

Protection and Filters



around MCUs

DC Power Supply



VBUS 5 V: ESDA7P120-1U1M
VBUS 9 V: ESDA13P70-1U1M
VBUS 12 V, 20 V: ESDA25P35-1U1M



RS485: ESDA14V2BP6
RS232: ESDA25-4BP6
UART: USBLC6-2SC6

I2C Bus:

USBLC6-2SC6



Audio: ESDA6V1BC6

SWD & JTAG

ESDZV5-1BU2

Memory

SD 2.0: EMIF06-MSD02N16
SD 3.0: HSP053-4M5

SPI:

USBLC6-4SC6



USB data

ECMF: ECMF2-40A100N6
ESD: USBLC6-2P6



NFC Reader:
ESDZX168B-1BF4
NFC TAG:
ESDZV5H-1BU2



SIM card:
EMIF03-SIM02M8
ESDZL5-1F4



ADC/DAC

ESDZL5-1F4

Joystick and keypad:

ESDA6V1-5SC6

Buttons:

1 button: ESDZL5-1F4
2 buttons: ESDA5V3L

IO-Link

Automation sensor:
SPT01-335DEE

HDMI control line protection:

Source: HDMI2C4-5F2
Sink: HDMI2C2-5F2

SMAJ40CA **KNX**

24 V (Automotive): ESDACAN04-2BWY

6 V (Industrial): USBLC6-2SC6 **CAN**

Display/Camera

Parallel interface: EMIF08-LCD04M16

High speed differential: ECMF4-40A100N10

HDMI 2.1, USB4, USB 3.2 Gen 2, MIPI, Display Port
ESD: HSP053-4M5

Ethernet 1G secondary: HSP053-4M5



ST offers a comprehensive portfolio of ESD protection and EMI filtering solutions to safeguard all MCU interfaces and ports. These devices ensure compliance with the most stringent standards, delivering high protection efficiency with low clamping voltage (VCL). Protection transparency ensured by low leakage current (IRM) They preserve signal integrity thanks to ultra-low capacitance and ultra-wide bandwidth, making them ideal for high-speed interfaces.

SIM card		EMIF03-SIM02M8
		ESDZL5-1F4
NFC	reader	ESDZX168B-1BF4
	TAG	ESDZV5H-1BU2
DC power supply	VBUS 5 V	ESDA7P120-1U1M
	VBUS 9 V	ESDA13P70-1U1M
	VBUS 12 V, 20 V	ESDA25P35-1U1M
RS485, RS232, UART		ESDA14V2BP6
		ESDA25-4BP6
		USBLC6-2SC6
Audio		ESDA6V1BC6
I2C		USBLC6-2SC6
SWD & JTAG		ESDZV5-1BU2
Memory card	SD 2.0	EMIF06-MSD02N16
	SD 3.0	HSP053-4M5
SPI		USBLC6-4SC6
USB Data	ECMF	ECMF2-40A100N6
	ESD	USBLC6-2P6

Type C port protection	Sink	TPP01-M12
	Source	TCPP02-M18
	DRP	TCPP03-M20
Ethernet 1G	Secondary	HSP053-4M5
Display/Camera	Parallel interface	EMIF08-LCD04M16
	High speed differential	ECMF4-40A100N10
	ESD	HSP053-4M5
CAN	24 V (automotive)	ESDCAN04-2BWY
	6 V (industrial)	USBLC6-2SC6
KNX		SMAJ40CA
HDMI control line protection	Source	HDMI2C4-5F2
	Sink	HDMI2C2-5F2
IO-Link	Automation sensor	SPT01-335DEE
Joystick and keypad		ESDA6V1-5SC6
	1 button	ESDZL5-1F4
	2 buttons	ESDA5V3L
ADC/DAC		ESDZL5-1F4



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A wide range of package options is available -from standard to advanced formats -including single- and multi-line devices, as well as compact, flat, and flow-through designs to meet even the most demanding space constraints.