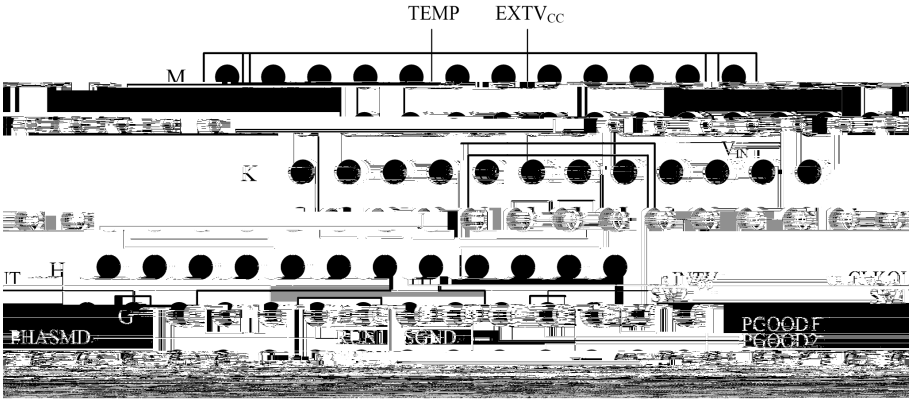


A1	V_{OUT1}	B1	V_{OUT1}	C1	V_{OUT1}	D1	GND	E1	GND	F1	GND
A2	V_{OUT1}	B2	V_{OUT1}	C2	V_{OUT1}	D2	GND	E2	GND	F2	GND
A3	V_{OUT1}	B3	V_{OUT1}	C3	V_{OUT1}	D3	GND	E3	GND	F3	GND
A4	V_{OUT1}	B4	V_{OUT1}	C4	V_{OUT1}	D4	GND	E4	GND	F4	MODE_PLLIN
A5	V_{OUT1}	B5	V_{OUT1}	C5	V_{OUTS1}	D5	VFB1	E5	TRACK1	F5	RUN1
A6	GND	B6	GND	C6	f_{SET}	D6	SGND	E6	COMP1	F6	SGND
A7	GND	B7	GND	C7	SGND	D7	VFB2	E7	COMP2	F7	SGND
A8	V_{OUT2}	B8	V_{OUT2}	C8	V_{OUTS2}	D8	TRACK2	E8	DIFFP	F8	DIFFOUT
A9	V_{OUT2}	B9	V_{OUT2}	C9	V_{OUT2}	D9	GND	E9	DIFFN	F9	RUN2
A10	V_{OUT2}	B10	V_{OUT2}	C10	V_{OUT2}	D10	GND	E10	GND	F10	GND
A11	V_{OUT2}	B11	V_{OUT2}	C11	V_{OUT2}	D11	GND	E11	GND	F11	GND
A12	V_{OUT2}	B12	V_{OUT2}	C12	V_{OUT2}	D12	GND	E12	GND	F12	GND

G1	GND	H1	GND	J1	GND	K1	GND	L1	GND	M1	GND
G2	SW1	H2	GND	J2	V_{IN}	K2	V_{IN}	L2	V_{IN}	M2	V_{IN}
G3	GND	H3	GND	J3	V_{IN}	K3	V_{IN}	L3	V_{IN}	M3	V_{IN}
G4	PHASMD	H4	GND	J4	V_{IN}	K4	V_{IN}	L4	V_{IN}	M4	V_{IN}
G5	CLKOUT	H5	GND	J5	GND	K5	GND	L5	V_{IN}	M5	V_{IN}
G6	SGND	H6	GND	J6	TEMP	K6	GND	L6	V_{IN}	M6	V_{IN}
G7	SGND	H7	GND	J7	$EXTV_{CC}$	K7	GND	L7	V_{IN}	M7	V_{IN}
G8	PGOOD2	H8	$INTV_{CC}$	J8	GND	K8	GND	L8	V_{IN}	M8	V_{IN}
G9	PGOOD1	H9	GND	J9	V_{IN}	K9	V_{IN}	L9	V_{IN}	M9	V_{IN}
G10	GND	H10	GND	J10	V_{IN}	K10	V_{IN}	L10	V_{IN}	M10	V_{IN}
G11	SW2	H11	GND	J11	V_{IN}	K11	V_{IN}	L11	V_{IN}	M11	V_{IN}
G12	GND	H12	GND	J12	GND	K12	GND	L12	GND	M12	GND

