



MAX17121 Evaluation Kit

General Description

The MAX17121 evaluation kit (EV kit) is an assembled and tested circuit board that contains all the components necessary to evaluate the MAX17121 IC. The MAX17121 is a dual, high-voltage, level-shifting scan driver to drive the TFT panel integrated gate logic. The driver outputs swing from -30V to +40V. To save power, complementary outputs are provided to allow charge sharing during state changes. The EV kit operates from a DC supply range from +2.2V to +3.6V and consumes 250µA (typ).

Features

- ◆ Two High-Voltage, Level-Shifting Scan Drivers
- ◆ +2.2V to +3.6V Input Supply Voltage Range (VDD)
- ◆ -30V to +40V Output Swing
- ◆ Demonstrates Output Charge Sharing
- ◆ Evaluates the MAX17121 in 24-Pin, 4mm x 4mm, Thin QFN Package
- ◆ Fully Assembled and Tested

Ordering Information

PART	TYPE
MAX17121EVKIT+	EV Kit

+Denotes lead(Pb)-free and RoHS compliant.

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	0.1µF ±10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H104K TDK C1608X7R1H104K
C3	1	1µF ±10%, 10V X5R ceramic capacitor (0603) Murata GRM188R61A105K TDK C1608X5R1A105K
C4, C5	2	1µF ±10%, 50V X7R ceramic capacitors (1206) Murata GRM31MR71H105KA TDK C3216X7R1H105K
C6–C9	4	0.01µF ±10%, 100V X7R ceramic capacitors (0603) Murata GRM188R72A103K

DESIGNATION	QTY	DESCRIPTION
CKVBCS1, CKVBCS2, CKVCS1, CKVCS2, DISH	5	Test points, white
JU1	1	2-pin header, 0.1in centers
R1	1	20kΩ ±5% resistor (0603)
R2–R5	4	200Ω ±5% resistors (1210)
R6–R9	4	200Ω ±5% resistors (0805)
U1	1	High-voltage scan driver (24 TQFN-EP*) Maxim MAX17121ETG+
—	1	Shunt
—	1	PCB: MAX17121 EVALUATION KIT+

*EP = Exposed pad.

Component Suppliers

SUPPLIER	PHONE	WEBSITE
Murata Electronics North America, Inc.	770-436-1300	www.murata-northamerica.com
TDK Corp.	847-803-6100	www.component.tdk.com

Note: Indicate that you are using the MAX17121 when contacting these component suppliers.



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Quick Start

Required Equipment

- +3.3V, 100mA DC power supply (VDD)
- +35V, 100mA DC power supply (VON)
- -25V, 100mA DC power supply (VOFF)
- Voltmeter

Procedure

The MAX17121 EV kit is fully assembled and tested. Follow the steps below to verify board operation.

Caution: Do not turn on the power supply until all connections are completed.

- 1) Connect the +3.3V DC power supply to the VDD and AGND PCB pads.
- 2) Connect the +35V DC power supply to the VON and AGND PCB pads.
- 3) Connect the -25V DC power supply to the VOFF and AGND PCB pads.
- 4) Turn on the power supply.
- 5) Note that the logic inputs (STV, CPV1, and CPV2) must be set to AGND or VDD.
- 6) Verify the STVP logic per the table below at the respective test points:

SIGNAL	LOGIC STATE			
EN	H	H	H	L
STV	L	H	H	X
CPV1	X	L	H	X
STVP	VOFF	VON	Hi-Z	VOFF

Note: H = VDD, L = GND, Hi-Z = high impedance, and X = don't care.

- 7) Verify the CKV_ and CKVB_ logic per the table below at the respective test points:

SIGNAL	LOGIC STATE				
EN	H	H	H	H	L
STV	L	L	H	H	X
CPV_	L	↑	L	H	X
CKV_	Hi-Z (CS)	Toggle	VOFF	VON	VOFF
CKVB_	Hi-Z (CS)	Toggle	VON	VOFF	VOFF

Note: H = VDD, L = GND, ↑ = rising edge, CS = charge-share state, and X = don't care.

Detailed Description of Hardware

The MAX17121 EV kit contains all the components necessary to evaluate the MAX17121 IC. The MAX17121 is a dual, high-voltage, level-shifting scan driver to drive TFT panel integrated gate logic. The drivers' outputs swing from -30V to +40V and two sets of complementary outputs are provided to allow charge sharing during state changes. The EV kit operates from a DC supply range from +2.2V to +3.6V and consumes 250μA (typ).

