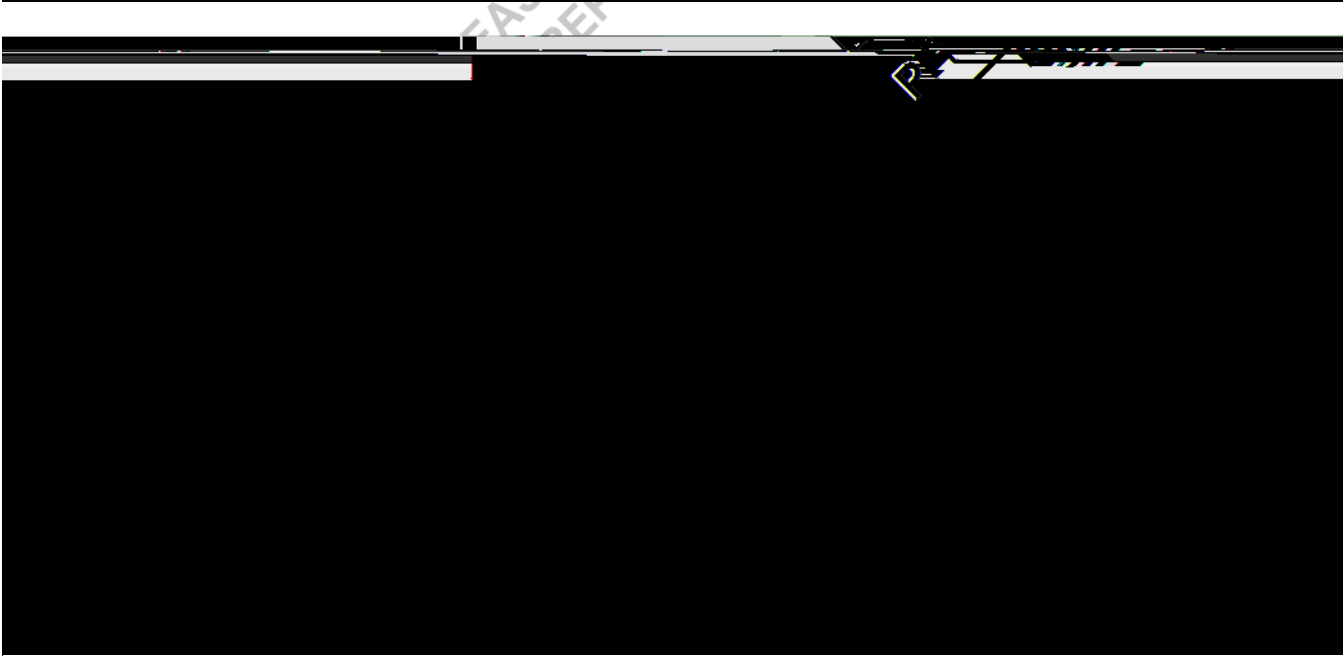
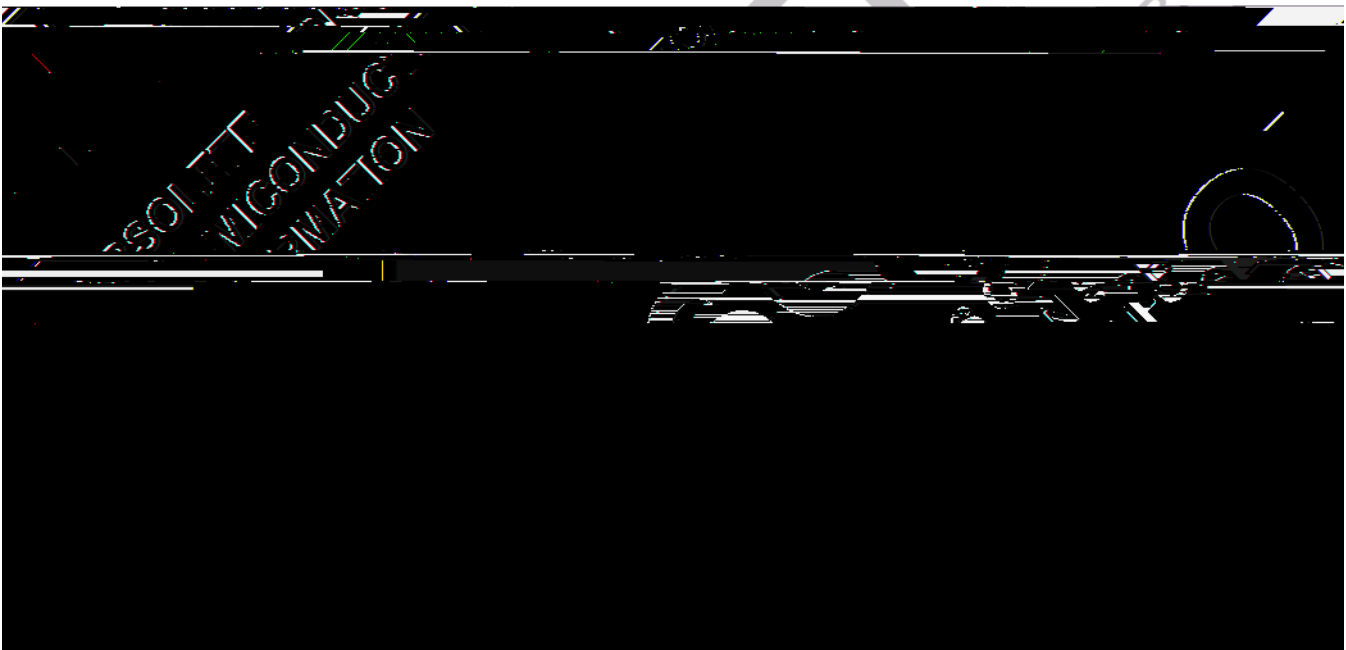


