



NCP51200, NCV51200

PIN FUNCTION DESCRIPTION

Pin Number	Pin Name	Pin Function
1	V _{RI}	V _{TT} External Reference Input (set to V _{DDQ} / 2 thru resistor network).
2	PV _{CC}	Power input. Internally connected to the output source MOSFET.
3	V _{TT}	Power Output of the Linear Regulator.
4	P _{GND}	Power Ground. Internally connected to the output sink MOSFET.
5	V _{TTS}	V _{TT} Sense Input. The V _{TTS} pin provides accurate remote feedback sensing of V _{TT} . Connect V _{TTS} to the remote DDR termination bypass capacitors.
6	V _{RO}	Independent Buffered V _{TT} Reference Output. Sources and sinks over 5 mA. Connect to GND thru 0.1 μF ceramic capacitor.
7	EN	Shutdown Control Input. CMOS compatible input. Logic high = enable, logic low = shutdown. Connect to V _{DDQ} for normal operation.
8	GND	Common Ground.
9	P _{GOOD}	Power Good (Open Drain output).
10	V _{CC}	Analog power supply input. Connect to GND thru a 1 4.7 μF ceramic capacitor.
	THERMAL PAD	Pad for thermal connection. The exposed pad must be connected to the ground plane using multiple vias for maximum power dissipation performance.

ABSOLUTE MAXIMUM RATINGS

Rating	Symbol	Value	Unit
V _{CC} , PV _{CC} , V _{TT} , V _{TTS} , V _{RI} , V _{RO} (Note 1)		0.3 to 6.0	V
EN, P _{GOOD} (Note 1)		0.3 to 6.0	V
P _{GND} to GND (Note 1)		0.3 to +0.3	V
Storage Temperature	T _{STG}	55 to 150	°C
Operating Junction Temperature Range	T _J	150	°C
ESD Capability, Human Body Model (Note 2)	ESD _{HBM}	2000	V

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

1. Refer to ELECTRICAL CHARACTERISTICS and APPLICATION INFORMATION for Safe Operating Area.

NCP51200, NCV51200

RECOMMENED OPERATING CONDITIONS

Rating	Symbol	Value	Unit
Supply Voltage	V_{CC}	2.375 to 5.5	V
Voltage Range	V_{RO}	0.1 to 1.8	V
	V_{RI}	0.5 to 1.8	
	$P_{VCC}, V_{TT}, V_{TTS}, EN, P_{GOOD}$	0.1 to 3.5	
	P_{GND}	0.1 to +0.1	
Operating Free Air Temperature	T_A		

NCP51200, NCV51200

ELECTRICAL CHARACTERISTICS

$40^{\circ}\text{C} \leq T_A \leq 125^{\circ}\text{C}$; $V_{CC} = 3.3\text{ V}$; $PV_{CC} = 1.8\text{ V}$; $V_{RI} = V_{TTS} = 0.9\text{ V}$; $EN = V_{CC}$; $C_{OUT} = 3 \times 10\ \mu\text{F}$ (Ceramic); unless otherwise noted.

Parameter	Conditions	Symbol	Min	Typ	Max	Units
P_{GOOD} Powergood Comparator						
P _{GOOD} Lower Threshold	(with respect to V _{RO})		23.5%	20%	17.5%	V/V
P _{GOOD} Upper Threshold	(with respect to V _{RO})		17.5%	20%	23.5%	
P _{GOOD} Hysteresis			5%			
P _{GOOD} Start up Delay	Start up rising edge, V _{TTS} within 15% of V _{RO}		2			ms
P _{GOOD} Leakage Current	V _{TTS} = V _{RI} (P _{GOOD} = True) P _{GOOD} = V _{CC} + 0.2 V				1	μA
P _{GOOD} = False Delay	V _{TTS} is beyond ±20% P _{GOOD} trip thresholds		10			μs

P_{GOOD}

NCP51200, NCV51200

ELECTRICAL CHARACTERISTICS

40°C ≤ T_A ≤ 125°C; V_{CC} = 3.3 V; P_{VCC} = 1.8 V; V_{RI} = V_{TTS} = 0.9 V; EN = V_{CC}; C_{OUT} = 3 x 10 μF (Ceramic); unless otherwise noted.

