



MAX17120 Evaluation Kit

General Description

The MAX17120 evaluation kit (EV kit) is an assembled and tested circuit board that contains all the components necessary to evaluate the MAX17120 IC. The MAX17120 is a triple, high-voltage, level-shifting scan driver to drive the TFT panel gate logic. The driver outputs swing from -30V to +40V. To save power, three 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 500 μ A (typ).

Features

- ◆ Three 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 MAX17120 in 32-Pin, 5mm x 5mm, Thin QFN Package
- ◆ Fully Assembled and Tested

Ordering Information

PART	TYPE
MAX17120EVKIT+	EV Kit

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

Component List

DESIGNATION	QTY	DESCRIPTION
C1, C2	2	0.1 μ F \pm 10%, 50V X7R ceramic capacitors (0603) Murata GRM188R71H104K TDK C1608X7R1H104K
C3	1	1 μ F \pm 10%, 10V X5R ceramic capacitor (0603) Murata GRM188R61A105K TDK C1608X5R1A105K
C4, C5	2	1 μ F \pm 10%, 50V X7R ceramic capacitors (1206) Murata GRM31MR71H105KA TDK C3216X7R1H105K
C6-C11	6	0.01 μ F \pm 10%, 100V X7R ceramic capacitors (0603) Murata GRM188R72A103K

DESIGNATION	QTY	DESCRIPTION
C12	1	4700pF \pm 10%, 100V X7R ceramic capacitor (0603) Murata GRM188R72A472K
CKVBCS1, CKVBCS2, CKVBCS3, CKVCS1, CKVCS2, CKVCS3, DISH	7	Test points, white
JU1	1	2-pin header, 0.1in centers
R1	1	20k Ω \pm 5% resistor (0603)
R2-R14	13	200 Ω \pm 5% resistors (1210)
U1	1	High-voltage scan driver (32 TQFN) Maxim MAX17120ETJ+
—	1	Shunt
—	1	PCB: MAX17120 EVALUATION KIT+

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 MAX17120 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 MAX17120 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, CPV2, and CPV3) must be set to AGND or VDD.
- 6) Verify the STVP logic at the respective test points:

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

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

- 7) Verify the CKV_ and CKVB_ logic 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 MAX17120 EV kit contains all the components necessary to evaluate the MAX17120 IC. The MAX17120 is a triple, high-voltage, level-shifting scan driver to drive TFT panel gate logic. The drivers' outputs swing from -30V to +40V and three 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 500 μ A (typ).

The MAX17120 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 MAX17120 device (see Table 1).

Table 1. Jumper JU1 Function

SHUNT POSITION	EN PIN	DESCRIPTION
Installed	Connected to VDD	MAX17120 enabled
Not installed	Connected to ground	MAX17120 disabled