V_{IN}		V_{IN} PGND
V_{OUT1} V_{OUT2}		GND GND
PGND		
V_{OUTS1} V_{OUTS2}		DIFFOUT ( ) V_{OUTS} DIFFOUT ( ) V_{OUT} ( ) DIFFOUT V_{OUT}
SGND		GND
SW1 SW2		R-C
$EXTV_{CC}$		$EXTV_{CC}$ 4.7V $INTV_{CC}$ 6V V_{IN} 5V V_{IN} $(V_{IN} – INTV_{CC})$ x MOSFET 30mA V_{IN} $EXTV_{CC}$ $EXTV_{CC}$ V_{IN}



RUN1 RUN2		RUN 1.25V RUN 1μA RUN 1.2V 4.5μA
MODE_PLLIN	/	

	V_{IN}	-0.3	16	V
	V_{SW1} V_{SW2}	-1	16	V
	$INTV_{CC}$, RUN1, RUN2, $EXTV_{CC}$, PGOOD1 PGOOD2	-0.3	6	V
	COMP1, COMP2, V_{FB1}, V_{FB2}	-0.3	2.7	V
	MODE_PLLIN, TRACK1, TRACK2, f_{SET} ,DIFFN,DIFFP,DIFFOUT,PHASMD	-0.3	$INTV_{CC}$	V
	V_{OUT1} V_{OUT2} V_{OUTS1} V_{OUTS2}	-0.3	5.5	V
Ipeak	$INTV_{CC}$		100	mA
ESD	HBM	—	2000	V
T_J		-55		

