


REPLACEMENT PART REFERENCE GUIDE, USB-4SP2T-63H

AN-80-029

Replacement Part has been judged by Mini-Circuits Engineering as a suitable replacement to Original Part

| | | |
|-------------------------|-----------------------|--|
| Original Part | USB-4SP2T-63H |  |
| Replacement Part | USB-4SP2T-852H | |

1. MECHANICAL DIMENSIONS

| | |
|--|---|
| Original Part: USB-4SP2T-63H | Replacement Part: USB-4SP2T-852H |
| Case Style: QM2279 | Case Style: QM2279 |
| Conclusion: Original and Replacement Part have the same exact Case Style and Mechanical Dimensions. | |

2. ELECTRICAL PERFORMANCE:

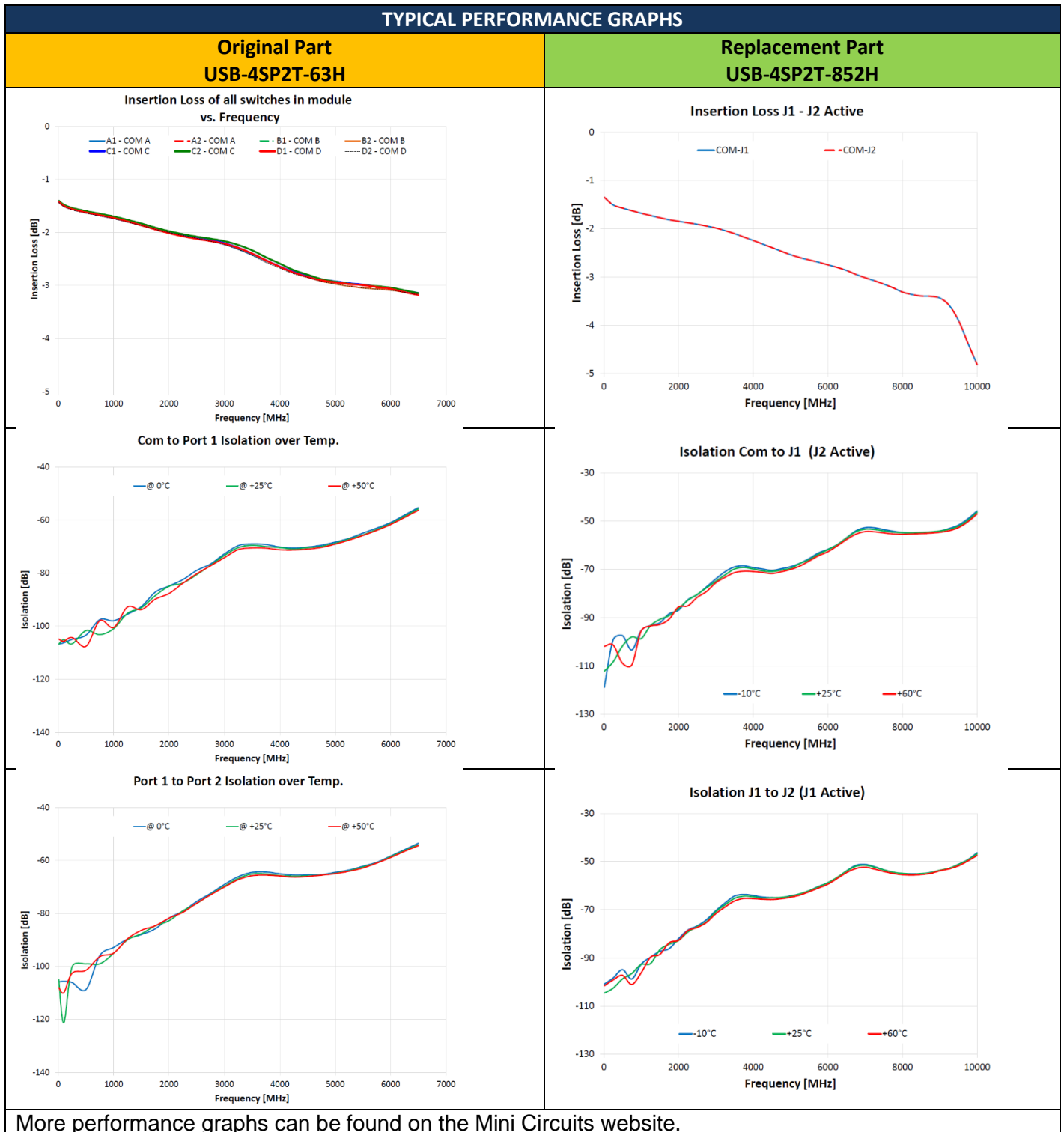
| SUMMARY ELECTRICAL PERFORMANCE CHARACTERISTICS | | | |
|--|------------------|--|--|
| Parameters | Conditions (MHz) | USB-4SP2T-63H (Original part) | USB-4SP2T-852H (Replacement part) |
| Frequency | – | 10 - 6000 | 10 - 8500 |
| Insertion Loss | 6000 - 7200 | – | 3.0 dB Typ, 4.5 dB Max |
| | 7200 - 8000 | – | 3.4 dB Typ, 4.8 dB Max |
| | 8000 - 8500 | – | 3.6 dB Typ, 5.0 dB Max |
| Isolation (between ports J1 – J2, of any given switch) | 6000 - 8500 | – | 52 dB Typ, 45 dB Min |
| Isolation (Com to terminated port, of any given switch) | 6000 - 8500 | – | 54 dB Typ, 45 dB Min |