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Evaluates: MAX17120

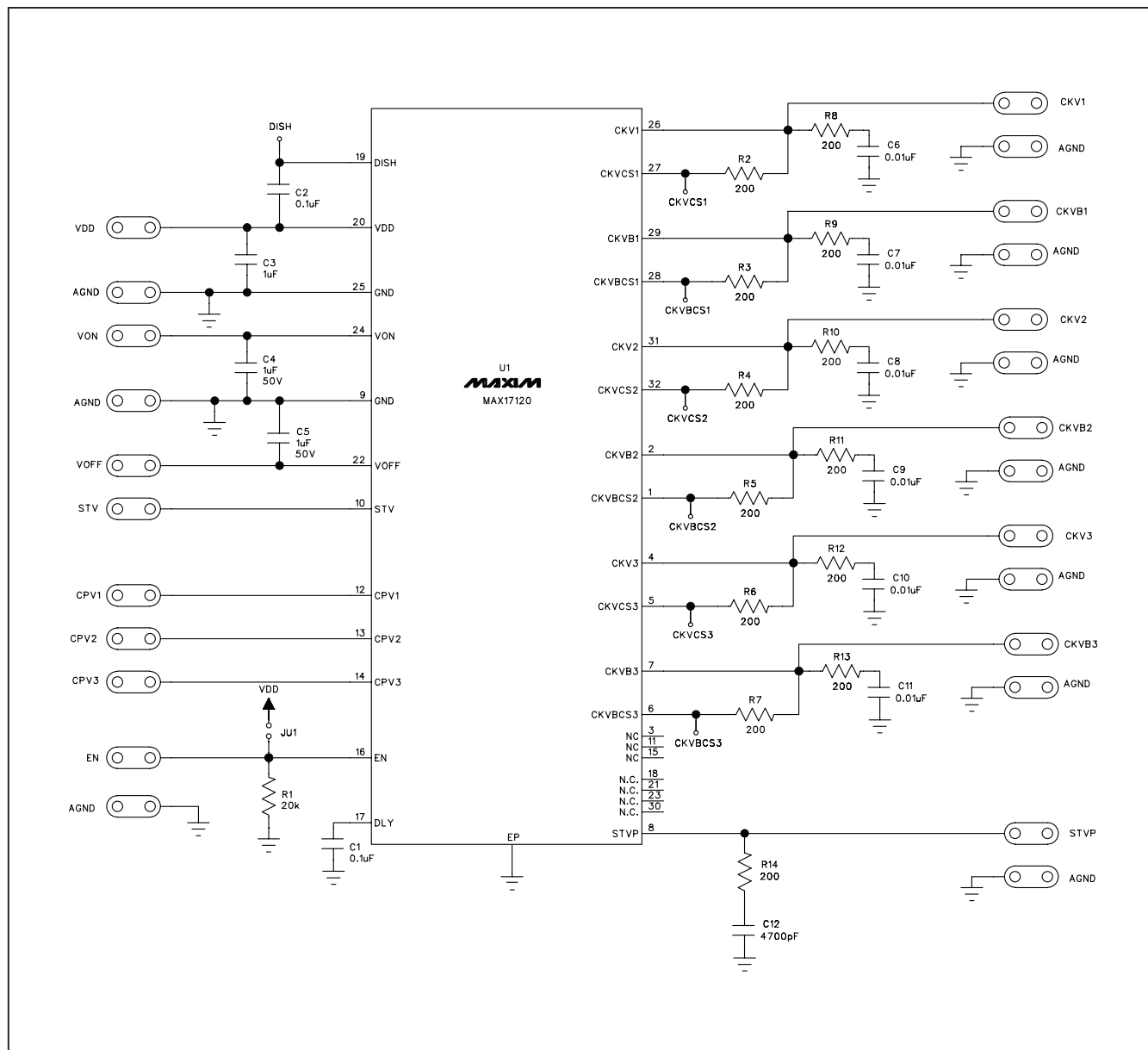


Figure 1. MAX17120 EV Kit Schematic

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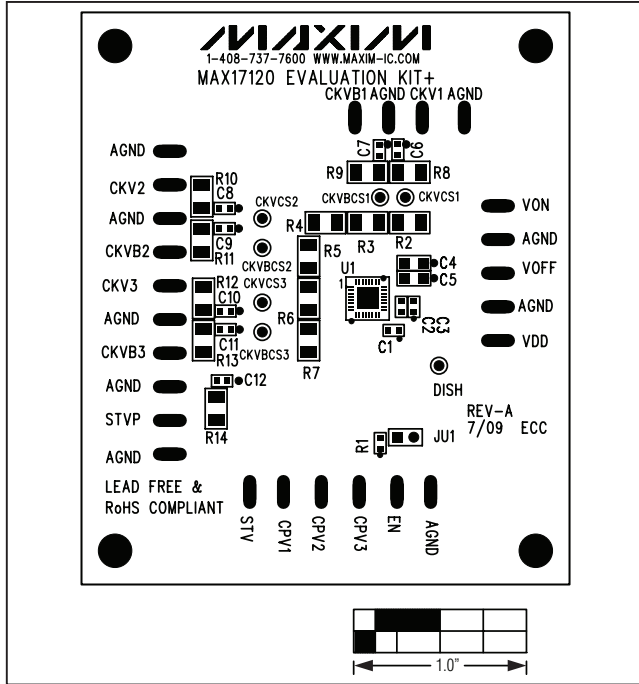


Figure 2. MAX17120 EV Kit Component Placement Guide—Component Side

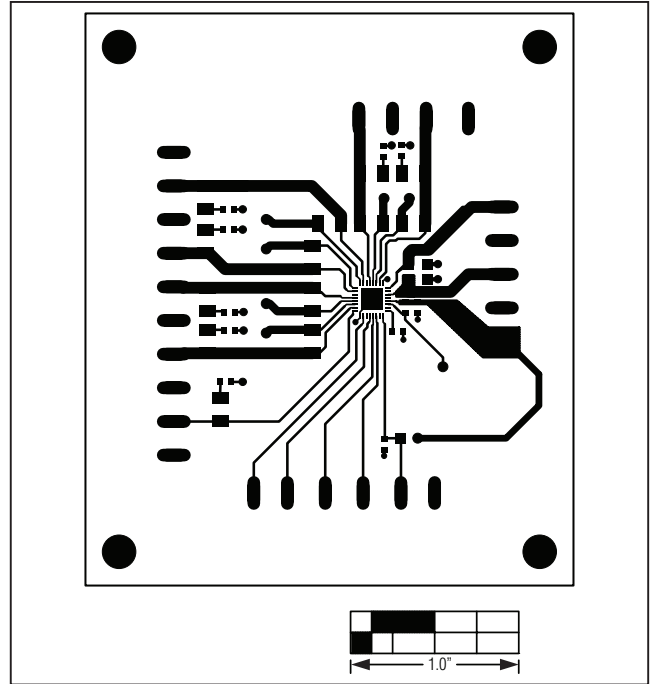


Figure 3. MAX17120 EV Kit PCB Layout—Component Side

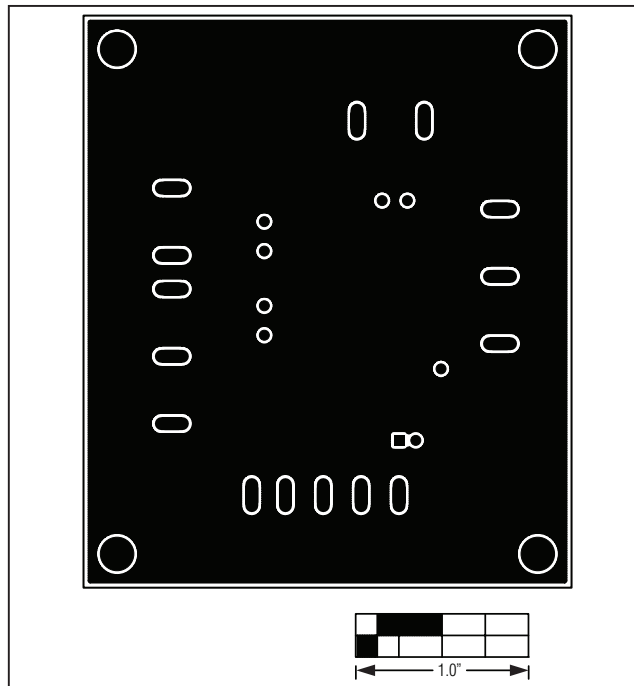


Figure 4. MAX17120 EV Kit PCB Layout—Solder Side

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