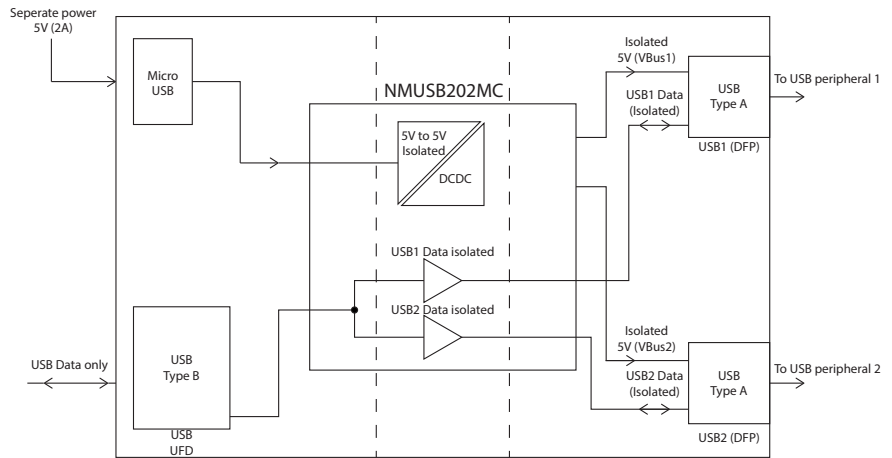


FEATURES

- Isolated dual powered USB 2.0 compliant
- One upstream port, two isolated downstream ports
- Automatic switching between low (1.5Mbps) and full speed (12Mbps)
- Full 500mA available from isolated ports
- UL60950 recognised
- ANSI/AAMI ES60601-1 1MOPP/2MOOPs recognised
- temperature range -0°C to +50°C
- Short circuit/overload protected USB ports
- Power surge notification
- Patents protected



SELECTION GUIDE

To be discontinued	
Order Code	NMUSBEVALC
	NMUSBEVALEXC

PRODUCT OVERVIEW

The NMUSBEVALEXC is a standalone module which conveniently provides dual port USB data isolation from a single upstream port with full power (500mA) available from each downstream port. Isolation provides effective breaking of ground loops and immunity to EMI in harsh environments as found in industrial and medical applications. Full speed (12Mbps) and low speed (1.5Mbps) are supported with automatic switching. Input power of 5V is provided by an external 'adapter' or system voltage rail. The NMUSBEVALEXC has a conventional USB B type connection.

The NMUSBEVALC is a internal module which conveniently provides dual port USB data isolation from a single upstream port with full power (500mA) available from each downstream port. Isolation provides effective breaking of ground loops and immunity to EMI in harsh environments as found in industrial and medical applications. Full speed (12Mbps) and low speed (1.5Mbps) are supported with automatic switching. Input power of 5V is provided by an external system voltage rail. The NMUSBEVALC has a molex pin header which can be mounted to a system socket holder to create a dual port USB data isolater.



For full details go to
<https://www.murata.com/en-global/products/power/rohs>



All specifications typical at TA=25°C, nominal input voltage and rated output current unless otherwise specified.

TECHNICAL NOTES

ISOLATION VOLTAGE

'Hi Pot Test', 'Flash Tested', 'Withstand Voltage', 'Proof Voltage', 'Dielectric Withstand Voltage' & 'Isolation Test Voltage' are all terms that relate to the same thing, a test voltage, applied for a specified time, across a component designed to provide electrical isolation, to verify the integrity of that isolation.

The NMUSBEVAL series has been recognised by Underwriters Laboratory to 250 Vrms Reinforced Insulation.

REPEATED HIGH-VOLTAGE ISOLATION TESTING

It is well known that repeated high-voltage isolation testing of a barrier component can actually degrade isolation capability, to a lesser or greater degree depending on materials, construction and environment. We therefore strongly advise against repeated high voltage isolation testing, but if it is absolutely required, that the voltage be reduced by 20% from specified test voltage.

SAFETY APPROVAL

ANSI/AAMI ES60601-1

The NMUSBEVAL is recognised to ANSI/AAMI ES60601-1 and provides 1 MOPP (Means Of Patient Protection) and 2 MOOP (Means Of Operator Protection) based upon a working voltage of 250 Vrms max, between Primary and Secondary.