ADP3414—SPECIFICATIONS¹ (T_A = 0°C to 70°C, V_{CC} = 7 V, BST = 4 V to 26 V, unless otherwise noted.)

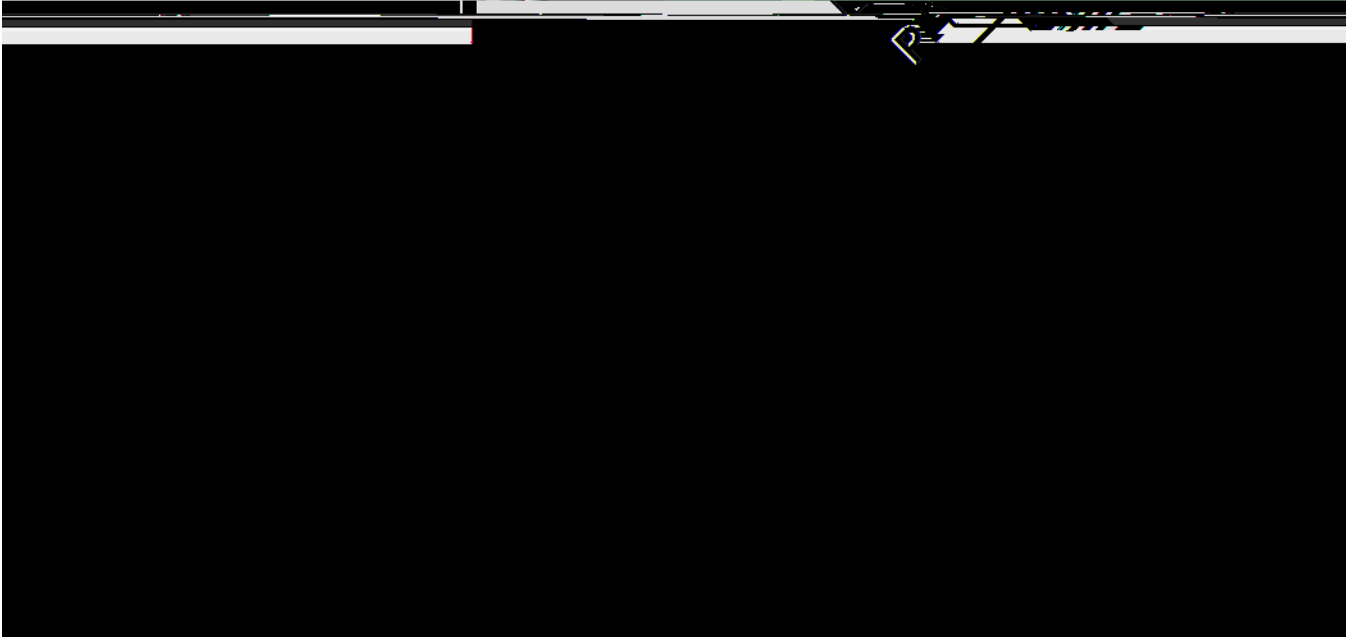
Parameter	Symbol	Conditions	Min	Typ	Max	Unit
SUPPLY						
Supply Voltage Range	V _{CC}		4.15		7.5	V
Quiescent Current	I _{CCQ}			1	2	mA
PWM INPUT						
Input Voltage High ²			2.3			V
Input Voltage Low ²					0.8	V
HIGH SIDE DRIVER						
Output Resistance, Sourcing Current		V _{BST} - V _{SW} = 5 V		3.0	5.0	Ω
		V _{BST} - V _{SW} = 7 V		2.0	3.5	Ω
Output Resistance, Sinking Current		V _{BST} - V _{SW} = 5 V		1.25	2.5	Ω
		V _{BST} - V _{SW} = 7 V		1.0	2.5	Ω
Transition Times ³ (See Figure 2)	t _{rDRVH}	V _{BST} - V _{SW} = 7 V, C _{LOAD} = 3 nF		36	47	ns
	t _{fDRVH}	V _{BST} - V _{SW} = 7 V, C _{LOAD} = 3 nF		20	30	ns
Propagation Delay ^{3, 4} (See Figure 2)	t _{pdHDRVH}	V _{BST} - V _{SW} = 7 V		65	86	ns
	t _{pdLDRVH}	V _{BST} - V _{SW} = 7 V		21	32	ns



