

DATA SHEET
USB 2.0 Hi-Speed Isolator
Model 7054 / 7054-X

FEATURES

- Provides galvanic isolation to the USB bus
- Compliant to USB 2.0 Hi-Speed (480 MBit/s)
- Backwards compatible to Full Speed and Low Speed
- Isolation withstands up to 2.5kV_{RMS}
- Advanced ESD protection (15kV IEC Air-gap Discharge)
- Works out of the box, no drivers needed
- Transparent to host and device: wide compatibility to all operating systems, embedded systems and devices
- Works also with hubs and extenders
- Supports all USB-specific transfers and modes
- No additional round-trip latency
- Powered by USB bus, no separate power supply
- Ultra-quiet power rail isolation, linear regulation
- Output current on isolated side 500mA max, 300mA nom.
- Connectors: host-side USB-B; device-side USB-A
- Status LED for each port showing bus state and speed
- Impedance controlled high-speed circuit design
- National compliances: FCC, CE, RCM, ICES-003
- IP 54 ABS housing
- Dimensions: 105 x 76 x 36 mm
- Engineered and manufactured in Germany

APPLICATIONS

- Industrial automation systems
- Measurement devices
- Environments requiring safety insulation
- Machine protection
- Broadcast and Studio
- Audiophile-grade home systems
- All applications requiring clean and stable USB connections with separate grounds



Table 1 Model Types, Ordering Codes and Differences

Standard Version	Model Nr. 7054	1kV isolation, standard temperature grade, standard connectors
Industrial Version	Model Nr. 7054-X	2.5kV isolation, specified isolation working voltage, extended temperature grade, high retention connectors

Options: -BB = PCB only without enclosure; -PMMA = resin hardened for extreme mechanical demands (shakeproof); -M3 = M3 threads instead of rubber bases; -DK = black housing

Table 2 LED Blink Codes

Flashing	Standby, USB connection not established
Double Flashing	Suspend, USB connection established and suspended by host
Slow Blinking (~1 Hz)	Low Speed (1.5 MBit/s) data transmission
Blinking (~4 Hz)	Full Speed (12 MBit/s) data transmission
Fast Blinking (~14 Hz)	High Speed (480 MBit/s) data transmission
Always On	USB connection established

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Table 3 Technical Specifications

Power Supply	Powered by USB host device; internal DC/DC converter for isolated side
Supply Voltage	4.5–6V
Supply Current	140mA in standby or suspend mode
Isolated Output	4.5–5.0V (max.); 300mA (nom.) / 500mA (max.); Efficiency 90%
Output Noise	< 60 μ V _{RMS} (20Hz–22kHz), PSRR > 130dB
Isolation Rating*	Standard Version: 1000V _{RMS} for 60s / Industrial Version: 2500V_{RMS} for 60s
Isolation Working Voltage*	Industrial Version: Up to 600V_{RMS} reinforced insulation working voltage; up to 600V_{RMS} basic insulation working voltage as per IEC 61010-1; up to 1200V_{peak} for basic insulation working voltage as per IEC 60747-5-2
Insulation Resistance	> 10G Ω (1kV, 21°C, 55% rel. humidity)
ESD protection	\pm 15kV IEC 61000-4-2 Air-gap Discharge / \pm 8kV IEC 61000-4-2 Contact Discharge
USB Device Connector	"A"-Type, gold plated / Industrial Version: minimum withdrawal requirement of 15N, complies with Class 1, Divison II
USB Host Connector	"B"-Type, gold plated / Industrial Version: minimum withdrawal requirement of 15N, complies with Class 1, Divison II
IEC 60529 Protection Marking	IP 54: Ingress of dust is not entirely prevented, but it must not enter in sufficient quantity to interfere with the satisfactory operation of the equipment. Water splashing against the enclosure from any direction shall have no harmful effect.
Ambient Temperature	Standard Version: 0–50°C / Industrial Version: -40–80°C
Dimensions, Weight	135 x 90 x 46 mm; 140g
National Compliances	USA: FCC, European Union: CE, Australia: RCM, Canada: ICES-003

*please contact Intona for more information regarding end-system specifications requirements

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Developed, designed and manufactured by Intona Technology in Germany.