V_{IN}	V_{IN}	4.5	15	V
I_{OUT}		0	18	A
T_C		-55	125	

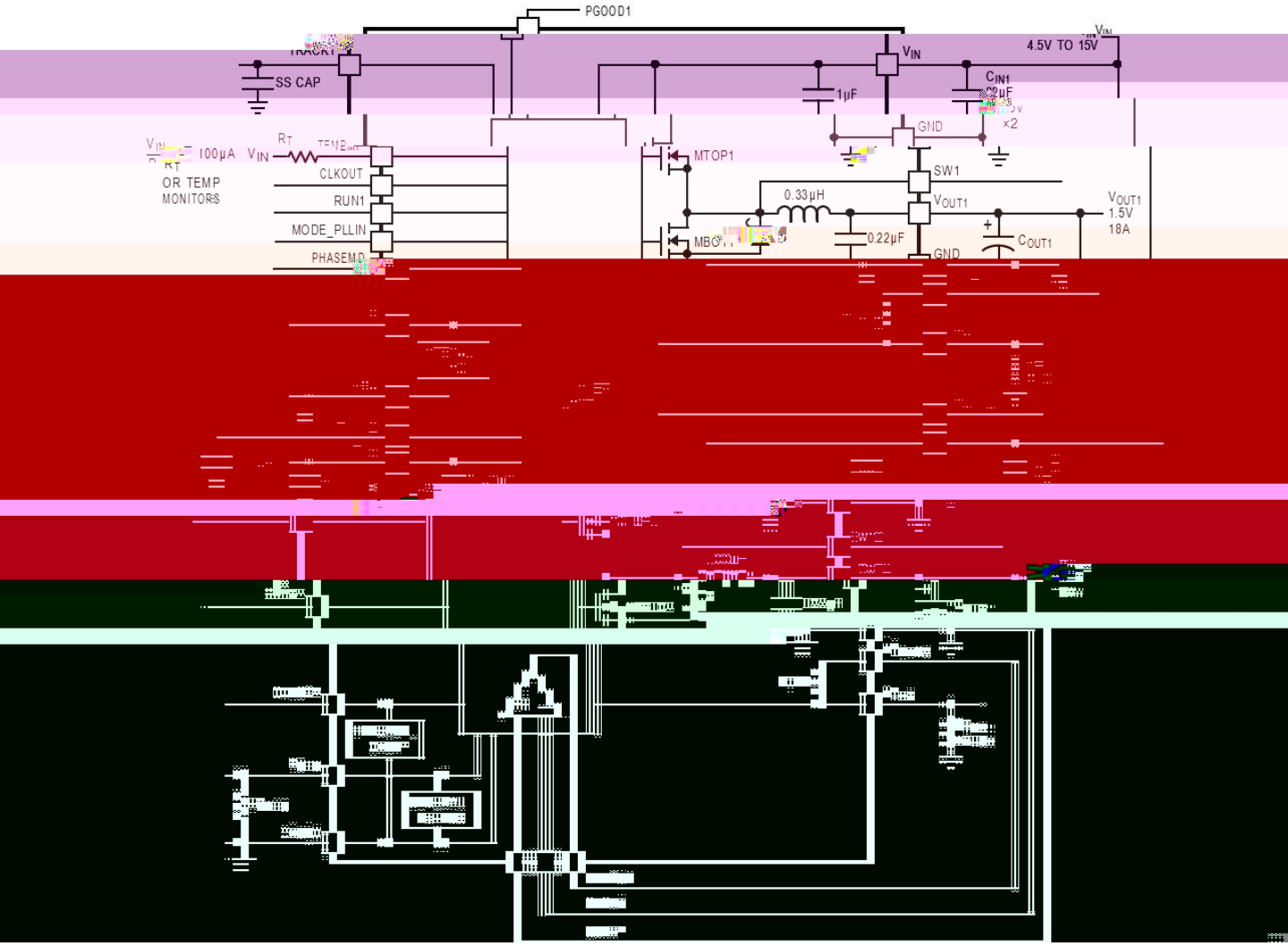
- -55 ~125 T_A=25

- -55 ~125 T_A=25

$\Delta V_{OUTSTART}$		C_{OUT} = 100µF 470µF POSCAP V_{OUT} = 1.5V I_{OUT} = 0A V_{IN} = 12V		—	10	—	mV
t_{START}		C_{OUT} = 100µF 470µF POSCAP , TRACK/SS 0.01µF GND V_{IN} = 12V		—	5	—	ms
$\Delta V_{OUT(LS)}$		0% 50% 0% C_{OUT}=22uFx3 470uF POSCAP V_{IN} = 12V V_{OUT} = 1.5V		—	40	—	mV
t_{SETTLE}		0% 50% 0% V_{IN} = 12V C_{OUT} = 100µF 470µF POSCAP		—	60	—	µs
$I_{OUT(PK)}$		V_{IN} = 12V V_{OUT} = 1.5V		—	26	—	A
V_{FB1} V_{FB2}	V_{FB}	I_{OUT} = 0A V_{OUT} = 1.5V	•	0.590	0.600	0.610	V
I_{FB}	V_{FB}			—	–5	–20	nA
V_{OVL}	V_{FB}		•	0.64	0.66	0.68	V
TRACK1 TRACK2		TRACK1 TRACK2 0V		1	1.25	1.5	µA
UVLO	( )			—	3.4	—	V
UVLO Hysteresis				—	0.4	—	V
$t_{ON(MIN)}$				—	90	—	ns
R_{FBHI1} R_{FBHI2}	V_{OUTS1} V_{OUTS2} V_{FB1} V_{FB2}			60.05	60.4	60.75	kΩ
V_{PGOOD} LOW	PGOOD	I_{PGOOD} = 2mA		—	0.1	0.3	V
I_{PGOOD}	PGOOD	V_{PGOOD} = 5V		—	—	±	µA
V_{PGOOD}	PGOOD	V_{FB} V_{FB} V_{FB}		—	–10 10	—	% %

