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dsPIC33EP512MU814 144-pin TQFP to 100-pin Motor Control Plug-In Module (PIM) Information Sheet

OVERVIEW

The dsPIC33EP512MU814 Motor Control PIM is designed to demonstrate the capabilities of the dsPIC33EP512MU814 device using development boards such as the dsPICDEM™ MCLV, MCHV, and MCSM Development Boards (DM330021, DM330023, and DM330022), which support 100-pin PIM interfaces.

The dsPIC33EP512MU814 is a high performance 16-bit Digital Signal Controller. This device is equipped with Peripheral Pin Select (PPS), which allows many of the digital peripherals to be remapped to use any number of pins on the device. Because the dsPIC33EP512MU814 device is in a 144-pin package, only some of the pins are connected to the 100-pin PIM sockets; the remaining pins are routed to test points (i.e., RA9, RA10, etc.), providing users with full access to all available pins. Refer to the device pinouts (see Figure 1) and the PIM schematics (Figure 2) for additional information.

Table 1 shows the mapping between the 100-pin PIM interface board functions and the device pins.

TABLE 1: 144-PIN TO 100-PIN PIM

Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #
1	RP127/RG15	TP
2	VDD	—
3	AN29/PWM3H/RP85/RE5	3
4	AN30/PWM4L/RPI86/RE6	4
5	AN31/PWM4H/RP87/RE7	5
6	PWM7L/PMA8/RJ8	TP
7	PWM7H/PMA9/RJ9	TP
8	PMA10/RJ10	TP
9	PMA11/RJ11	TP
10	AN16/PWM5L/RPI49/RC1	78
11	AN17/PWM5H/RPI50/RC2	77
12	AN18/PWM6L/RPI51/RC3	18
13	AN19/PWM6H/RPI52/RC4	19
14	PMA12/RJ12	TP
15	PMA13/RJ13	TP
16	C1IND/SCK2/RP118/RG6	TP
17	C1INC/SDI2/RPI119/RG7	TP
18	C2IND/SDO2/RP120/RG8	TP
19	$\overline{\text{MCLR}}$	13
20	C2INC/RPI121/RG9	TP
21	RJ14	TP
22	RJ15	TP
23	VSS	—
24	VDD	—
25	TMS/RPI16/RA0	TP
26	AN20/RPI88/RE8	TP
27	AN21/RPI89/RE9	TP
28	RK0	TP
29	RK1	TP
30	AN5/C1INA/VBUSON/VBUSST/RPI37/RB5	20
31	AN4/C1INB/USBOEN/RPI36/RB4	21
32	AN3/C2INA/VPIO/RPI35/RB3	22
33	AN2/C2INB/VMIO/RPI34/RB2	23
34	PGEC3/AN1/RPI33/RB1	24
35	PGED3/AN0/RPI32/RB0	25
36	VSS	—
37	PGEC1/AN6/RPI38/RB6	26
38	PGED1/AN7/RCV/RPI39/RB7	27
39	VREF-/RA9	TP
40	VREF+/RA10	TP
41	AVDD	—
42	AVSS	—
43	PMD0/RH0	TP
44	PMD1/RH1	TP
45	PMD2/RH2	TP
46	PMD3/RH3	TP
47	AN8/RPI40/RB8	32
48	AN9/RPI41/RB9	33
49	AN10/CVREF/RPI42/RB10	TP
50	AN11/RPI43/RB11	35
51	VSS	—
52	VDD	—
53	PMRD/RK15	TP
54	PMWR/RK14	TP
55	PMBE/RK13	TP
56	TCK/RPI17/RA1	TP

Legend: TP = Test Point — = This pin is tied to the power supply rail

TABLE 1: 144-PIN TO 100-PIN PIM (CONTINUED)

Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #
57	RP109/RF13	TP
58	RP108/RF12	TP
59	AN12/RPI44/RB12	41
60	AN13/RPI45/RB13	42
61	AN14/RPI46/RB14	43
62	AN15/RPI47/RB15	TP
63	VSS	—
64	VDD	—
65	PMD4/RH4	TP
66	PMD5/RH5	TP
67	PMD6/RH6	TP
68	PMD7/RH7	TP
69	RPI78/RD14	47
70	RP79/RD15	48
71	SDA2/RP100/RF4	49
72	SCL2/RP101/RF5	50
73	VSS	—
74	USBID/RP99/RF3	TP
75	RP98/RF2	51
76	RP104/RF8	52
77	VBUS	54
78	VUSB	55
79	D-/RG3	56
80	D+/RG2	57
81	RH8	TP
82	RH9	TP
83	RH10	TP
84	RH11	TP
85	ASCL2/RPI18/RA2	TP
86	ASDA2/RPI19/RA3	TP
87	TDI/RPI20/RA4	TP
88	TDO/RPI21/RA5	TP
89	VDD	—
90	OSC1/RPI60/RC12	63
91	OSC2/CLKO/RC15	64
92	VSS	—
93	PMCS2/RK12	TP
94	PMCS1/RK11	TP
95	RPI30/RA14	TP
96	RPI31/RA15	68
97	RTCC/DMLN/RPI72/RD8	TP
98	ASDA1/DPLN/RPI73/RD9	TP
99	ASCL1/RPI74/RD10	69
100	RPI75/RD11	70