UL 60950

The NMUSBEVAL series has been recognised by Underwriters Laboratory (UL) to UL 60950 for reinforced insulation to a working voltage of 250Vrms.

FUSING

The NMUSBEVAL series of converters are not internally fused so to meet the requirements of UL an anti-surge input line fuse should always be used with ratings as defined below.

NMUSBEVAL - 2.5A (125Vdc rated)

All fuses should be UL recognised and rated to at least the maximum allowable DC input voltage.

RoHS COMPLIANCE AND PSL INFORMATION

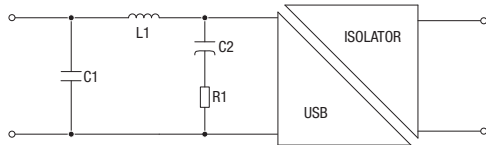


NMUSBEVAL is compatible with RoHS soldering systems with a peak reflow solder temperature of 245°C as per J-STD-020D.1. Please refer to [application notes](#) for further information. The pin termination finish on this product series is Gold with Nickel Pre-plate. The series is backward compatible with Sn/Pb soldering systems.

EMC FILTERING AND SPECTRA

FILTERING

The following filter circuit and filter table shows the input filters typically required to meet EN55022 Quasi-Peak Curve A or B.

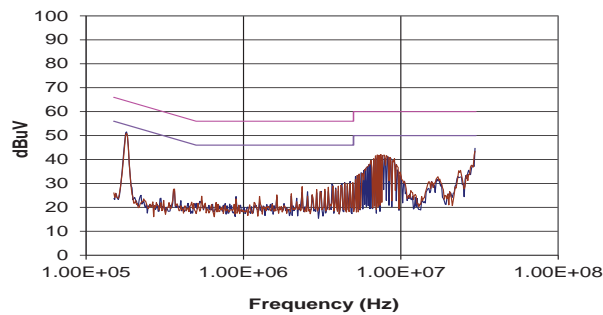


C1 Ceramic capacitor

C2 Electrolytic capacitor

TO MEET CURVE B				
Part Number	C1	L1	C2	R1
NMUSBEVALEXC	10 μ F	10 μ H	470 μ F	0.5 Ω
NMUSBEVALC	10 μ F	10 μ H	470 μ F	0.5 Ω

