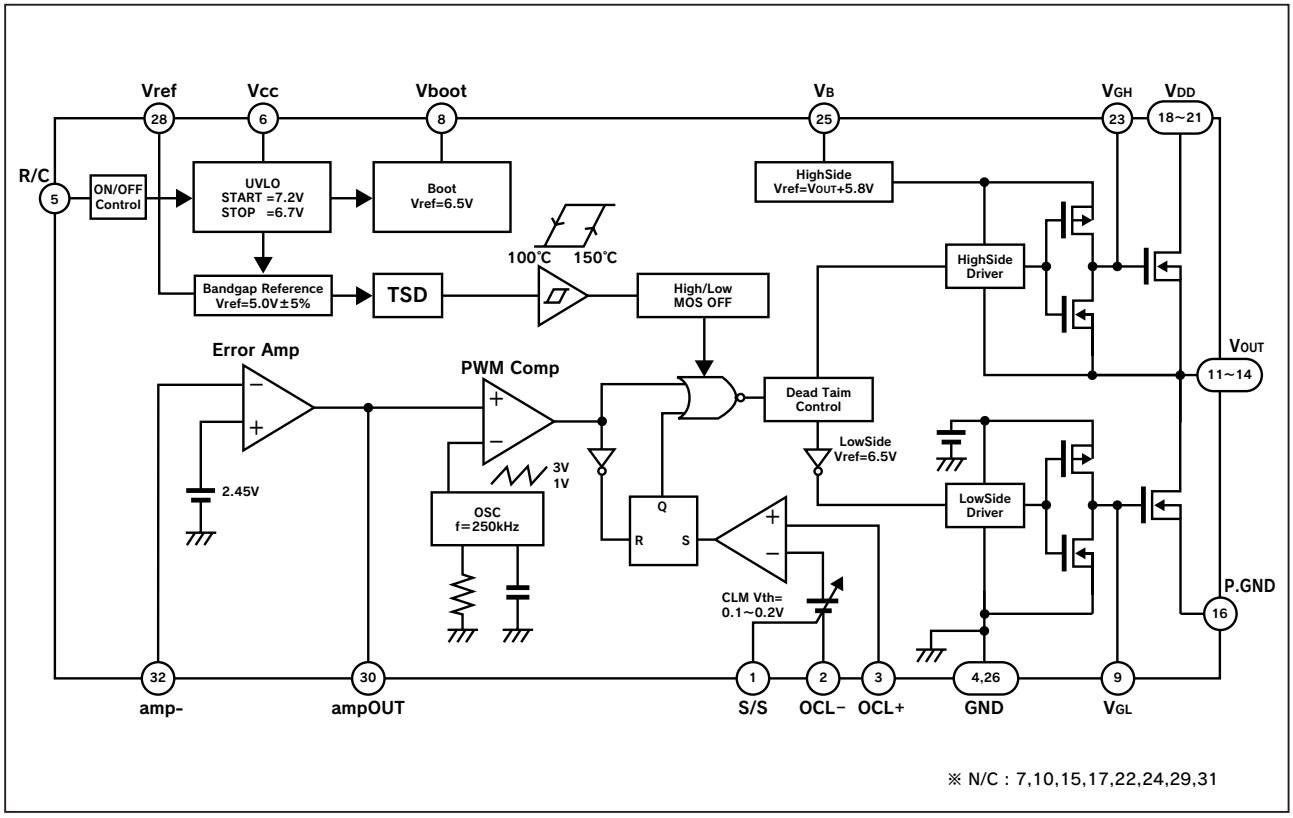
MD1222N

Output adjustable | Remote On/Off | Synchronous Rectification | Output Current 5A

Feature

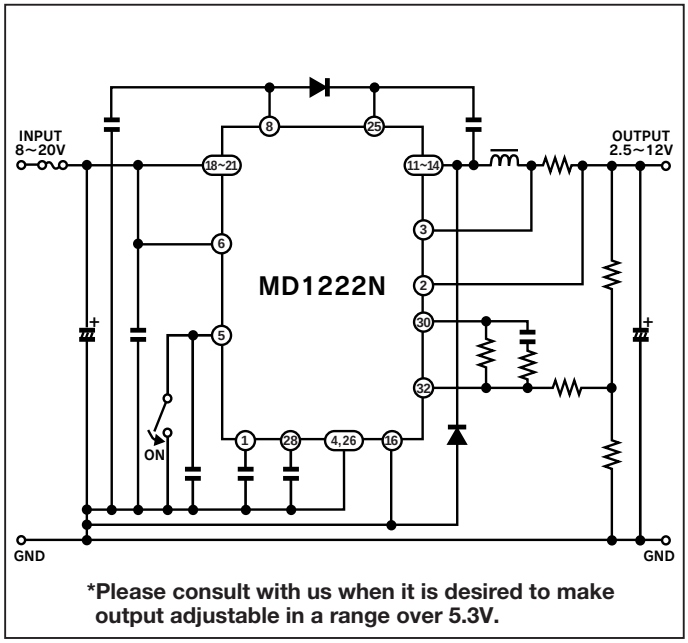
- Input Voltage range 8V to 20V
- Maximum Output Current 5A
- Built_in MOSFETs for main switch and synchronous rectification
- Adjustable output from 2.5V to 12V with external resistors
- High Efficiency typ. 96% (at:Vin=8V, Vout=5V, Iout=1A)
- Fixed Frequency 250kHz PWM Control
- Over Current Protection
- Under Voltage Lockout
- Thermal Shut Down
- Remote On / Off