| Isolation (crosstalk between switches) | 10 - 6000 | 100 dB Typ, 63 dB Min | 100 dB Typ, 65 dB Min |
| | 6000 - 8500 | – | 100 dB Typ, 65 dB Min |
| Return Loss (Com port, active) | 6000 - 7200 | – | 18.0 dB Typ |
| | 7200 - 8000 | – | 15.0 dB Typ |
| | 8000 - 8500 | – | 12.5 dB Typ |
| Return Loss (any port to Com) | 6000 - 7200 | – | 18.0 dB Typ |
| | 7200 - 8000 | – | 15.0 dB Typ |
| | 8000 - 8500 | – | 12.5 dB Typ |
| Return Loss (any terminated port) | 6000 - 7200 | – | 18.0 dB Typ |
| | 7200 - 8000 | – | 17.0 dB Typ |
| | 8000 - 8500 | – | 13.0 dB Typ |
| Power input @1 dB compression | 6000 - 8500 | – | +38 dBm Typ |
| IP3 | 6000 - 8500 | – | +50 dBm Typ |
| Operating RF input power (through path // cold switching) | 10 - 40 | Derates linearly from +30 dBm @ 40 MHz to +23 dBm @ 10 MHz | Derates linearly from +30 dBm @ 40 MHz to +25 dBm @ 10 MHz |
| | 6000 - 8500 | – | +29 dBm Max |
| Operating RF input power (any terminated port) + (per port // hot switching) | 10 - 6000 | +23 dBm Max | +24 dBm Max |
| | 6000 - 8500 | – | +24 dBm Max |
| Operating temperature | – | 0°C to 50°C | -10°C to 60°C |
| Storage temperature | – | -20°C to 60°C | -20°C to 85°C |

