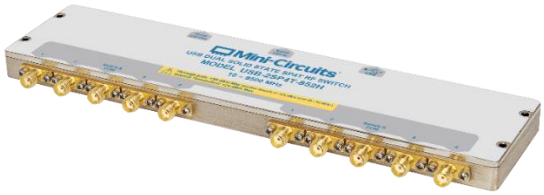
REPLACEMENT PART REFERENCE GUIDE, USB-2SP4T-63H AN-80-030

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

Original Part	**USB-2SP4T-63H**	
Replacement Part	**USB-2SP4T-852H**	

1. MECHANICAL DIMENSIONS

Original Part: USB-2SP4T-63H	**Replacement Part: USB-2SP4T-852H**
Case Style: QM2605	**Case Style: QM2605**
Conclusion: Original and Replacement Part have the same exact Case Style and Mechanical Dimensions.	

2. ELECTRICAL PERFORMANCE:

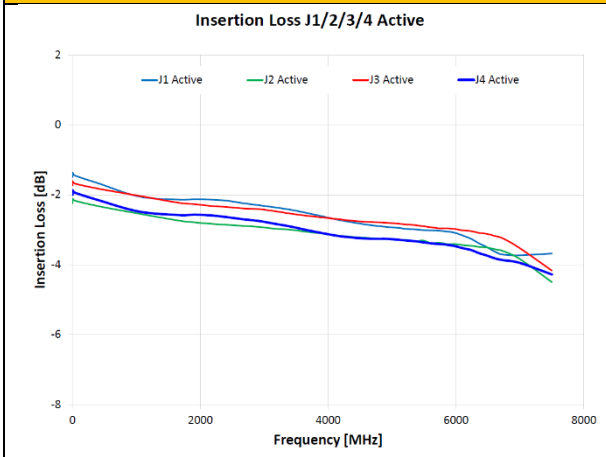
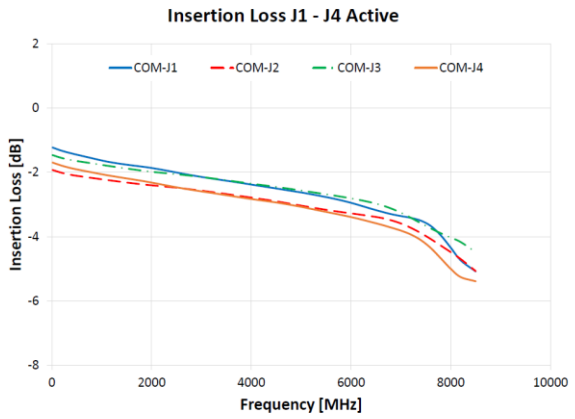
SUMMARY ELECTRICAL PERFORMANCE CHARACTERISTICS			
Parameters	**Conditions (MHz)**	**USB-2SP4T-63H (Original part)**	**USB-2SP4T-852H (Replacement part)**
Frequency	–	10 - 6000	10 - 8500
Insertion Loss	6000 - 7200	–	3.7 dB Typ, 6.0 dB Max
	7200 - 8000	–	4.3 dB Typ, 6.5 dB Max
	8000 - 8500	–	5.0 dB Typ, 7.0 dB Max
Isolation (between ports J1 - J4 of any given switch)	6000 - 7200	–	72 dB Typ, 58 dB Min
	7200 - 8000	–	67 dB Typ, 57 dB Min
	8000 - 8500	–	60 dB Typ, 50 dB Min
Isolation (Com to terminated port of any given switch)	6000 - 7200	–	64 dB Typ, 55 dB Min
	7200 - 8000	–	60 dB Typ, 50 dB Min
	8000 - 8500	–	57 dB Typ, 45 dB Min
Isolation (Disconnected state) (Com to J1, J2, J4 of any given switch)	6000 - 7200	–	64 dB Typ, 55 dB Min
	7200 - 8000	–	60 dB Typ, 50 dB Min
	8000 - 8500	–	57 dB Typ, 45 dB Min
Isolation (Disconnected state) (Com to J3 of any given switch)	6000 - 7200	–	24 dB Typ, 34 dB Min
	7200 - 8000	–	21 dB Typ, 33 dB Min
	8000 - 8500	–	18 dB Typ, 32 dB Min
Isolation (Crosstalk between switches)	6000 - 8500		100 dB Typ, 85 dB Min
Return Loss (Com port, active)	6000 - 7200	–	15.0 dB Typ
	7200 - 8000	–	10.0 dB Typ
	8000 - 8500	–	7.0 dB Typ
Return Loss (any port to Com)	6000 - 7200	–	13.5 dB Typ
	7200 - 8000	–	10.0 dB Typ
	8000 - 8500	–	8.5 dB Typ
Return Loss (any terminated port)	6000 - 8000	–	15.5 dB Typ
	8000 - 8500	–	12.0 dB Typ
Power input @1 dB compression	6000 - 8500	–	+33 dBM Typ
IP3	6000 - 8500	–	+50 dBM Typ
Operating RF input power (through path // cold switching)	10 - 50	Derates linearly from +30 dBm @ 50 MHz to +23 dBm @ 10 MHz	Derates linearly from +30 dBm @ 50 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-2SP4T-63H, the USB-2SP4T-852H has the following differences:

- Electrical specification has been extended for the 6000 - 8500 MHz frequency range.
- Improvement in operating RF input power.
- Improvement in operating and storage temperatures.