Device Pin #	dsPIC33EP512MU814 Functional Description	PIM Pin #
101	RH12	TP
102	RH13	TP
103	RH14	TP
104	RH15	TP
105	INT0/DMH/RP64/RD0	72
106	PGED2/SOSCI/C3IND/RPI61/RC13	TP
107	PGEC2/SOSCO/C3INC/T1CK/RPI62/RC14	TP
108	VSS	—
109	VCPCON/RP65/RD1	TP
110	DPH/RP66/RD2	TP
111	RP67/RD3	TP
112	VDD	—
113	RPI76/RD12	TP
114	RPI77/RD13	76
115	PMA0/RJ0	TP
116	PMA1/RJ1	TP
117	PMA2/RJ2	TP
118	PMA3/RJ3	TP
119	RP68/RD4	79
120	RP69/RD5	80
121	C3INB/RP70/RD6	TP
122	C3INA/VCMPST3/RP71/RD7	TP
123	VCAP	85
124	VDD	—
125	VSS	—
126	VCMPST1/RP96/RF0	TP
127	VCMPST2/RP97/RF1	TP
128	RP113/RG1	83
129	RP112/RG0	84
130	AN22/RPI22/RA6	87
131	AN23/RPI23/RA7	88
132	PMA4/RJ4	TP
133	PMA5/RJ5	TP
134	PMA6/RJ6	TP
135	PMA7/RJ7	TP
136	AN24/PWM1L/RP80/RE0	93
137	AN25/PWM1H/RPI81/RE1	94
138	RP126/RG14	TP
139	RPI124/RG12	TP
140	RP125/RG13	TP
141	VSS	—
142	AN26/PWM2L/RP82/RE2	98
143	AN27/PWM2H/RPI83/RE3	99
144	AN28/PWM3L/RP84/RE4	100

