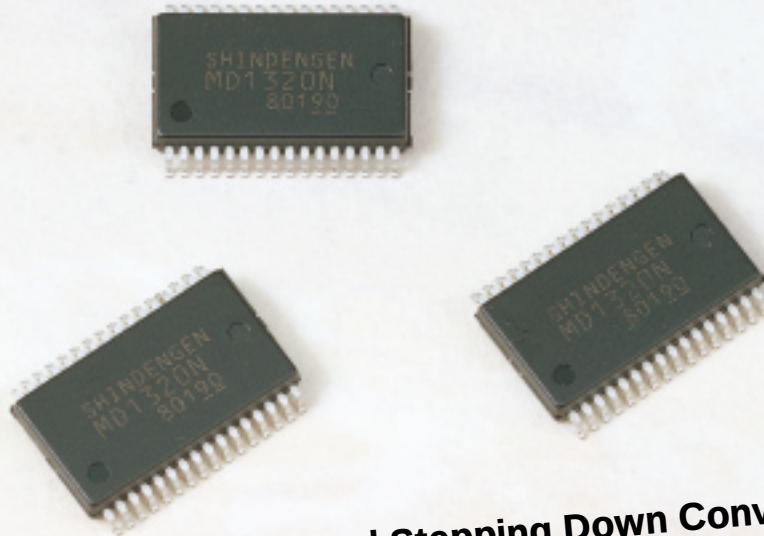




3.3V/5V Stepping Down DC to DC Converter Power IC **MD1320N**



1.5A PWM Control Stepping Down Converter IC
It achieves High Output Power and High Efficiency
integrating high performance and high function in compact
package

Summary

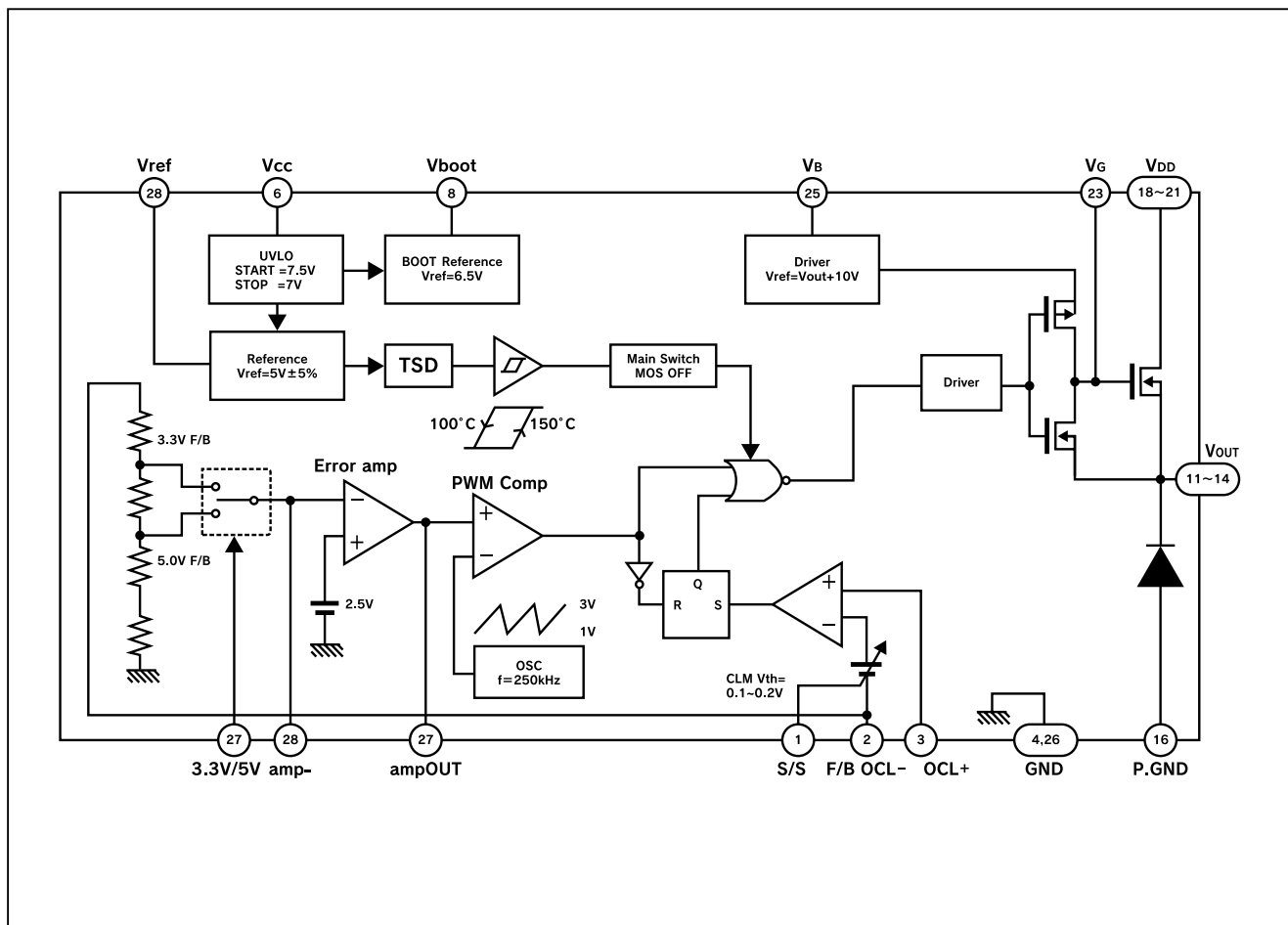
MD1320N is a non-isolated, PWM control stepping down DC to DC converter power IC including main MOSFET switch and fly wheel SBD inside. It has maximum 7.5W(5V, 1.5A) output power and high efficiency in wide range. It also has wide input voltage range (8-30V) and it is possible to get 3.3V or 5V output voltage by selecting terminal. Its package is new compact surface mount type (SSOP-32) and it is possible to design DC to DC converter with fewer external components and smaller mounting area.