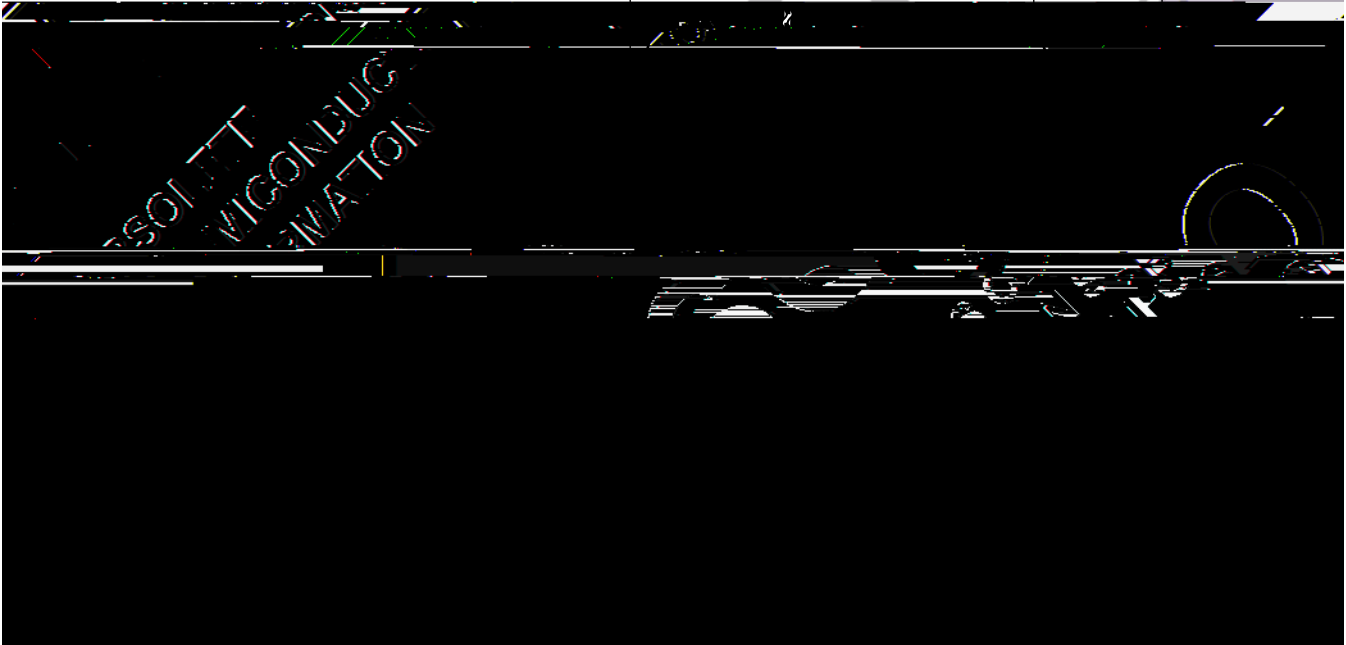
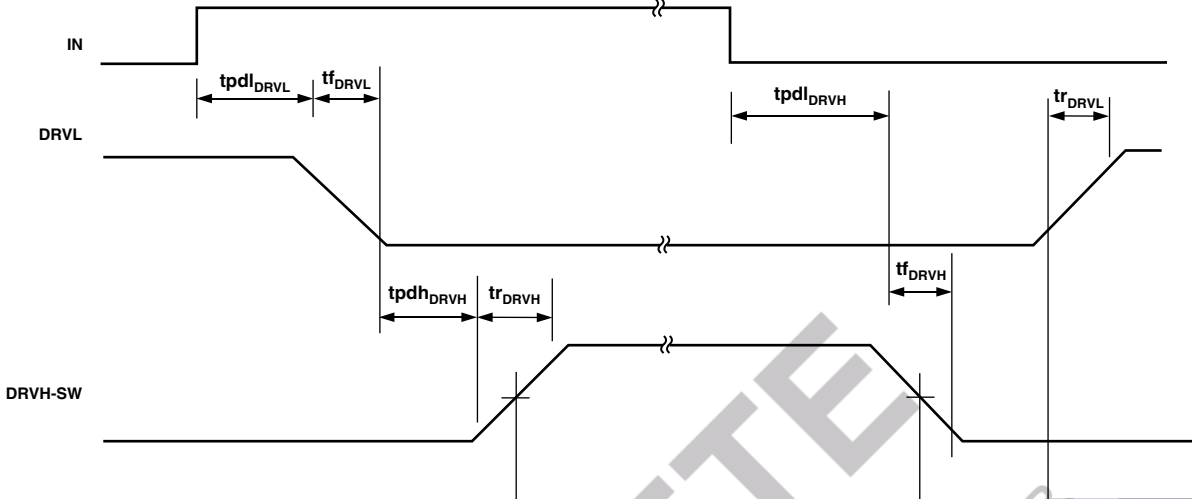
TE