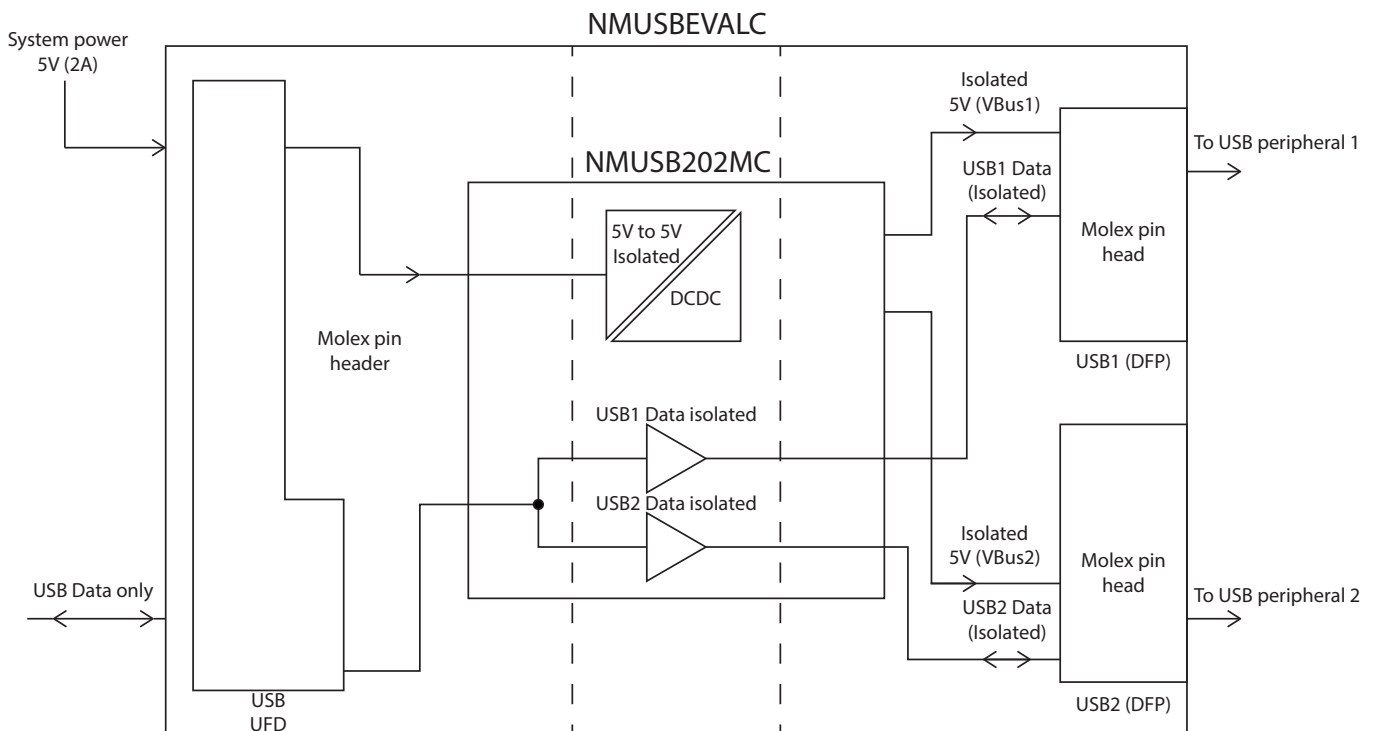
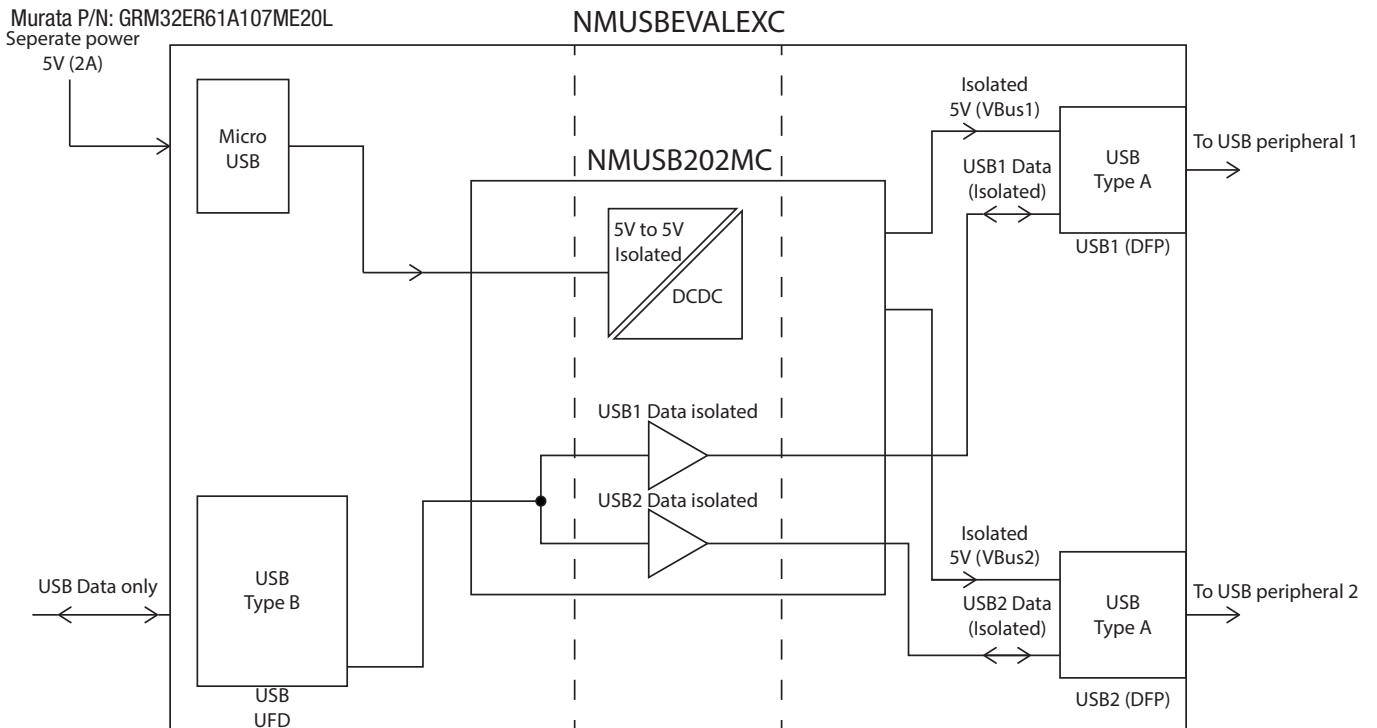
NMUSBEVAL