Feature

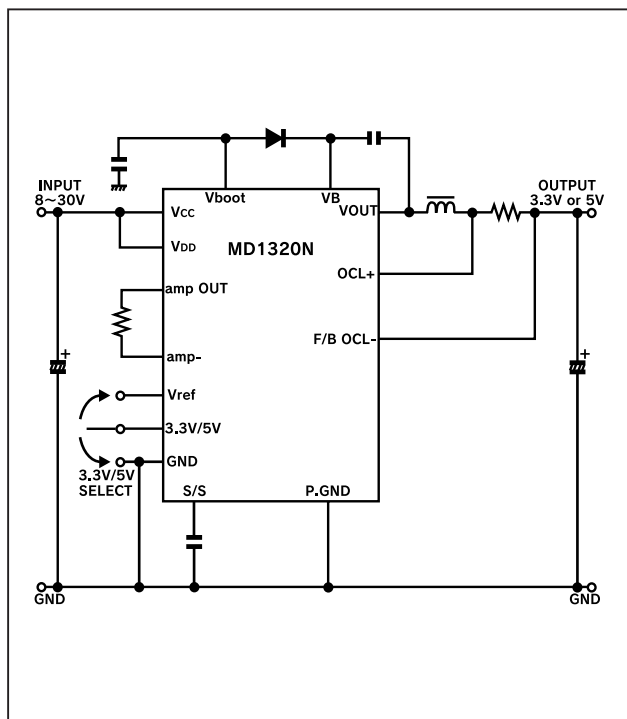
- Input Voltage range 8-30V
- Maximum Output Current 1.5A
- Included main MOSFET switch and fly wheel SBD
- Output 3.3V / 5V (Selective with output switching terminal)
- High Efficiency typ. 91% (at: Vin=8V, Vout=5V, Iout=0.5A)
- Fixed Frequency 250kHz PWM Control
- Over Current Protection Function
- Low Input Voltage Protection Function(UVLO)
- Thermal Shut Down Function

