SWITCHING REGULATOR CONTROL IC FOR FLYBACK —YD2368

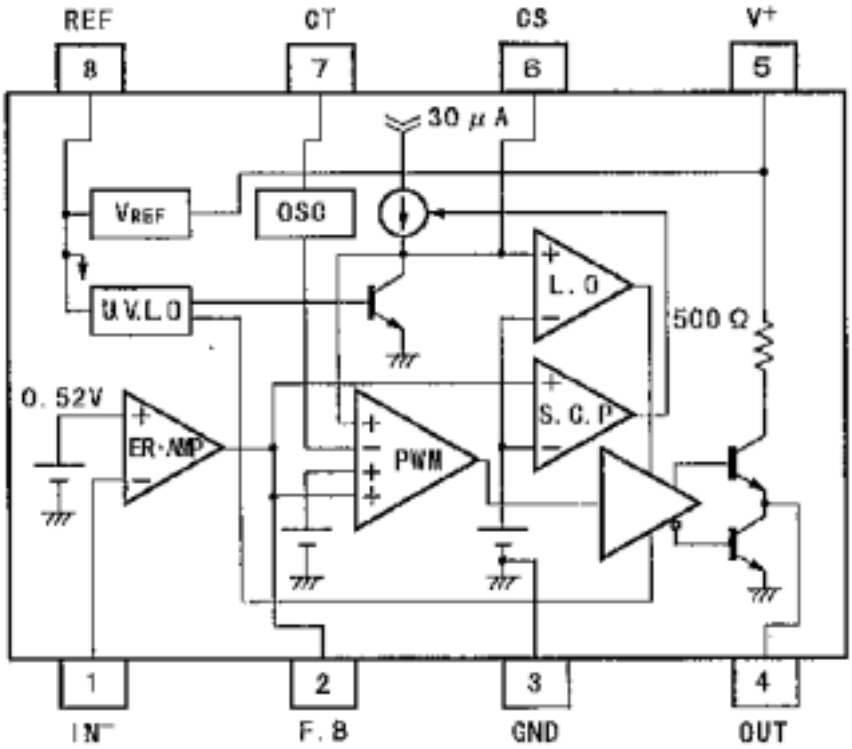
DESCRIPTION

The YD2368 is a high speed switching regulator control IC which can operate at low voltage.

FEATURES

*Operating Voltage(3.6～32V)
*Wide Oscillator Range(5～350kHz)
*Soft-Start Function
*Under Voltage Lockouts(U.V.L.O)
*Bipolar Technology
*Package Outline DIP8,DMP8,EMP8,SSOP8

BLOCK DIAGRAM



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ABSOLUTE MAXIMUM RATINGS (Tamb=25℃)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	36	V
Reference Output Current	I_{OR}	10	mA
Output Current	I_O	±50	mA
Power Dissipation	P_O	(DIP8) 700	mW
		(DMP8) 300	
		(EMP8) 300	
		(SSOP8) 250	
Operating Temperature Range	T_{OPR}	-40～+85	℃
Storage Temperature Range	T_{STG}	-50～+125	℃

RECOMMENDED OPERATING CONDITIONS (V^+=6V,Tamb=25℃)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V^+		3.6	6	32	V
Feed Back Resistor	R_{nf}		100	-		kΩ
Oscillator Timing Capacitor	C_T		220	-	22000	pF
Oscillator Timing Resistor	R_T		10	-	100	kΩ
Oscillate	f_{OSC}		5	-	350	kHz

ELECTRICAL CHARACTER (V^+=6V,R_T=33kΩ,C_T=1000pF,Tamb=25℃)

REFERENCE VOLTAGE BLOCK

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Dutput voltage	V_{REF}	I_{OR}=1mA	2.45	2.5	2.55	V
Line Regulation	L_{INE}	V^+=3.6～32V,IOR=1mA	-	6.8	20.7	mV
Load Regulation	L_{OAD}	I_{OR}=0.1～5.0mA	-	5	30	mV

OSCILLATOR BLOCK

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Oscillate	f_{OSC}	Cr=1000pF,RF=33kΩ	85	105	125	kHz
Line Fluctuations	L_{INE}	V^+=3.6～32V,IOR=1mA	-	1	-	%
Temp Fluctuations	L_{OAD}	I_{OR}=0.1～5.0mA	-	5	-	%

ERROR AMPLIFIER BLOCK

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Reference Voltage	V_B		0.51	0.52	0.53	V
Input Bias Current	I_B		-	5	100	NA
Open Loop Gain	A_V		-	90	-	dB
Gain Band Width Product	G_B		-	0.6	-	MHz
Maximum Output Voltage(F.B Pin)	V_{OM+}	R_{NF}=100kΩ	V_{REF}-0.2	-	-	V
	V_{OM-}	R_{NF}=100kΩ	-	-	200	mV
Output Source Current(F.B Pin)	I_{OM-}	V_{OM}=1V	40	85	200	μA