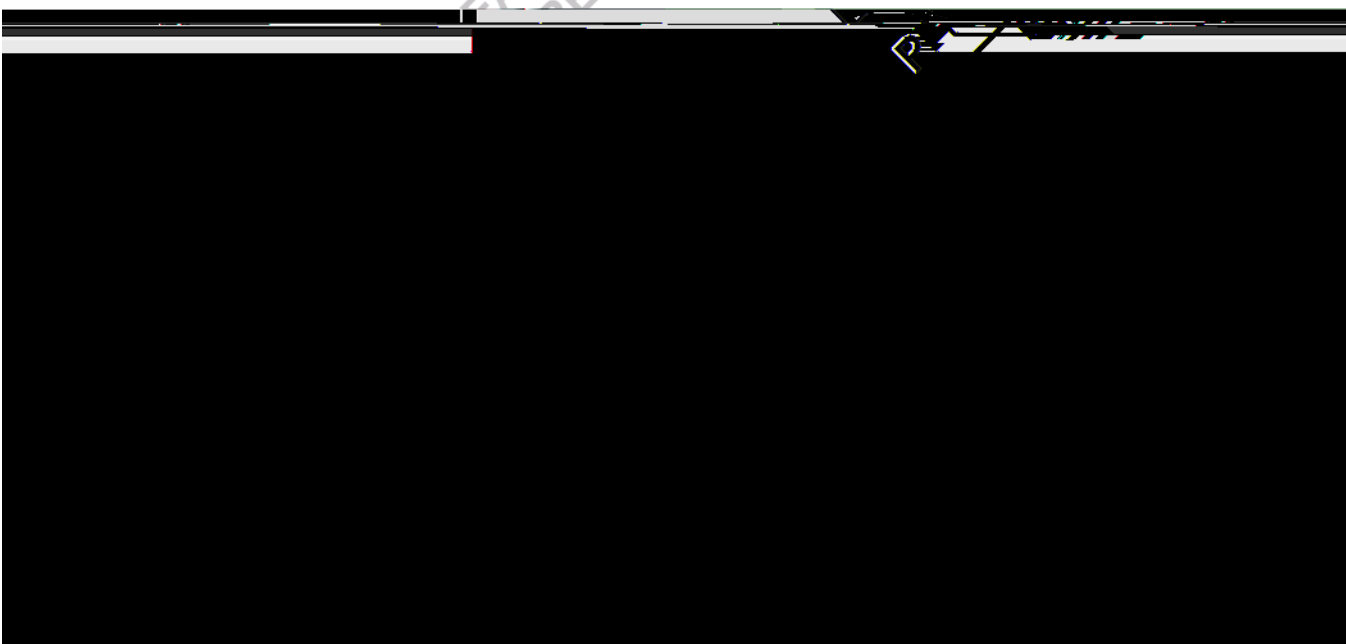
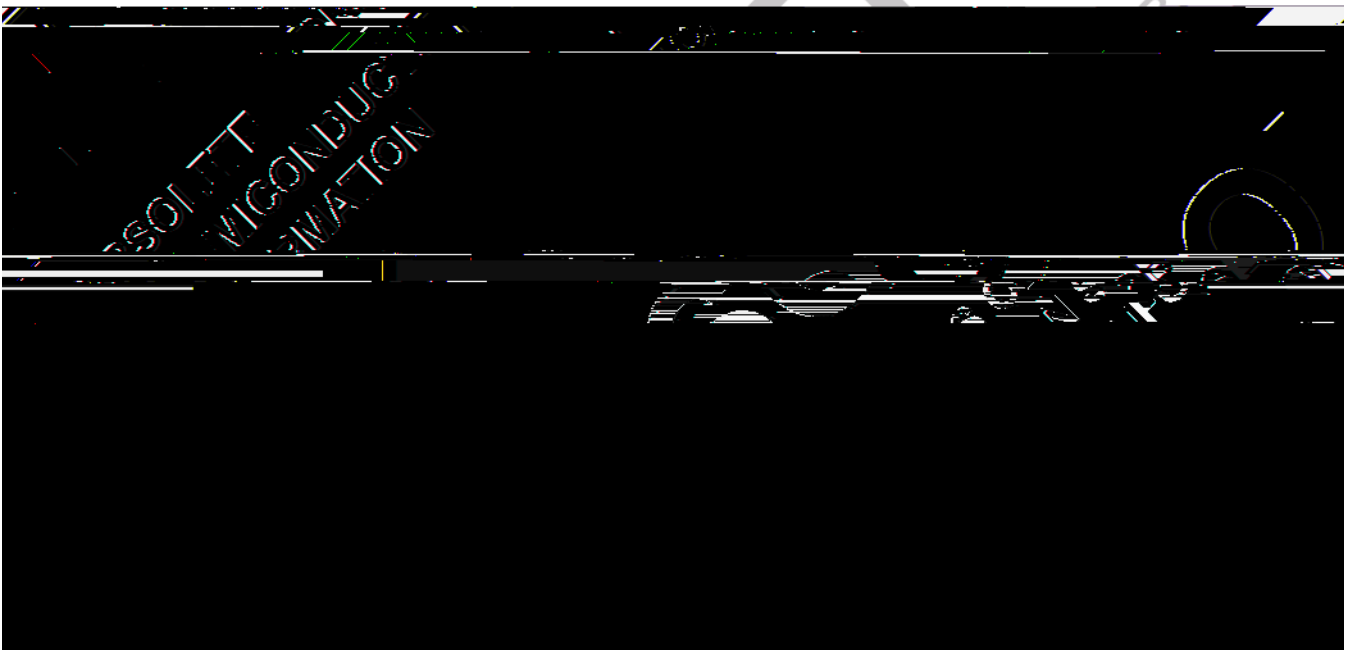
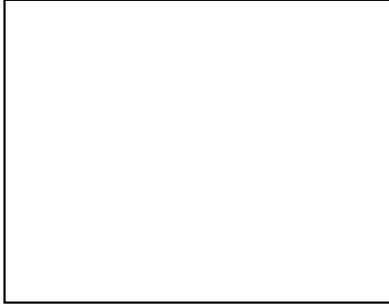
FA



