



Electrophoretic Display Driver (EPD) **DM130xxx**

Electrophoretic Display or E-Paper is a display technology with low power consumption, which is suitable for power critical products with dedicated display changing.

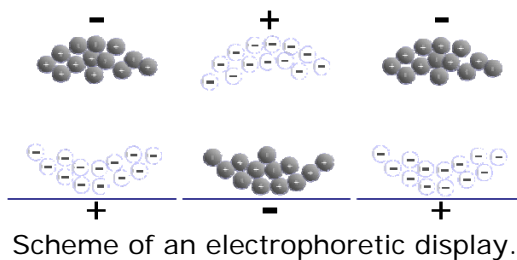
Flexible, portable, ultra low power consumption, all these characteristics are included in the EPD (Electrophoretic Display Driver). Suitable for applications like E-ticket, electronic price tag, signboard, display smart card, Fitness Tracker, EPD watch etc. The EPD Driver with MCU makes it even easier to develop new products.

The EPD Driver family consists of Hi-V DC-DC charge pumping for EPD application supporting 36 to 256 segments. Users can choose 0V, 15V or 30V to drive the EPD. All these functions are controlled by a 2-wire serial interface. Therefore customers can choose between a large variety of MCUs. Up to 4 drivers can be cascaded.

EPD Drivers

Parameter Typ	Segments	Common / Background	EPD Voltage	Cascade	Temp. Range	LFPBA TFBGA	LOFP	COF punch	die	Wafer
DM130036	36 (38)*	1 (+1) / 1 (+1)	0,15,30V	max. 4	0°...70°C	64 pin	64 pin	159 pin	64 pin	✓
DM130120	120	1 / 1	0,15,30V	max. 4	0°...70°C	145 pin	176 pin	177 pin	146 pin	✓
DM130160	160	1 / 1	0,15,30V	max. 4	0°...70°C			239 pin	186 pin	✓
DM130256	256	1 / 1	0,15,30V	max. 4	-20°...75°C			✓	281 pin	✓
				MCU	Mask ROM	RAM	Stack RAM			
DM120C16E	120	1 / 1	0,15,30V	8 Bit	16 kB	1 kB	256 bytes	✓	✓	✓

*One of Common and Background pins can be programmed as additional driving pin, therefore the total driven segments will be 38.



E-Ink Price Tag



General Features

- Wide operating voltage: 2.2V - 5.5V
- Selectable output voltage: 15V or 30V
- External Hi-V driving capability: max. 40V
- Low RBOM cost: Integrated charge pump
Circuit and on chip RX oscillator
- High scalability: up to 4 chips

DM5150/60 are 1-channel video decoders designed for cameras with 720H or 960H/720H CCD sensors. They convert 6.5 MHz analog CVBS signals to digital 27 MHz CCIR656 signals.

Both integrate an internal PLL, and decode 720H / 960H/720H videos using 27MHz external clock source.

DM5900/60 additionally feature a patented fast switch function. With this they can decode up to 2 analog CVBS with little frame rate loss.

The DM5865/66 are 4-channel video decoders which convert 4 channels of 6.5 or 9/6.5 MHz analog CVBS signals to 4 channels of digital 27 or 36/27 MHz CCIR656 signals.

They integrate two internal PLLs, and decode 720H or 960H/720H videos using the same (27MHz) external clock source.

With the fast switch function, they can decode up to 8 analog CVBS with little frame rate loss. Both include five audio ADCs and one audio DAC. Audio cascade up to 16 channels is also supported.

DM5885/86 additionally include two SD mixers and one HD mixer. Each SD/HD mixer can multiplex up to 4 video sources.

In addition to two SD CCIR656 outputs or one HD SMPTE 274M output, the mixer can output four D1 videos through one TDM4 interface. The mixers support image mirror and H partition functions. Interlaced and progressive digital video outputs are also being supported

EPD Drivers

Parameter Typ	Channel	Mixer	Resolution	Video ADCs	Audio ADC/DAC	Fast Switch	Temp. Range	Package
DM5150	1		720H	2 x 10 bit			-65°...150°C	LQFP-32
DM5160	1		960H / 720H	2 x 10 bit			-65°...150°C	LQFP-32
DM5900	1		720H	2 x 10 bit		✓	-65°...150°C	LQFP-32 QFN-32
DM5960	1		960H / 720H	2 x 10 bit		✓	-65°...150°C	LQFP-32
DM5865	4		720H	2 x 10 bit	5 / 1	✓	-65°...150°C	LQFP-128
DM5866	4		960H / 720H	2 x 10 bit	5 / 1	✓	-65°...150°C	LQFP-128
DM5885	4	2 SD / 1 HD	720H	2 x 10 bit	5 / 1	✓	-65°...150°C	LQFP-128
DM5886	4	2 SD / 1 HD	960H / 720H	2 x 10 bit	5 / 1	✓	-65°...150°C	LQFP-128

General Features

- Accepts NTSC (M) and PAL (C, D, G, H, I, M, Nc) and Sony 960H CCD Camera
- Video decoder can be programmed to operate at 27MHz or 36/27MHz
- 10-bit Video ADCs with built-in 6.5MHz analog low pass filter
- Automatic gain control for Luminance and Chrominance
- Programmable brightness, contrast, saturation, hue and sharpness
- Support Video interface YCbCr 4:2:2, 4:1:1 and 4:2:0
- Support mirror function
- 5-H comb filter for YC separation
- DLL for video synchronization
- Support line lock camera
- Hardware fast switch function, controllable by software or external pin
- Five audio ADCs and one DAC integrated