APPLICATION NOTES

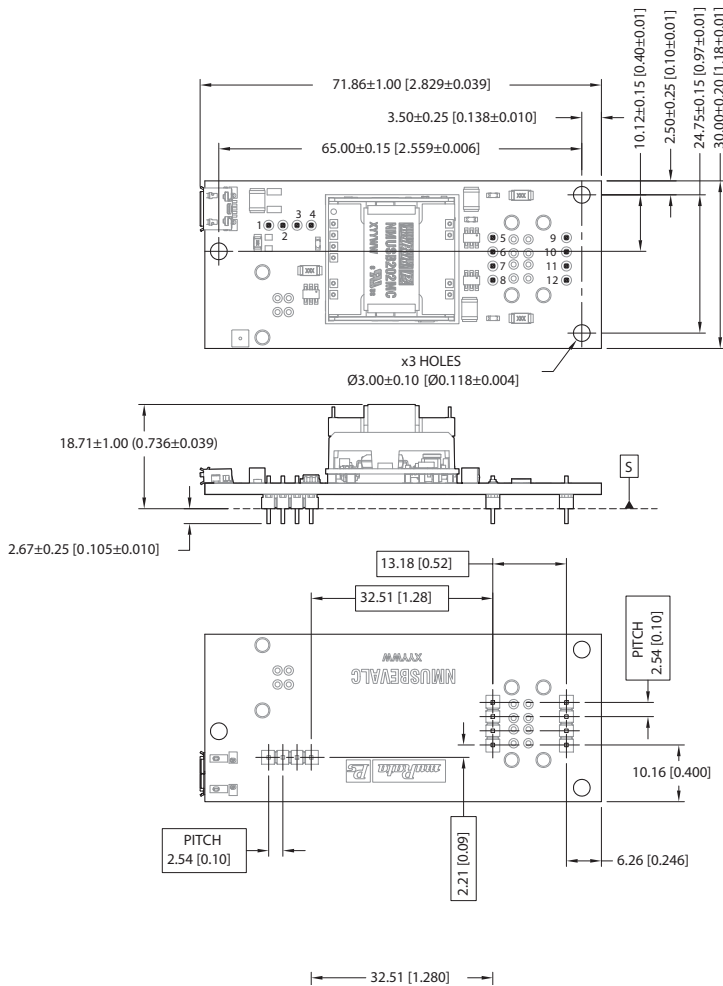
Typical Implementation:

C1, C2 100µF 10V (low ESR type)
Murata P/N: GRM32ER61A107ME20L
Separate power
5V (2A)



PACKAGE SPECIFICATIONS

MECHANICAL DIMENSIONS

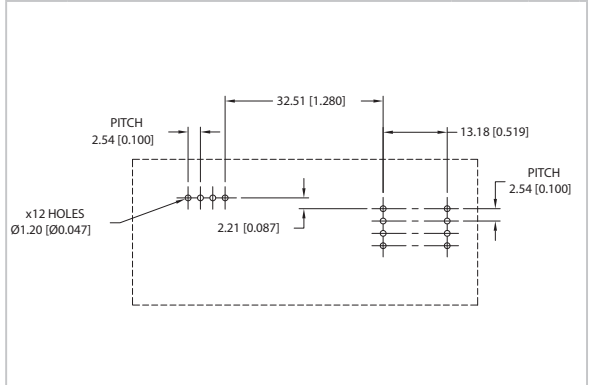


All dimensions in mm (inches), Controlling dimensions is mm. Weight: 21.3g (EVALC)