ADP3414



Typical Performance Characteristics–ADP3414



ADP3414

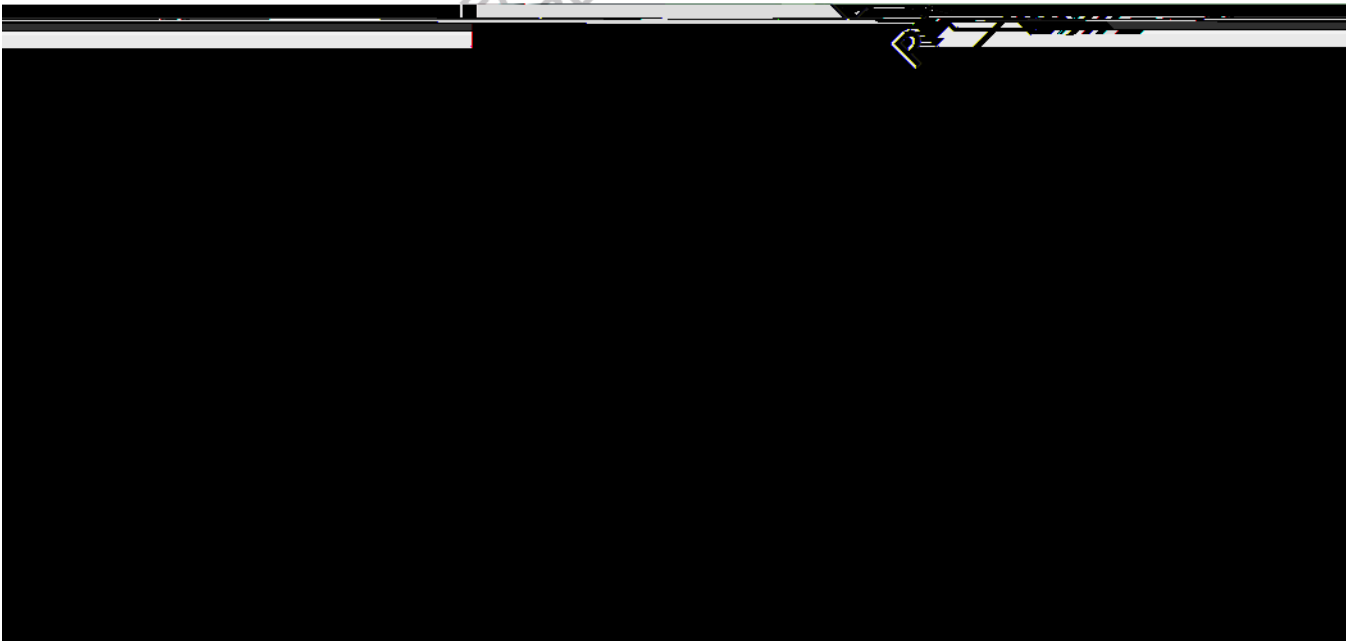
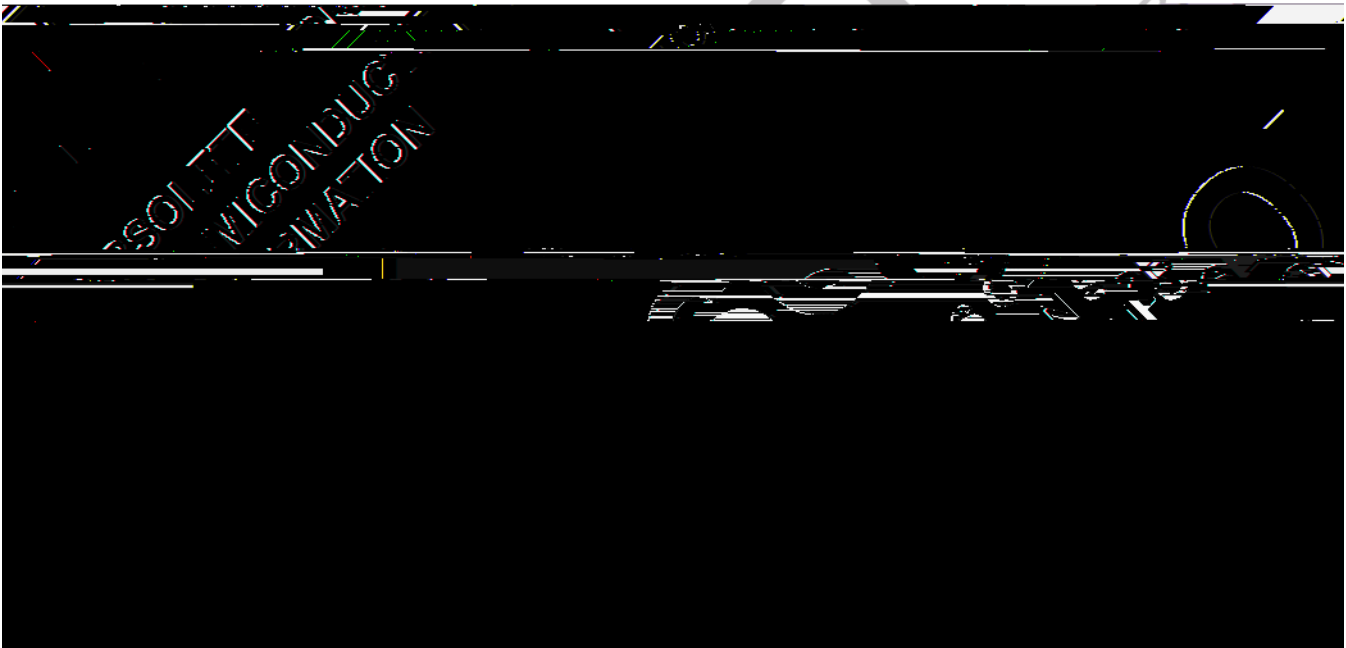
THEORY OF OPERATION

