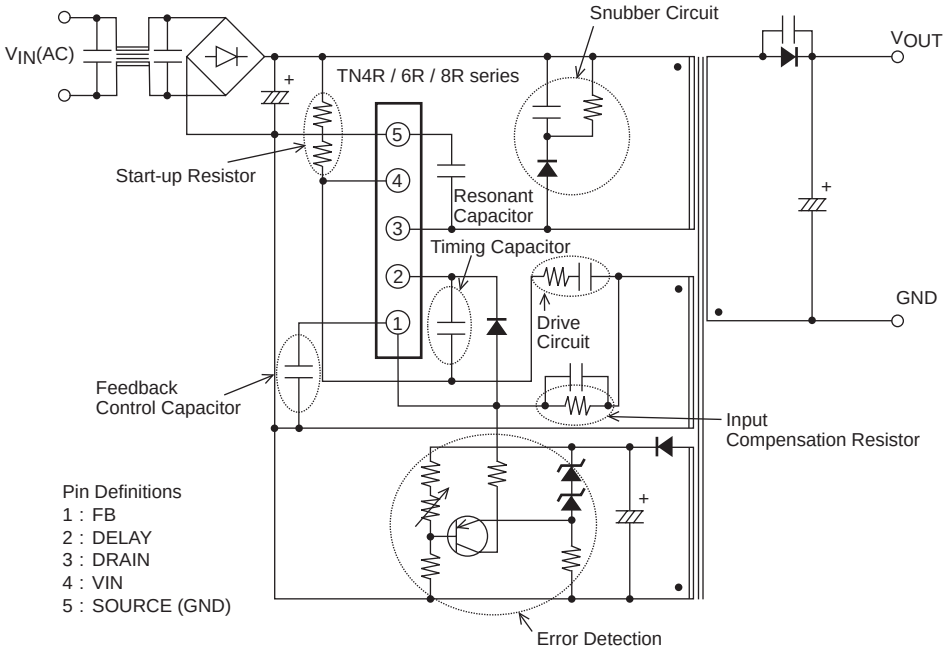
Pin No.	Symbol	Function
1	FB	Input for feedback voltage and current sense
2	DELAY	Input for timing signal
3	DRAIN	Power MOSFET Drain
4	VIN	Input for Start-up voltage and drive voltage
5	SOURCE(GND)	Power MOSFET Source (Ground)

Sample Application Circuit

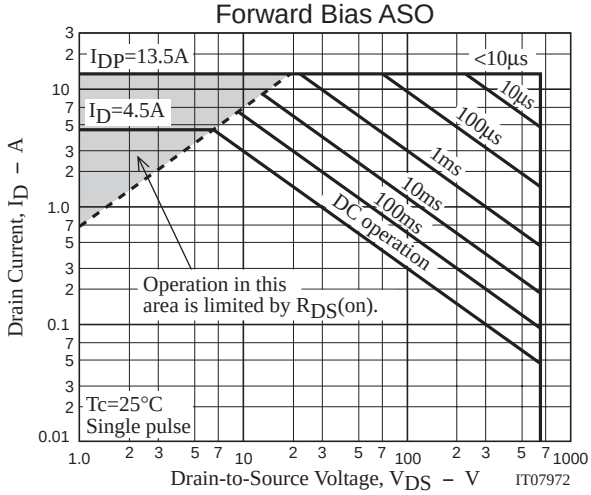
[Feedback control]



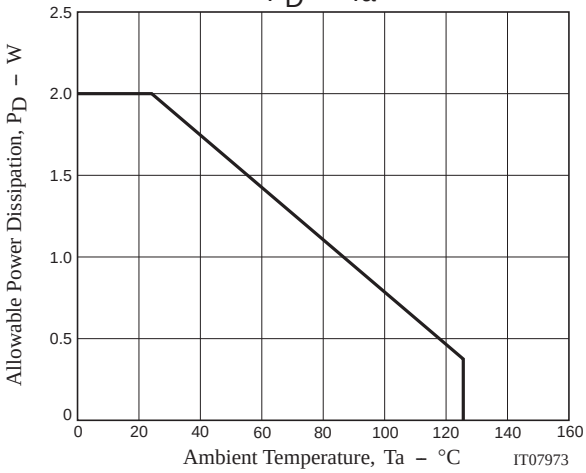
[Semi-regulated control]



Forward Bias ASO



P_D – Ta



P_D – Tc