Block Diagram



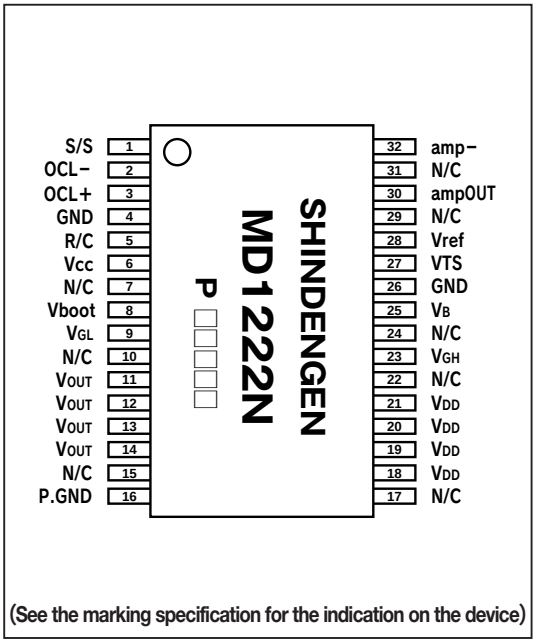
※ N/C : 7,10,15,17,22,24,29,31

Standard Connection Diagram



*Please consult with us when it is desired to make output adjustable in a range over 5.3V.

Pin Assignment (SSOP32)



(See the marking specification for the indication on the device)

■Absolute Maximum Ratings

Unless otherwise specified : Ta=25ºC

Item	Symbol	Ratings	Units
Input/Output Ratings			
Input voltage	VCC	22	V
Main MOSFET input voltage	VDD	22	V
Output current (ave)	IOUTave	5	A
Output current (peak)	IOUTpeak	6	A
OCL-,OCL+ input voltage	VOCL	5.5	V
Remote control voltage	VRC	5.5	V
Thermal Ratings			
Power dissipation max ※1	PD	2.5	W
Operating temperature	Ta−ope	−30 to 85	℃
Storage temperature	Tstg	−40 to 150	℃
Junction temperature	Tj	150	℃
Thermal resistance ※1	θja	50	℃/W
	θjc ※2	20	℃/W

※1 Glass-Epoxy Board：56×39㎟, Thickness：1㎜, Copper Pattern Rate：87.1%(Top Side), 82.1% (Bottom Side), Those with through-hole.
※2 The measurement result in the center of case.

■Recommended Operating Conditions

Item	Symbol	Recommendation	Units
Junction temperature	Tj	−30 to 125	℃
Input voltage (Ta=−10℃ to 85℃)	Vi ※3	8 to 20	V
Input voltage (Ta=−30℃ to −10℃)	Vi ※3	8.5 to 20	V
Output voltage setting range	VO ※4	2.5 to 12	V

※3 Input voltage at the time of power supply operation. ※4 Output voltage at the time of power supply operation.

■Output current derating for 5.3V or higher output. Please refer to the application-manual or consult with our sales office.

■Electrical Characteristics

Unless otherwise specified : Ta=25ºC

Item	Symbol	Condition	MIN	TYP	MAX	Units
High Side MOSFET						
Drain-source breakdown voltage	VDSS_H	ID=1mA,VGS=0V	22	−	−	V
Zero gate voltage drain current	IDSS_H	VDS=22V,VGS=0V	−	−	10	μA
Static drain-source on-state resistance	RON_H	ID=1.2A,VGS=4.5V	−	22	55	mΩ
Source-drain diode forward voltage	VSD_H	IS=1.2A,VGS=0V	−	−	1.5	V
Low Side MOSFET						
Drain-source breakdown voltage	VDSS_L	ID=1mA,VGS=0V	22	−	−	V
Zero gate voltage drain current	IDSS_L	VDS=22V,VGS=0V	−	−	10	μA
Static drain-source on-state resistance	RON_L	ID=1.2A,VGS=4.5V	−	22	55	mΩ
Source-drain diode forward voltage	VSD_L	IS=1.2A,VGS=0V	−	−	1.5	V
Control IC						
Undervoltage lockout threshold (start)	Vcc_start	−	6.5	7.2	7.9	V
Undervoltage lockout threshold (stop)	Vcc_stop	−	6.0	6.7	7.4	V
Undervoltage lockout hysteresis	Vcc_hys	−	−	0.5	−	V
Supply current	Icc	Vcc=8 to 20V	−	10	13	mA
Supply current-remote OFF state	Icc_off	Vcc=8 to 20V	−	1.2	1.5	mA
Remote control ON input voltage	VRC_on	Vcc=8 to 20V	−0.2	−	0.45	V
Remote control OFF input voltage	VRC_off	Vcc=8 to 20V	2.5	−	5.3	V
Remote control source current	IRC	Vcc=8 to 20V	−	−	250	μA
Bootstrap voltage	Vboot	Vcc=12V	5.4	6.5	7.6	V
Reference voltage	Vref	Vcc=8 to 20V	4.75	5	5.25	V
Initial frequency accuracy	fosc	Vcc=12V	212.5	250	287.5	kHz
Threshold of over current limit	Vth_OCL	Vcc=12V	0.162	0.19	0.218	V
Softstart source current	IS/S	Vcc=12V	−20	−12.5	−5	μA
Error amp reference voltage	Vamp	Vcc=8 to 20V	2.4	2.45	2.5	V
Thermal shutdown temperature	T_TSD	−	−	150	−	℃