The ADP3414 is a dual MOSFET driver optimized for driving two N-channel MOSFETs in a synchronous buck converter topology. A single PWM input signal is all that is required to properly drive the high side and the low side FETs. Each driver is capable of driving a 3 nF load.

A more detailed description of the ADP3414 and its features follows. Refer to the Functional Block Diagram.

Low Side Driver

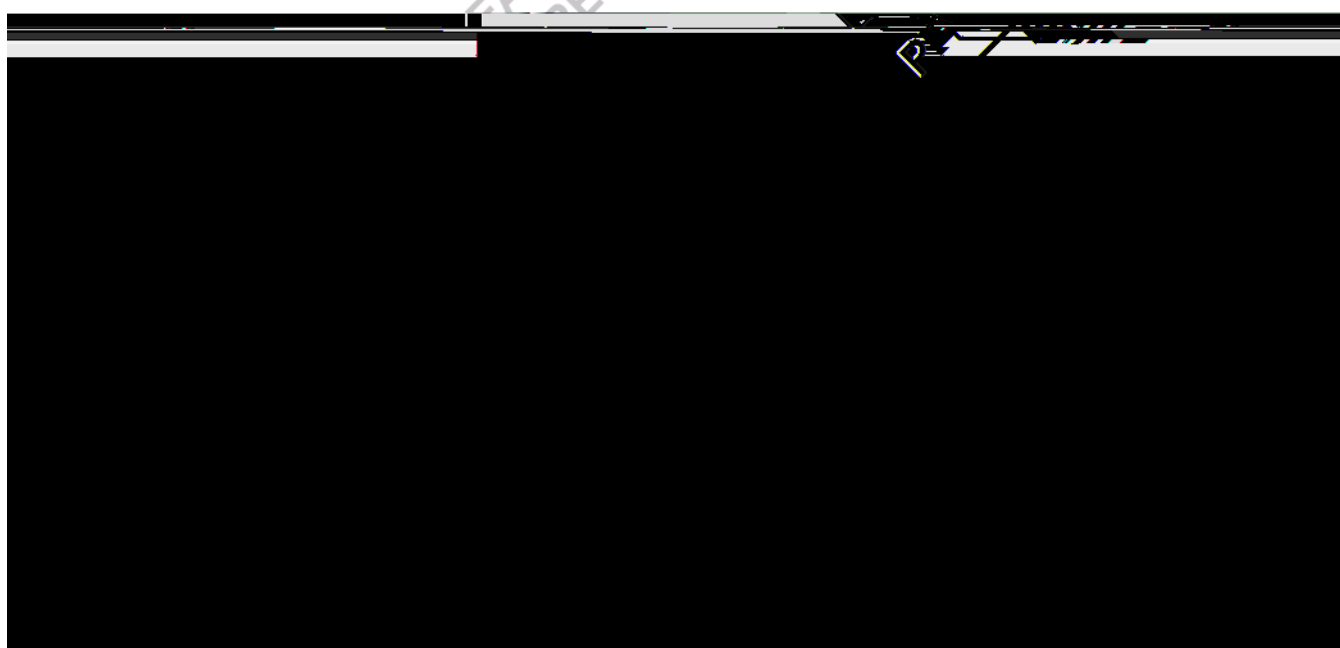
The low side driver is designed to drive low $R_{DS(ON)}$ N-channel MOSFETs. The maximum output resistance for the driver is 3.5 Ω for sourcing and 2.5 Ω for sinking gate current. The low output resistance allows the driver to have 20 ns rise and fall times into a 3 nF load. The bias to the low side driver is internally connected to the VCC supply and PGND.