PIN CONNECTIONS

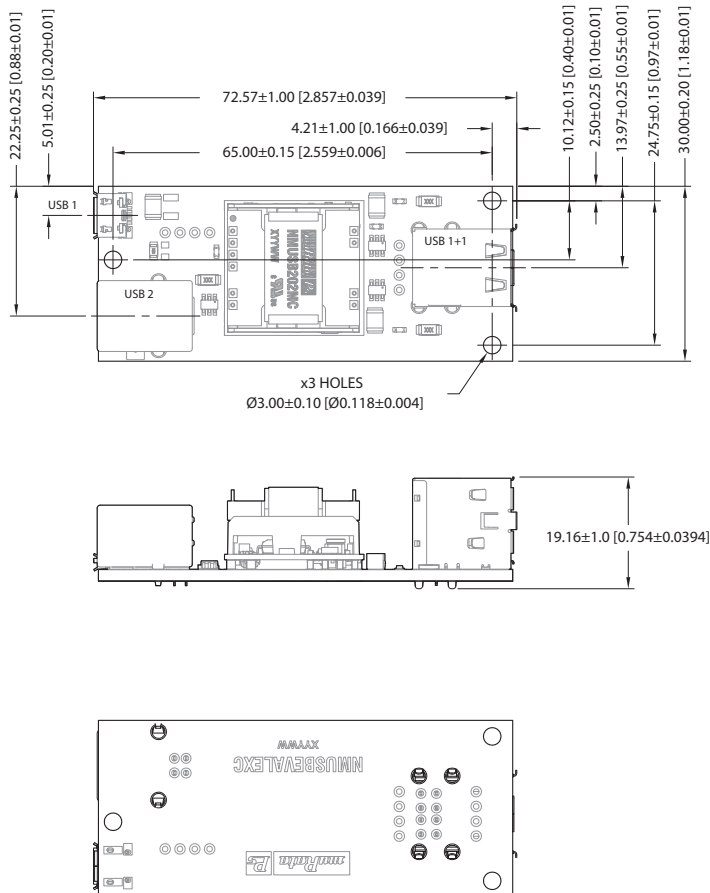
Pin	Function
1	+5V
2	D-IN
3	D+IN
4	GND
5	GND OUT2
6	D+ OUT2
7	D- OUT2
8	+5V OUT2
9	GND OUT1
10	D+ OUT1
11	D- OUT1
12	+5V OUT 1

RECOMMENDED FOOTPRINT DETAILS



PACKAGE SPECIFICATIONS (Continued)

MECHANICAL DIMENSIONS



PIN CONNECTIONS

Pin	Function
USB 1	+5V SUPPLY 2 A
USB 2	USB UFP (UPSTREAM FACING PORT)
USB 1+1	USB DFP (DOWNSTREAM FACING PORT)

USB connector metal frame

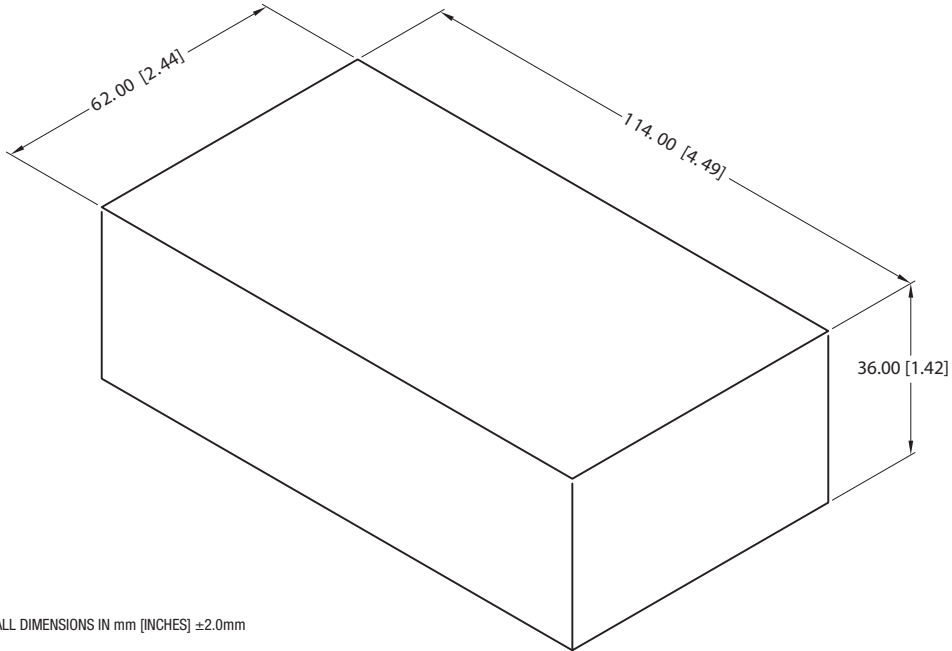
The metal frame of the fixed USB connectors on the NMUSBEVALEXC board are floating for maximum user flexibility. As the screen of attached USB cables connects to the frame, the user should consider whether and where the cable screen should be grounded for optimum EMC performance.

All dimensions in mm (inches), Controlling dimensions is mm.

Weight: 30.3g (EVALEXC)

BOX SPECIFICATIONS

TAPE OUTLINE DIMENSIONS



UNLESS OTHERWISE STATED ALL DIMENSIONS IN mm [INCHES] ±2.0mm
CARDBOARD - ESD
QUANTITY: 1

DISCLAIMER

Unless otherwise stated in the datasheet, all products are designed for standard commercial and industrial applications and NOT for safety-critical and/or life-critical applications.

Particularly for safety-critical and/or life-critical applications, i.e. applications that may directly endanger or cause the loss of life, inflict bodily harm and/or loss or severe damage to equipment/property, and severely harm the environment, a prior explicit written approval from Murata is strictly required. Any use of Murata standard products for any safety-critical, life-critical or any related applications without any prior explicit written approval from Murata shall be deemed unauthorised use.

These applications include but are not limited to:

- Aircraft equipment
- Aerospace equipment
- Undersea equipment
- Power plant control equipment
- Medical equipment
- Transportation equipment (automobiles, trains, ships, etc.)
- Traffic signal equipment
- Disaster prevention / crime prevention equipment
- Data Processing equipment

Murata makes no express or implied warranty, representation, or guarantee of suitability, fitness for any particular use/purpose and/or compatibility with any application or device of the buyer, nor does Murata assume any liability whatsoever arising out of unauthorised use of any Murata product for the application of the buyer. The suitability, fitness for any particular use/purpose and/or compatibility of Murata product with any application or device of the buyer remain to be the responsibility and liability of the buyer.

Buyer represents and agrees that it has all the necessary expertise to create and implement safeguards that anticipate dangerous consequences of failures, monitor failures and their consequences, lessen the likelihood of failures that might cause harm, and take appropriate remedial actions. Buyer will fully indemnify and hold Murata, its affiliated companies, and its representatives harmless against any damages arising out of unauthorised use of any Murata products in any safety-critical and/or life-critical applications.

Remark: Murata in this section refers to Murata Manufacturing Company and its affiliated companies worldwide including, but not limited to, Murata Power Solutions.



This product is subject to the following [operating requirements](https://www.murata.com/en-eu/products/power/requirements) and the [Life and Safety Critical Application Sales Policy](https://www.murata.com/en-eu/products/power/requirements):

Refer to: <https://www.murata.com/en-eu/products/power/requirements>

Murata Power Solutions (Milton Keynes) Ltd. makes no representation that the use of its products in the circuits described herein, or the use of other technical information contained herein, will not infringe upon existing or future patent rights. The descriptions contained herein do not imply the granting of licenses to make, use, or sell equipment constructed in accordance therewith. Specifications are subject to change without notice. © 2022 Murata Power Solutions (Milton Keynes) Ltd.