

# **RT1710S E-marked Evaluation Board**

# Purpose

The RT1710S is a type-C E-marked IC. It can request cable current, speed limit and cable type. This document explains the function and use of the RT1710S evaluation board (EVB).

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### Introduction

#### **General Product Information**

The RT1710S is a Type-C cable ID for active and passive cables.All USB Full-Featured Type-C cables shall be electronically marked. Electronically marked cables shall support USB Power Delivery Structured VDM Discover Identity command directed to SOP'. This provides a method to determine the characteristics of the cable, e.g. its current carrying capability, its performance, vendor identification, etc. This may be referred to as the USB Type-C Cable ID function. RT1710S is available in a WDFN-8L 2x2 package.

#### Product Feature

- Support SOP' and SOP" Communication
- Integrated Transceiver (BMC PHY)
- Embedded RA Resistor
- Embedded ISO Diode
- Embedded MTP
- Support Multi-Time Writable Memory to Store VDM Data
- Support 4V to 5.5V Operation on VCON1 / VCON2 Pin
- Built-In Slew Rate Control for BMC Signal to Reduce the Effect of EMI
- Support Custom Structured VDM Writing Through CCIN Pin
- Support I<sup>2</sup>C Bus for Programming VDM Data

#### Key Performance Summary Table

Key Features	Evaluation Board Number: PCB076_V1
Default Input Voltage	5V
Default Marking & Package Type	RT1710SGQW, WDFN-8L 2x2



# **Bench Test Setup Conditions**

#### Headers Description and Placement



Carefully inspect all the components used in the EVB according to the following Bill of Materials table, and then make sure all the components are undamaged and correctly installed. If there is any missing or damaged component, which may occur during transportation, please contact our distributors or e-mail us at <u>evb\_service@richtek.com</u>.

#### **Test Points**

The EVB is provided with the test points and pin names listed in the table below.

Test point/ Pin name	Signal	Comment (expected waveforms or voltage levels on test points)
VCON1	VCONN1 pin	This pin is E-marked power pin. If it is no power, you can measure $1k\Omega$ .
VCON2	VCONN2 pin	This pin is E-marked power pin. If it is no power, you can measure $1k\Omega$ .
GND	Ground	Ground.

#### Write and read e-marked

RT1710S can write and read to use E-marked writer board (This is other EVB).

la VDO1	Cable VDO2				
STX1 DIR	Super Speed Support	Super Speed Support			
Fixed Configured	OUSB 2.0 Only OUSB 3	O USB 2.0 Only USB 3.1 Gen1 USB 3.1 Gen1 and Gen2			
STX2 DIR	VBUS Current Handling Capabilit	VBUS Current Handling Capability / VBUS 電流承載能力			
Fixed Configured	● 1.5 A ○ 3 A				
			Na COR Controller		
Fixed Configured	Cable Termination Type	Cable Termination Type			
Construction of the second sec	Both ends Passive, VCONN n	Both ends Passive, VCONN not required			
SRX2 DIR	Both ends Passive, VCONN r	equired	VBUS through Cable		
Fixed Configured	One end Active, one end pas	sive, VCONN required			
	Both ends Active VCONN reg	nuired			
Keserved					
le VDO4	USB Vendor ID (Hex)	Device Version by Cable Vendor (Hex)	Write setting 燒錄設定		
Product Type Passive Cable	▼ 0 0 0 0	0 0 0 0	E-Mark		
Nodal Operation Supported			Osingle / 單一 ○ Double / 兩個		
No OYes	USB Product ID (Hex)	EID/XID (Hex)			
	0 0 0 0	0 0 0 0	Single channel write/verify 單邊 寫入/驗證		
ata Cable as a USB Device			No		
No OYes	Hardware Version (Hex)	Firmware Version (Hex)			
ata Cable as a UCB List			Production line setting 產線設置		
	U	U	Rewritable / 可重複寫入		
VNO Ves					
ype-C to Type-A/B/C	Customer / Part Numberr 客戶名種	稱 / 料號	🗌 Support stand alone / 支援燒錄板獨立運		



# Schematic, Bill of Materials & Board Layout

#### EVB Schematic Diagram



#### **Bill of Materials**

Reference	Qty	Part number	Description	Package	Manufacturer
U01	1	RT1710SGQW	Cable ID for type-C cables	WDFN2x2-8	Richtek
DN1	1	BAT54C	BAT54C	SOT-23_132	PANJIT
PD01, PD02	2	USBTYPE-C_22P_PLUG	USBTYPE-C	USBTYPE-C_22P_PLUG	JEM
R1, R2, R3, R4	4	WR06X000 PTL	0/0603/±1%	R-0603	WALSIN
R5, R6	2	WR06X22R0FTL	22/0603/±1%	R-0603	WALSIN
R7, R8, R9	3	WR06X1001FTL	1K/0603/±1%	R-0603	WALSIN
D1	1	LNL-302RD000A1	Red LED	RED LED DIP	光楠



### PCB Layout



**Bottom View** 



## More Information

For more information, please find the related datasheet or application notes from Richtek website <u>http://www.richtek.com</u>.

## Important Notice for Richtek Evaluation Board

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