PWM COMPARATE BLOCK(F.B Pin)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Bias Voltage	V_{THO}	Duty cycle=0%	-	0.55	0.65	V
Input Threshold Voltage	V_{TH6O}	Duty cycle=50%	-	0.87	-	V
Maximum Duty Cycle	αM	F.B Pin=1.2V	55	64	85	%

SOFT START CIRCUIT BLOCK(CS Pin)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Bias Current	I_{BCS}		-	250	650	nA
Input Threshold Voltage	V_{THCSO}	Duty cycle=0%	-	0.25	0.35	V
Input Threshold Voltage	V_{THCS5O}	Duty cycle=50%	-	0.52	-	V

SHORT CIRCUIT PROTECTION

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Input Threshold Voltage(F.B)	V_{THPC}	CSPin=0V,F.B Pin=2V	1.2	1.5	1.8	V
Charge Current(CS Pin)	I_{CHG}		10	30	50	μA
Latch mode Threshold Voltage(CS Pin)	V_{THLA}		1.2	1.5	1.8	V

UNDER VOLTAGE LOCKOUT

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
ON Threshold Voltage	V_{THON}		-	2.7	-	V
OFF Threshold Voltage	V_{THOFF}		-	2.52	-	V
Hysteresis Voltage	V_{HYS}		60	180	-	mV

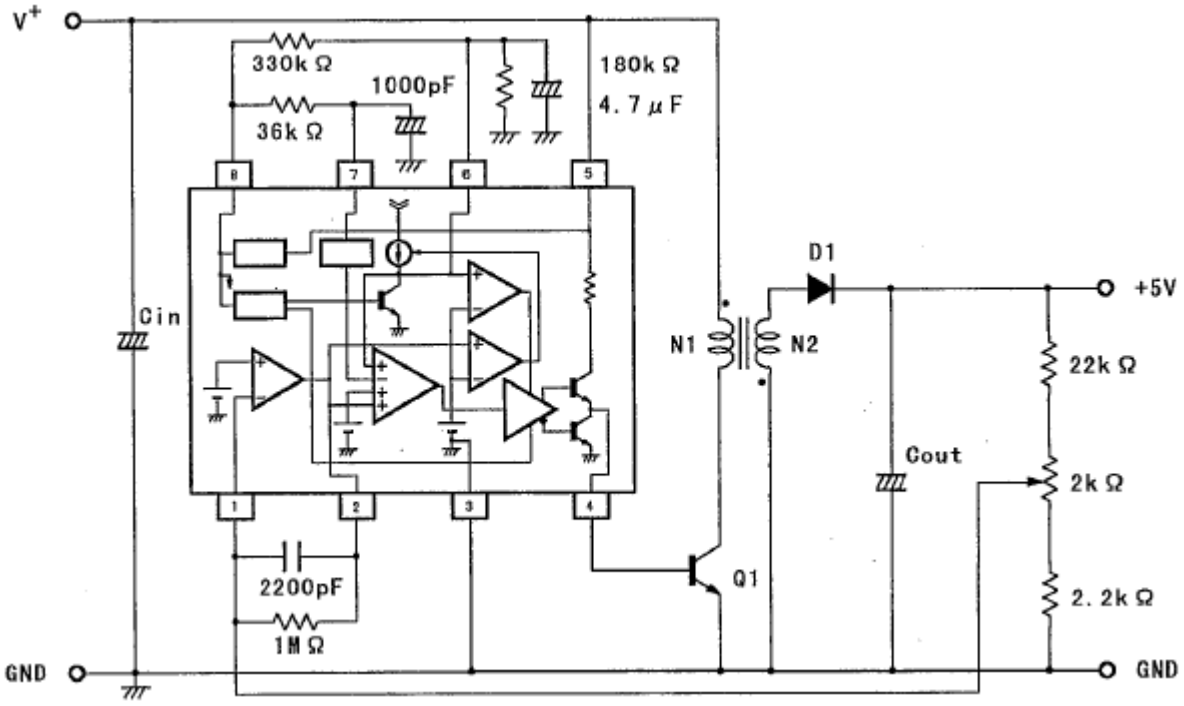
OUTPUT(OUT Pin)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
H-Output Voltage	V_{OH}	R_L=10kΩ Output Sink Current=20mA OUT Pin=0V	3.5	4	-	V
L-Output Voltage	V_{OL}		-	0.25	0.65	V
Output Source Current	I_{SOURCE}		8	11	-	mA

GENERAL CHARACTERISTIC

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Quiescent Current	I_{CCLA}	Latch	-	1.6	2.2	mA
Anerage Quiescent Current	I_{CCAV}	R_L=∞,dutycycle=50%	-	3.5	4.8	mA

APPLICATION CIRCUIT



OUTLINE DRAWING