● -55 ~125 T_A=25

		$INTV_{CC}$					
V_{INTVCC}	VCC	6V < V_{IN} 15V		4.8	5	5.2	V
V_{INTVCC} Load Regulation	$INTV_{CC}$	I_{CC} = 0mA 50mA		—	0.75	2	%
V_{EXTVCC}	$EXTV_{CC}$	$EXTV_{CC}$		4.5	4.7	—	V
$V_{EXTVCC(DROP)}$	$EXTV_{CC}$	I_{CC} = 20mA V_{EXTVCC} = 5V		—	50	100	mV
$V_{EXTVCC(HYST)}$	$EXTV_{CC}$			—	220	—	mV
Frequency Nominal		f_{SET} = 1.2V		450	500	550	kHz
Frequency Low		f_{SET} = 0V		210	250	290	kHz
Frequency High		f_{SET} > 2.4V $INTV_{CC}$		700	780	860	kHz
f_{SET}				9	11	13	µA
R_{MODE_PLLIN}	MODE_PLLIN			—	250	—	kΩ
CLKOUT	(V_{OUT1})	PHASMD = GND		—	60	—	Deg
		PHASMD =		—	90	—	Deg
		PHASMD = $INTV_{CC}$		—	120	—	Deg
CLK High				2	—	—	V
CLK Low				—	—	0.2	V
A_V				—	1	—	V/V
V_{TEMP}	PNP	I = 100µA		—	0.6	—	V
TC			●	—	–2	—	mV/C


PGOOD1
SS CAP
VIN
4.5V TO 15V
1µF
GND
×2
100µA
OR TEMP
MONITORS
CLKOUT
RUN1
MODE_PLLIN
PHASEMD
MTOP1
SW1
0.33µH
0.22µF
GND
1.5V
18A