Parameter	Conditions	Symbol	Min	Typ	Max	Units
-----------	------------	--------	-----	-----	-----	-------

EN Enable Logic

NCP51200

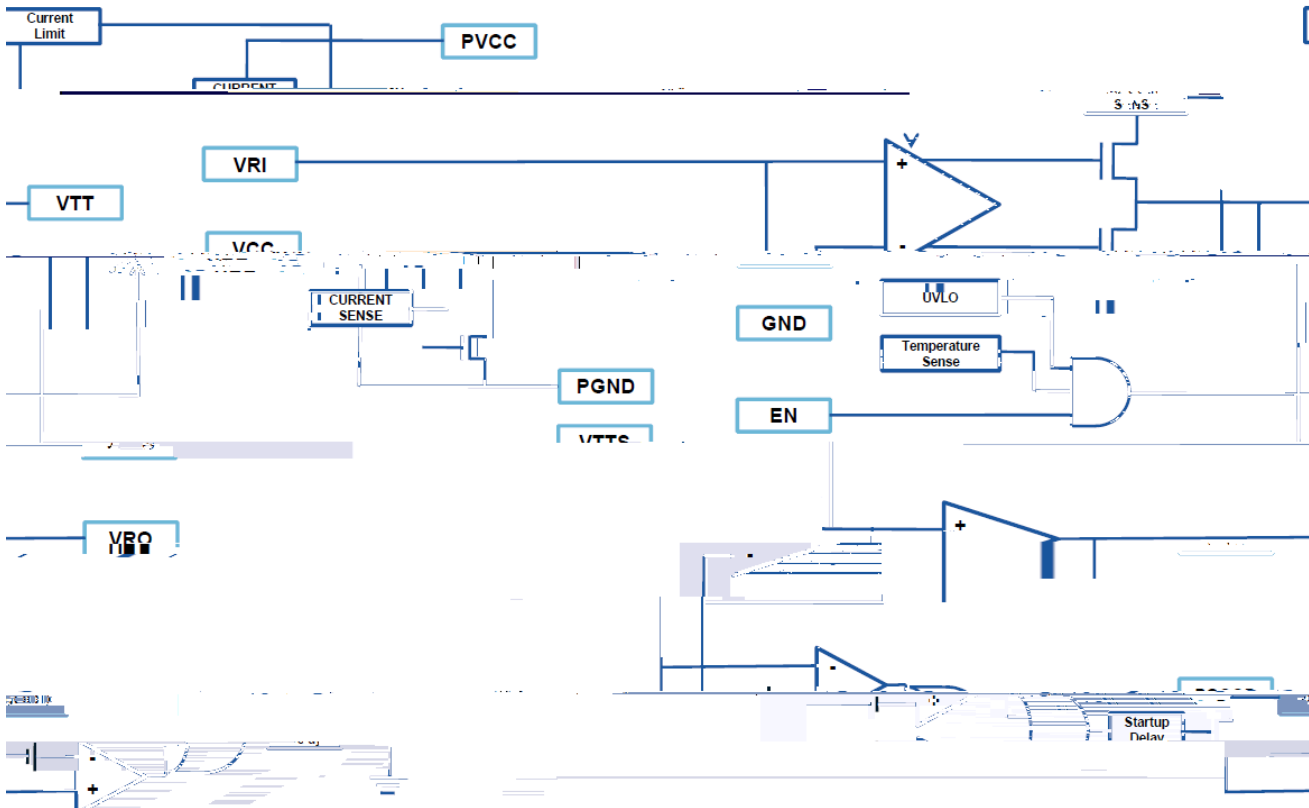


Figure 2. Block Diagram

NCP51200, NCV51200

NCP51200, NCV51200

capacitors, the effective capacitance drops rapidly with the applied DC bias voltage (refer the capacitor's datasheet for details). Larger capacitance and lower ESR improves the load transient response and PSRR. In the PCB layout, design the traces short and wide and place the capacitor at the same PCB layer as the device (do not use layers changing for the traces).

PVCC Input Capacitor

Power input capacitor, connected as close as possible to PVCC and PGND pins, is also necessary to ensure device stability and good transient response. The value of the input capacitor should be 10 μ F or greater (max. value is not

limited). This capacitor provides needed energy during load transients for output capacitor re-charging and from this point of view, the higher value is better. The good starting value is the half of the output capacitor value. The rules mentioned at VTT capacitor paragraph are applicable for PVCC capacitor as well.

VCC Input Capacitor

Add a ceramic capacitor, connected as close as possible to VCC and GND pins. The X7R or X5R capacitor should be used with a value in range from 1 μ F to 10 μ F is recommended.

DEVICE ORDERING INFORMATION

Device	Marking Code	Package	Feature	Shipping†
NCP51200MNTXG	51200	DFN10 (Pb Free)	Non Wettable Flank	3000 / Tape & Reel
NCV51200MNTXG*	51200 MN			
NCV51200MWTXG*	51200 MW		DFNW10 (Pb Free)	Wettable Flank SFS Process
NCV51200MLTXG*	51200 ML	Wettable Flank SLP Process		3000 / Tape & Reel
NCP51200AMNTXG	51200 A	DFN10 (Pb Free)		

DFNW10 3x3, 0.5P
CASE 507AM
ISSUE A

DATE 12 JUN 2018

**GENERIC
MARKING DIAGRAM***



XXXXX = Specific Device Code
A = Assembly Location
L = Wafer Lot
Y = Year
W = Work Week
▪ = Pb-Free Package

*This information is generic. Please refer to device data sheet for actual part marking.

onsemi

onsemi

onsemi

onsemi

onsemi

onsemi