Overall, users can expect USB-2SP4T-852H to perform the same as USB-2SP4T-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

<table>
<tr><th colspan="2">TYPICAL PERFORMANCE GRAPHS</th></tr>
<tr><th>Original Part
USB-2SP4T-63H</th><th>Replacement Part
USB-2SP4T-852H</th></tr>
<tr><td> 
</td><td> 
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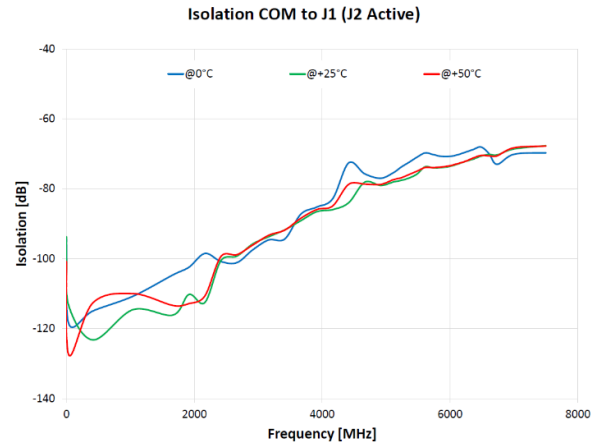
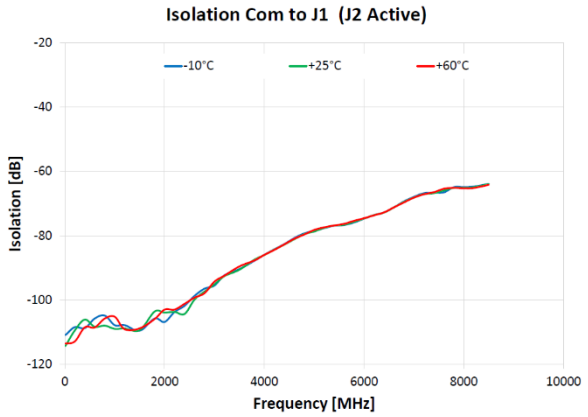
<tr><td> 
</td><td> 
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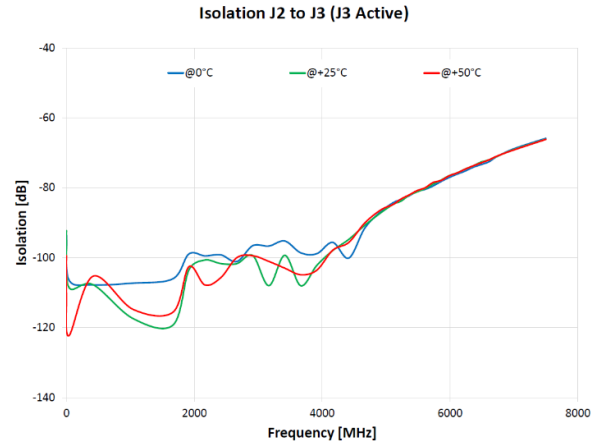
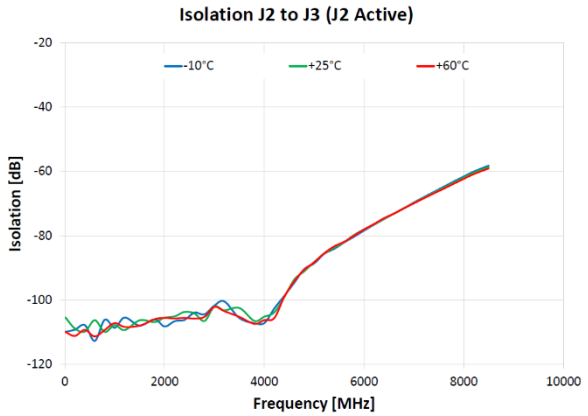
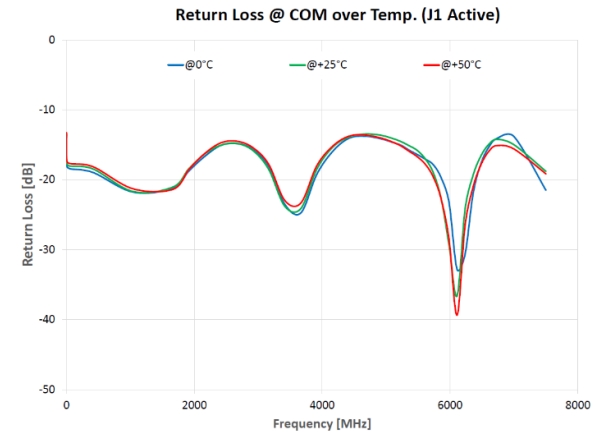
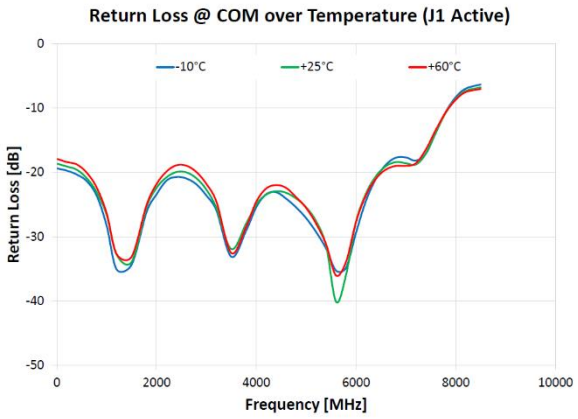
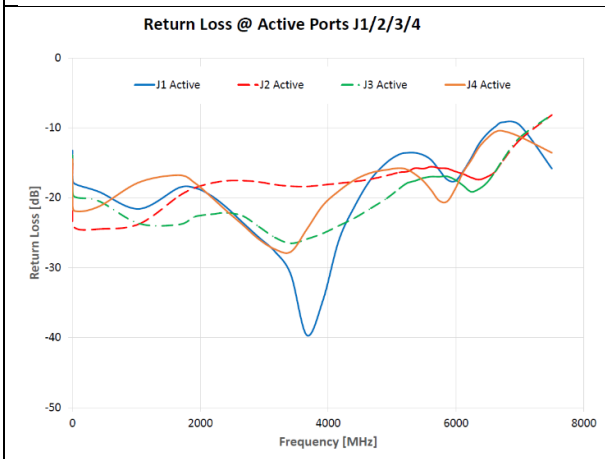
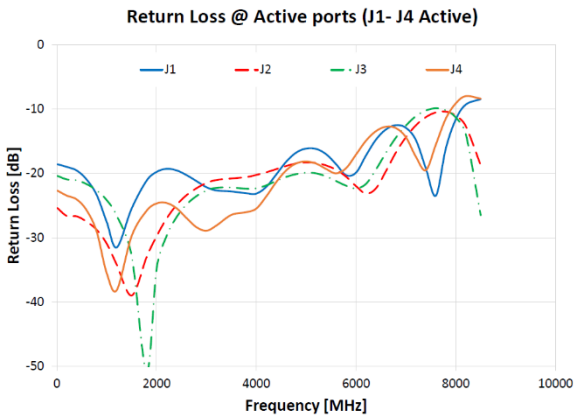
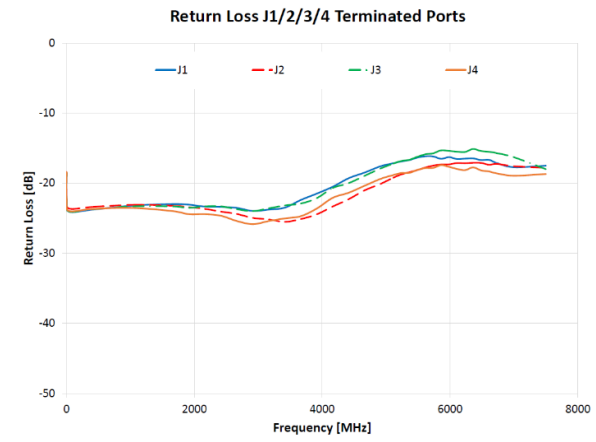
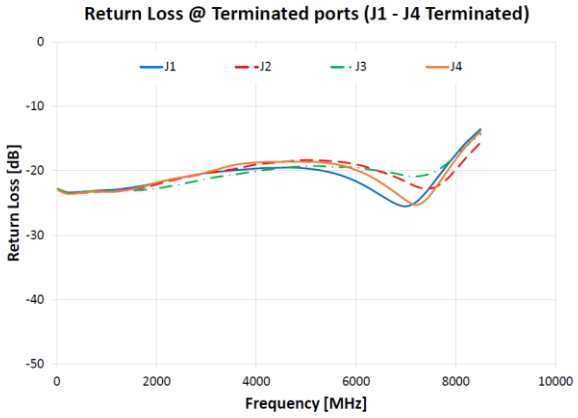
<tr><td> 
</td><td> 
</td></tr>
<tr><td colspan="2">More performance graphs can be found on the Mini Circuits website.</td></tr>
</table>

TYPICAL PERFORMANCE GRAPHS	
Original Part **USB-2SP4T-63H**	**Replacement Part** **USB-2SP4T-852H**
	
	
	
More performance graphs can be found on the Mini Circuits website.	

4 CONCLUSION

USB-2SP4T-852H manages to provide the same performance level as that of USB-2SP4T-63H in the original 10 - 6000 MHz frequency range all while performing within an expanded operating temperature range.

Additionally, users will find the USB-2SP4T-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-2SP4T-852H an excellent replacement for the USB-2SP4T-63H – keeping the existing performance level for users' past and current applications while also providing support for users' future applications.