LNM4630 DC/DC

18A

(4.5V

PWM 0.6V V_{OUTS1} V_{FB1} V_{OUTS2} V_{FB2} 60.4kΩ

V_{OUTS1} V_{OUTS2} (

) V_{FB1} V_{FB2}

0.6V V_{FB} GND R_{FB}

$$0.6 \quad \frac{60.4}{\quad}$$

R_{FB}

V_{OUT}(V)	0.6	0.8	0.9	1.0	1.2	1.5	1.8
R_{FB}(kΩ)	OPEN	182	121	90.9	60.4	40.2	30.2

LNM4630 5V

MOSFET 70mA

30mA 5V RUN1 RUN2

$EXTV_{CC}$ 5V LNM4630 5V

$(V_{IN} – 5V) • 30mA = PLOSS$

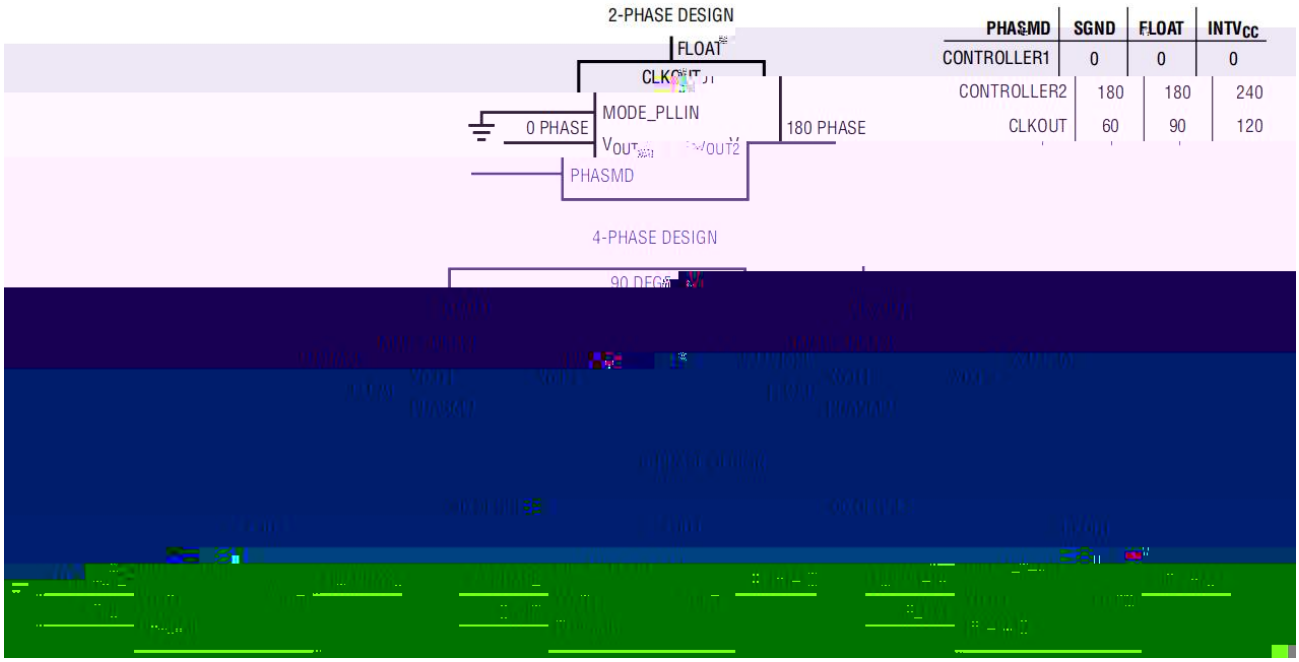
$EXTV_{CC}$ 4.7V 6V 5 V 5 V $EXTV_{CC}$ 5V $EXTV_{CC}$ V_{IN} $EXTV_{CC}$ V_{IN}

LNM4630 MOSFET

MODE_PLLIN

18A LNM4630 LNM4630
MODE_PLLIN
LNM4630 (400kHz 780kHz)
LNM4630 CLKOUT MODE_PLLIN
PHASMD $INTV_{CC}$ SGND ( )
120 ° 60 ° 90 ° (MODE_PLLIN CLKOUT)
LNM4630 PHASMD 12
PHASMD 2 4 6
RMS
( )

LNM4630



PHASMD	SGND	FLOAT	$INTV_{CC}$
CONTROLLER1	0	0	0
CONTROLLER2	180	180	240
CLKOUT	60	90	120

LNM4630 400kHz (1.0V
) 500kHz (1.0V 1.5V) 600kH 1.5V)

LNM4630 f_{SET} SGND
10µA

0V INTV$_{CC}$

400kHz 780kHz MODE_PLLIN
1.6V 1V LNM4630 PLL

PLL

f_{SET}

f_{SET}

LNM4630
TRACK TRACK
RUN 1.22V 1.3µA
TRACK

TRACK 0V 0.6V

$$\frac{0.6}{1.3}$$

TRACK

TRACK

LNM4630 60.4k

( ) 1 60.4

V_{TRACK} V_{TRACK} 0V 0.6V

V_{TRACK} 0.6V

LNM4630

RUN 1.4V (1.25V) 150mV

$INTV_{CC}$ V_{IN} 5V V_{IN}

5V 10K 100K

5V RUN

RUN

DIFFP DIFFN DIFFOUT V_{OUTS1}

V_{OUTS2} DIFFP DIFFN DIFFOUT V_{OUTS}

LNM4630 PCB

PCB V_{IN} GND V_{OUT1} V_{OUT2}

PCB

V_{IN} PGND V_{OUT}

SGND

SGND GND

V_{OUT} V_{FB} COMP

TRACK

LNM4630YMBW	LNM4630Y	BGA	-55 ~125	144		RoHS	MSL3
LNM4630YMBB	LNM4630YB	BGA	-55 ~125	144		RoHS	MSL3
LNM4630YMBM	LNM4630YM	BGA	-55 ~125	144		RoHS	MSL3