Legend: TP = Test Point — = This pin is tied to the power supply rail

FIGURE 1: 144-PIN DEVICE SCHEMATIC

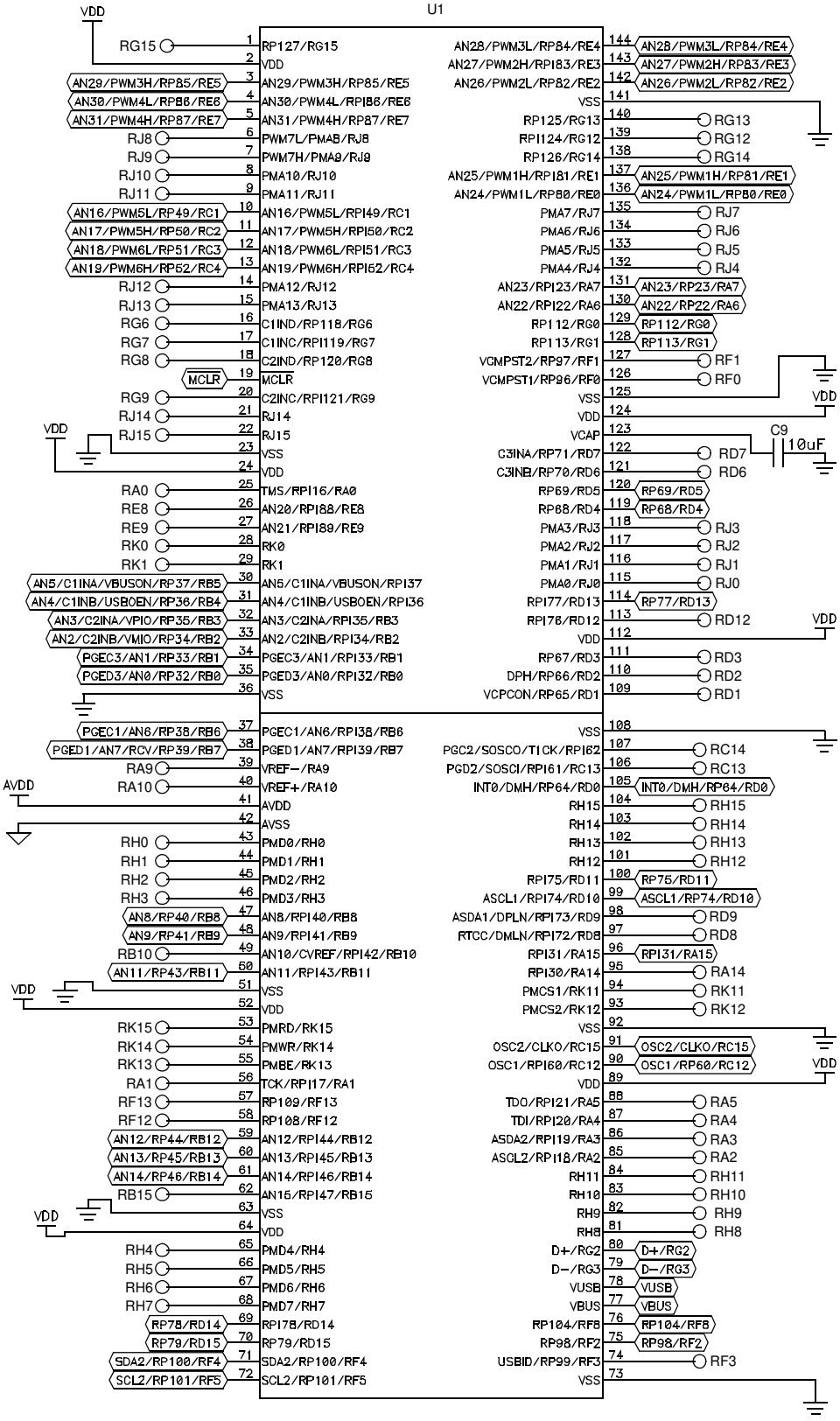
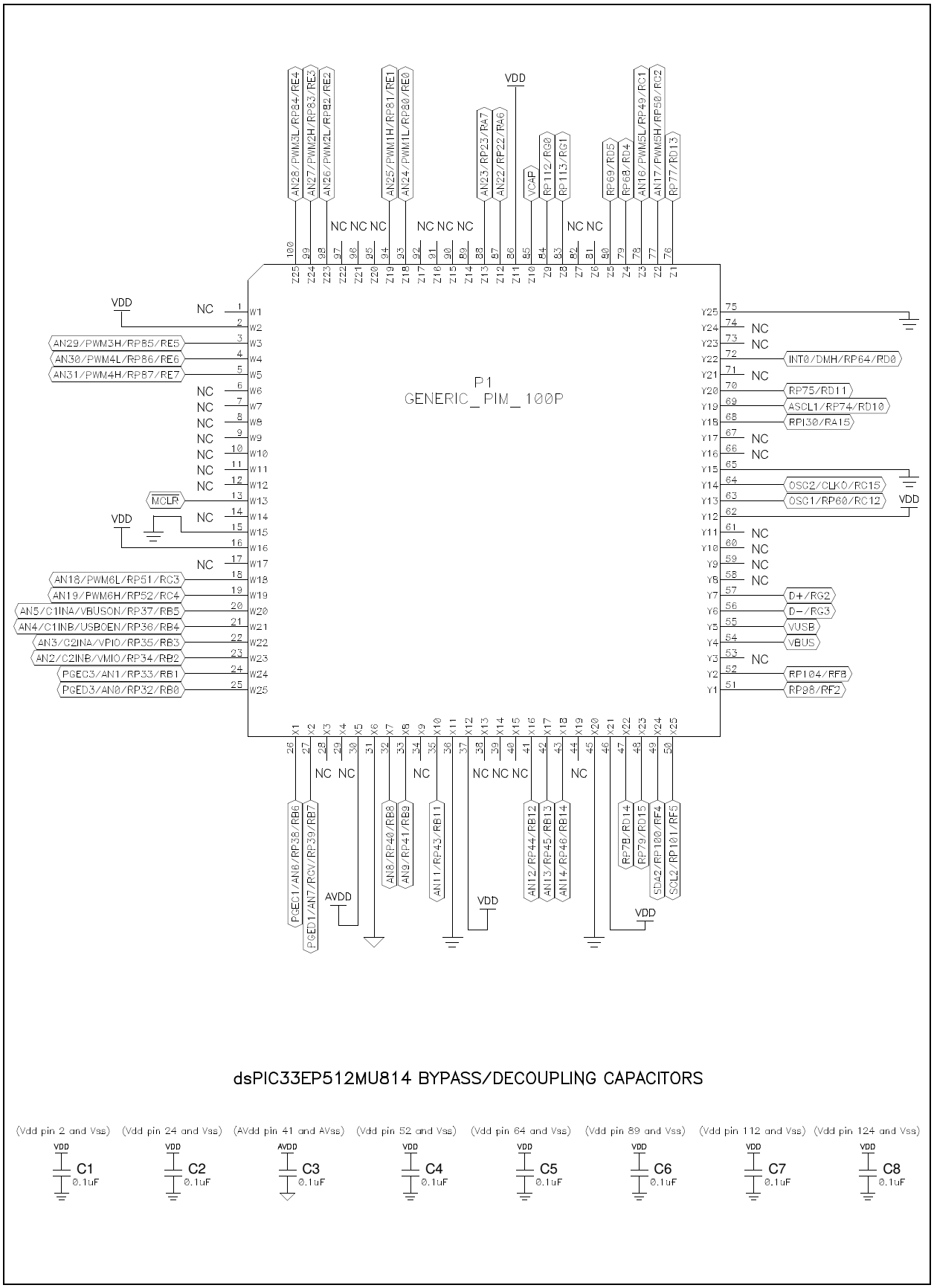


FIGURE 2: 100-PIN PIM SOCKET SCHEMATIC



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ISBN: 978-1-61341-184-1

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