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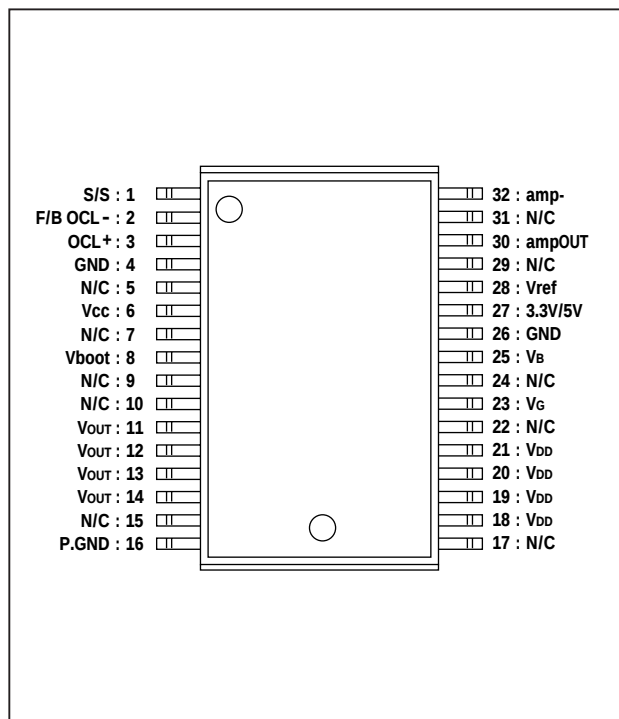
Block Diagram



Application Example



Pin Layout



■ Absolute Maximum Ratings (Ta= 25℃)

Item	Symbol	Rating	Unit
Line voltage	V _{IN}	32	V
Output MOS input voltage	V _{DD}	32	V
Output current (A V E)	I _{OUTave}	1.5	A
Output current (P E A K)	I _{OUTpeak}	2	A
Storage temperature	T _{stg}	−40~150	℃
Junction temperature	T _j	150	℃

■ Recommended Operation Conditions

Item	Recommerded Value	Unit
Input voltage	8~30	V
Operation temperature	−10~80	℃

■ Electrical Characteristics (Ta= 25℃)

Item	Symbol	Condition	MIN	TYP	MAX	Unit
HighsideMOS Drain-source breakdown voltage	V _{dss}	I _D = 1mA, V _{GS} = 0V	32	—	—	V
HighsideMOS Drain interruption current	I _{dss}	V _{DS} = 30V, V _{GS} = 0V	—	—	10	μA
HighsideMOS Drain-source ON resistance	R _{on}	I _D = 1.2A, V _{GS} = 4V	—	140	250	mΩ
HighsideMOS Source-drain Di forward voltage	V _{SD}	I _S = 1.2A, V _{DS} = 0V	—	—	1.5	V
LowSideSBD Peak reverse voltage	V _{RM}	—	40	—	—	V
LowSideSBD Forward voltage	V _F	I _F = 1.2A	—	—	0.55	V
LowSideSBD Reverse current	I _R	V _R = V _{RM}	—	—	2	mA
Start voltage	V _{cc_start}	—	7	7.5	8	V
Stop voltage	V _{cc_stop}	—	6.5	7	7.5	V
Start-stop voltage hysteresis	V _{cc_hys}	—	—	0.5	—	V
Current consumption	I _{cc}	V _{cc} =8V~30V	—	8	10	mA
BOOT terminal voltage	V _{boot}	V _{cc} =8V~30V	6	6.5	7	V
Internal reference voltage	V _{ref}	V _{cc} =8V~30V	4.75	5	5.25	V
Internal oscillation frequency	f _{osc}	V _{cc} = 24V	212.5	250	287.5	kHz
Overcurrent threshold voltage	V _{th_OCL}	V _{cc} = 24V	0.162	0.19	0.218	V
SoftStart terminal current	I _{s/s}	V _{cc} = 24V	−20	−12.5	−5	μA
"H" CHG terminal input voltage	V _{CHGH}	—	4.5	—	V _{ref}	V
"L" CHG terminal input voltage	V _{CHGL}	—	GND	—	0.5	V
Overcurrent protection operating temperature	T _{TSD}	—	—	150	—	℃