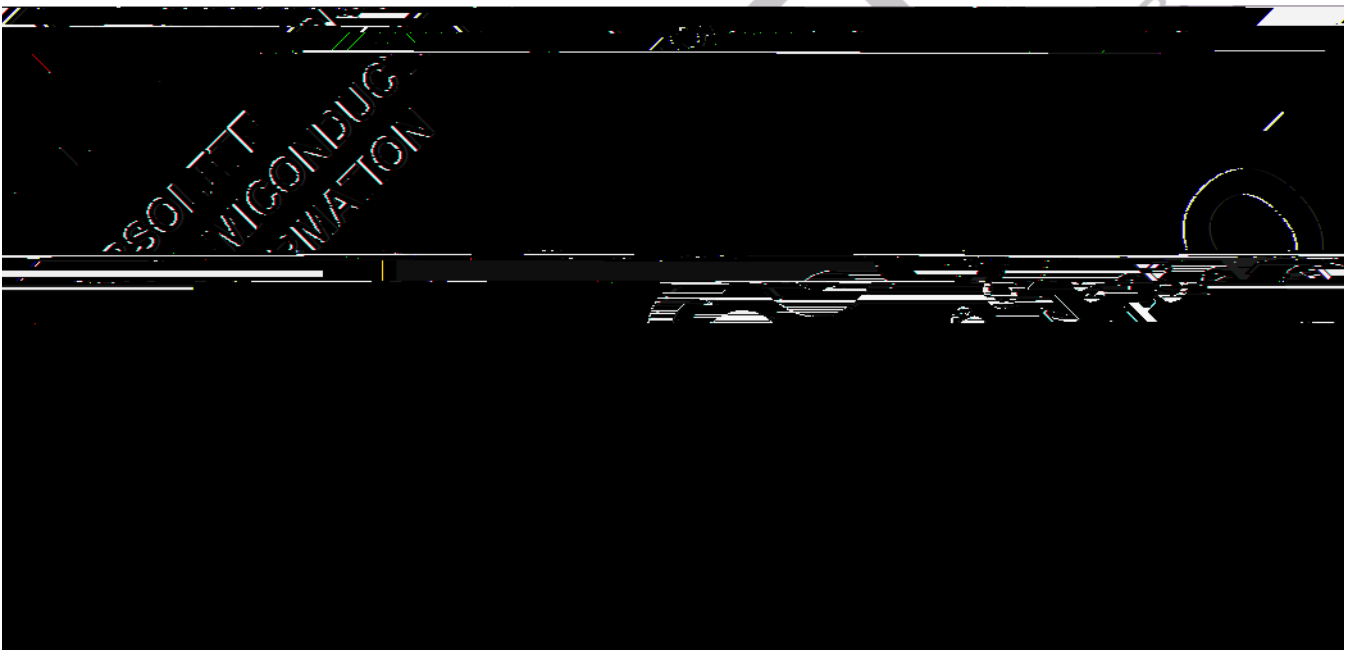
Printed Circuit Board Layout Considerations

set efo own enera ude nes wen des n n pr nted
c rcu t boards

- Trace out the current paths and use short wide traces to make these connections-
- Connect the PGND pin of the ADP as close as possible to the source of the power MOSFET -
- The CC bypass capacitors should be located as close as possible to the CC and PGND Pins-



TE



FA



8-Lead Standard Small Outline Package [SOIC]
Narrow Body
(R-8)

D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AB, AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ