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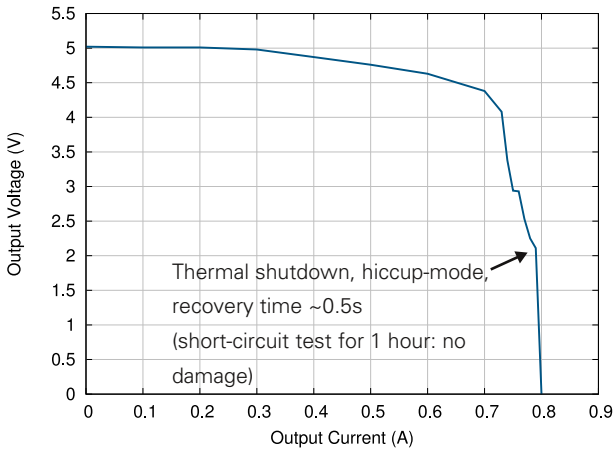
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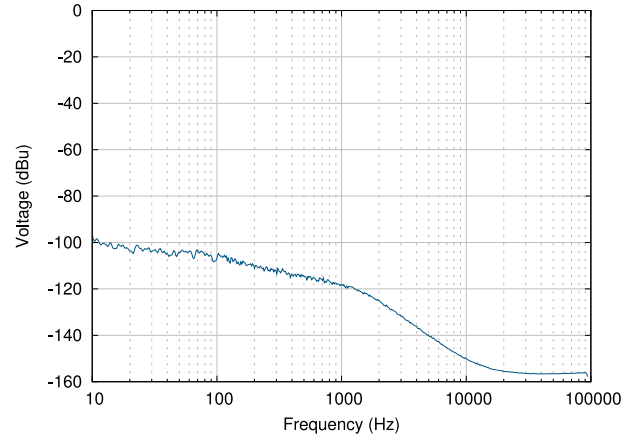
Signal Processing Devices
 Made in Germany

EN

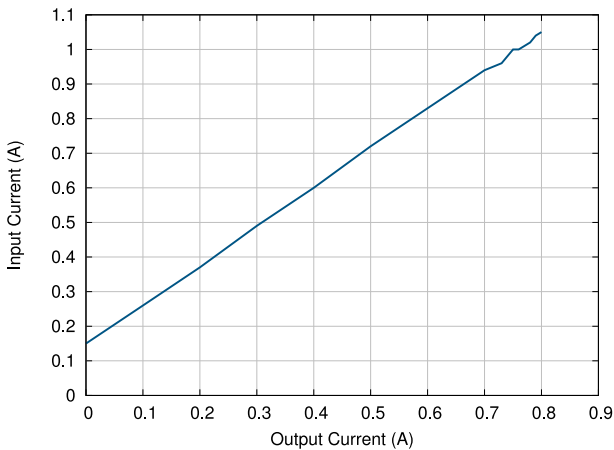
Output Voltage vs Output Current



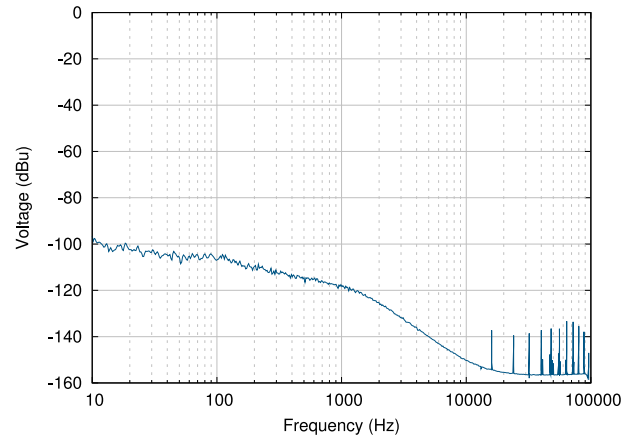
Output Voltage Noise (Idle Control Data and SOF)



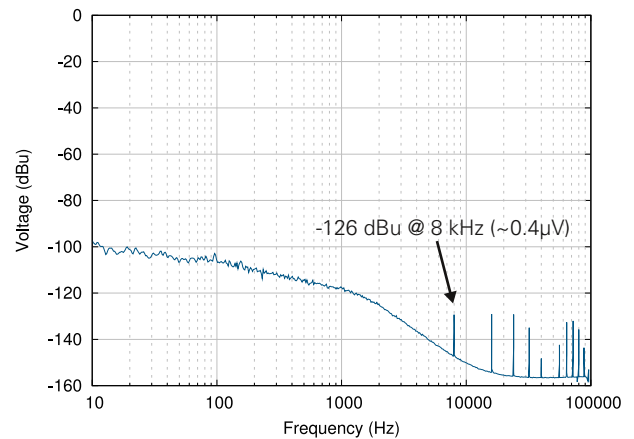
Input Current vs Output Current



Output Voltage Noise (Full Downstream Utilization)



Output Voltage Noise (Full Upstream and Downstream Utilization)



Remarks:

- 0 dBu = 0.775 volts RMS
- output current = current drawn by end device
- input current = total current drawn by DUT from the host
- DUT = device under test (model 7054 / 7054-X)
- SOF = start of frame symbol

Document Revision History

- 1.3 2016-07-14 Added output current and noise graphs; merged NF option; added DK option
- 1.2 2016-02-19 Changed isolation duration spec to 60s; added short-circuit spec; added PMMA option; added PSRR value
- 1.1 2015-09-23 Fixed layout and typos
- 1.0 2015-09-15 Initial revision