Compared to the USB-4SP2T-63H, the USB-4SP2T-852H has the following differences:

- Electrical specification has been extended for the 6000 - 8500 MHz frequency range.
- Improvement in isolation (crosstalk) between switches.
- Improvement in operating RF input power.
- Improvement in operating and storage temperatures.

Overall, users can expect USB-4SP2T-852H to perform the same as USB-4SP2T-63H in the original 10 - 6000 MHz frequency range (refer to section 3 for typical performance graphs). As such, the electrical specification for this range is not listed in the table unless it has changed.

3. TYPICAL PERFORMANCE GRAPHS

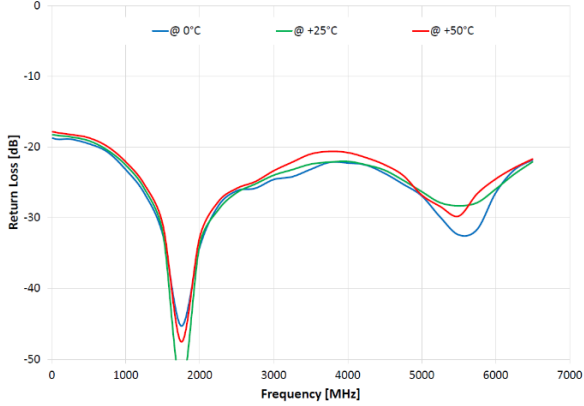


TYPICAL PERFORMANCE GRAPHS

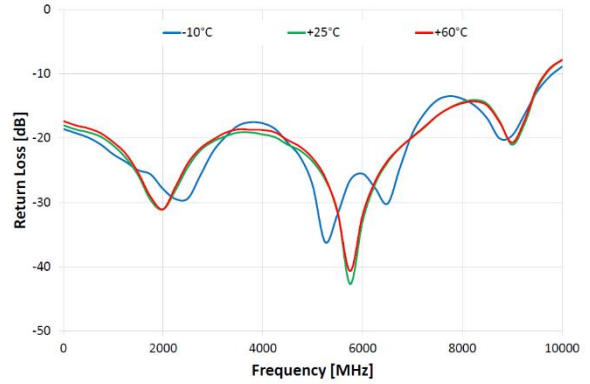
**Original Part
USB-4SP2T-63H**

**Replacement Part
USB-4SP2T-852H**

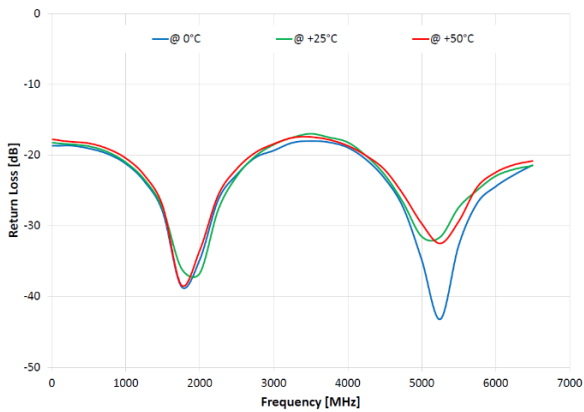
Common Port Return Loss over Temp.



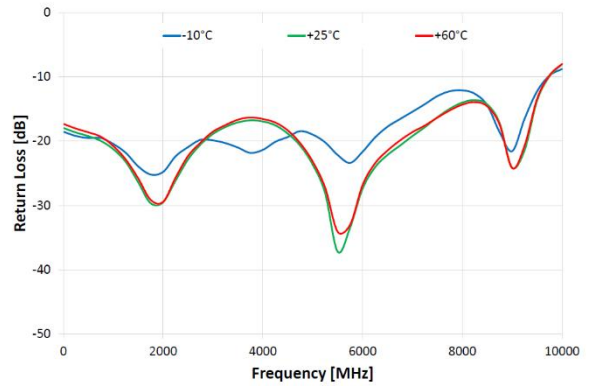
Return Loss @ COM over Temperature (J1 Active)



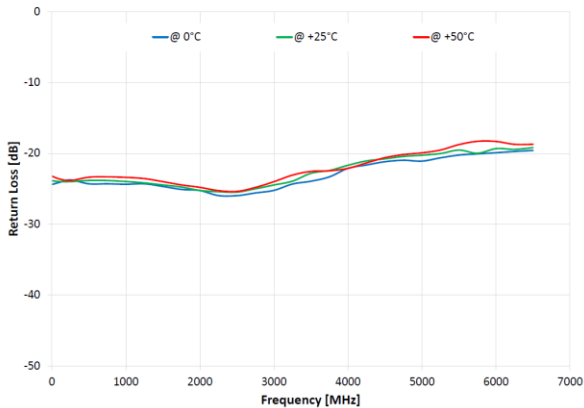
Active Port Return Loss over Temp.



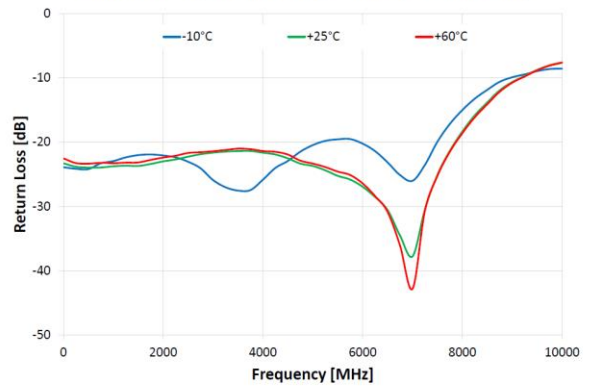
Return Loss @ J1 over Temperature (J1 Active)



Internal Term. Return Loss over Temp.



Return Loss @ J1 over Temperature (J1 Terminated)



More performance graphs can be found on the Mini Circuits website.

4 CONCLUSION

USB-4SP2T-852H manages to provide the same performance level as that of USB-4SP2T-63H in the original 10 - 6000 MHz frequency range all while performing within an expanded operating temperature range.

Additionally, users will find the USB-4SP2T-852H to be better suitable for modern applications due to extending the supported frequency range from 6000 MHz to 8500 MHz.

This makes the USB-4SP2T-852H an excellent replacement for the USB-4SP2T-63H – keeping the existing performance level for users' past and current applications while also providing support for users' future applications.

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