The MAX17121 EV kit provides PCB pads to connect the logic inputs and scan-driver outputs. Test points are also provided to monitor the charge sharing, EN, and DISH states. Jumper JU1 is provided to enable/disable the MAX17121 device (see Table 1).

Table 1. Jumper JU1 Function

SHUNT POSITION	EN PIN	DESCRIPTION
Installed	Connected to VDD	MAX17121 enabled
Not installed	Connected to ground	MAX17121 disabled

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Evaluates: MAX17121

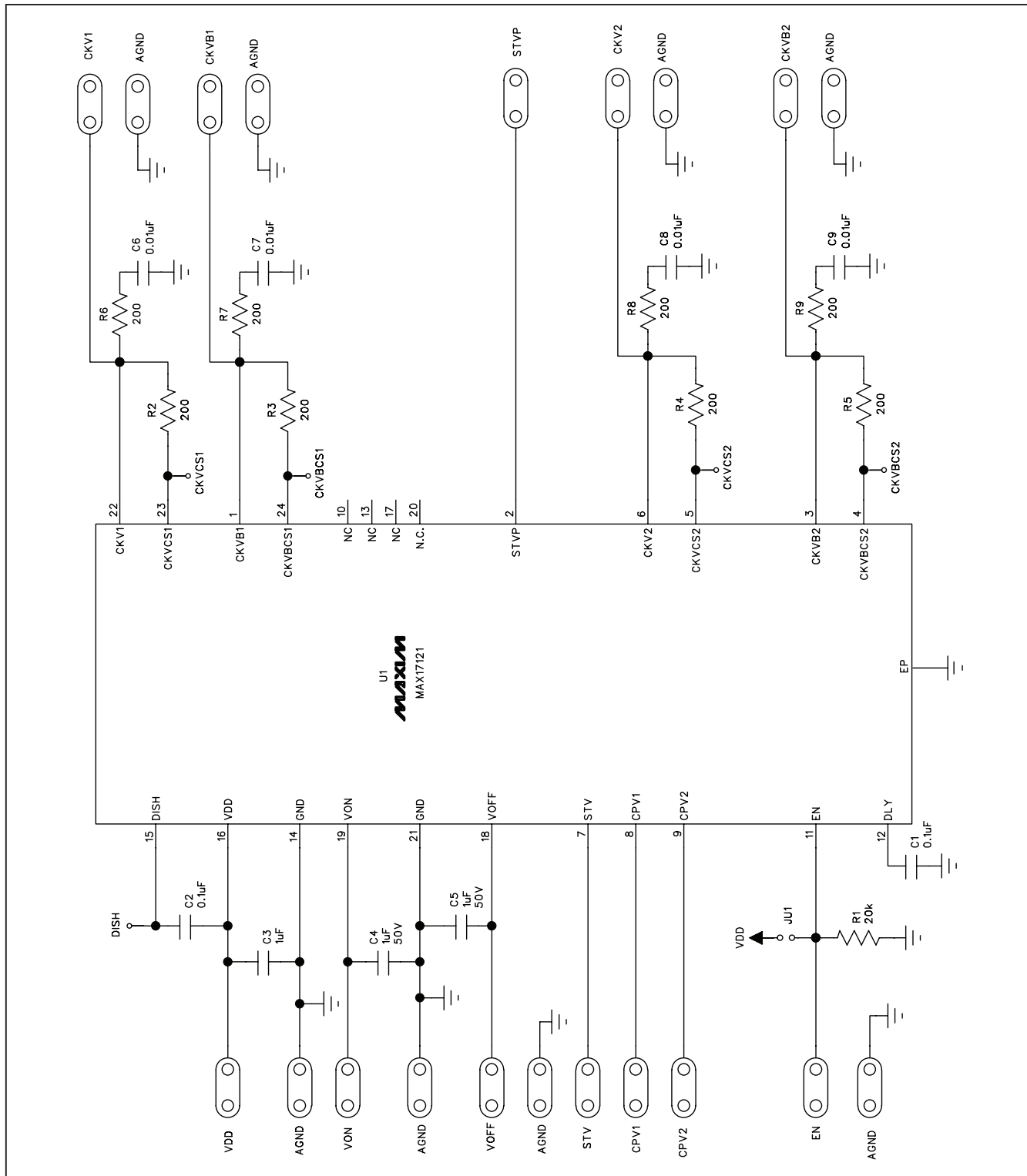


Figure 1. MAX17121 EV Kit Schematic

MAX17121 Evaluation Kit

Evaluates: MAX17121

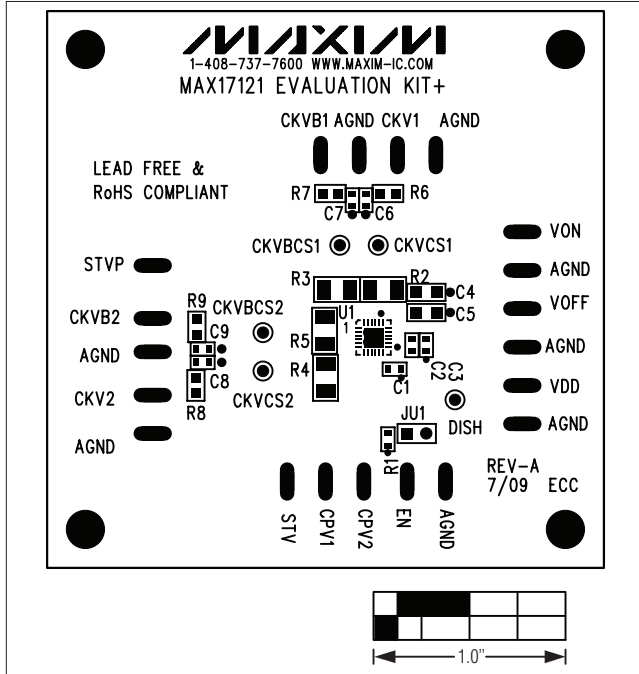


Figure 2. MAX17121 EV Kit Component Placement Guide—Component Side

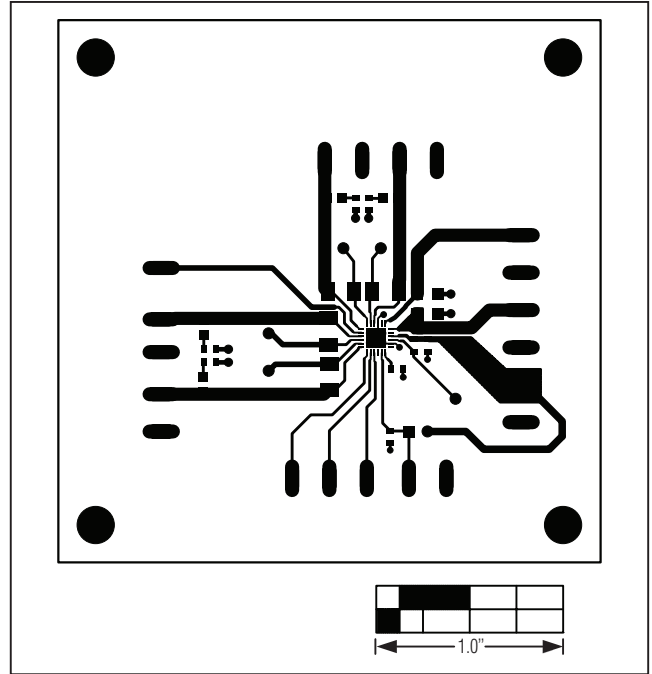


Figure 3. MAX17121 EV Kit PCB Layout—Component Side

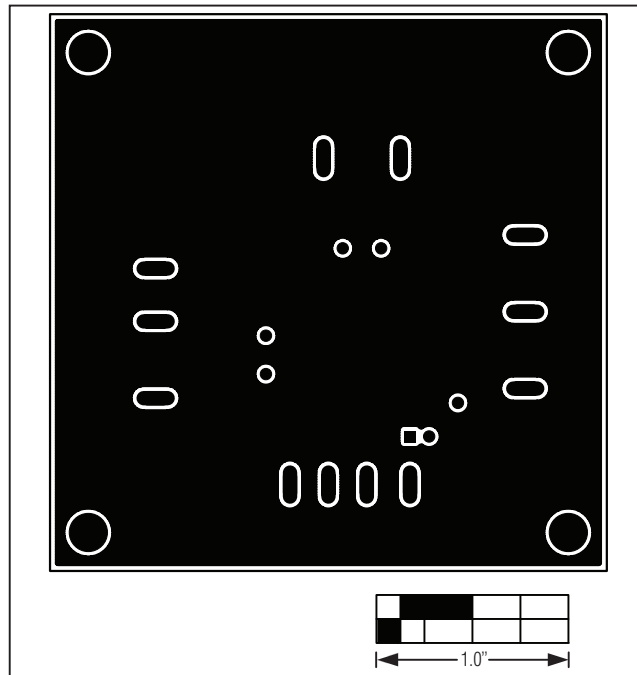


Figure 4. MAX17121 EV Kit PCB Layout—Solder Side

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