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:

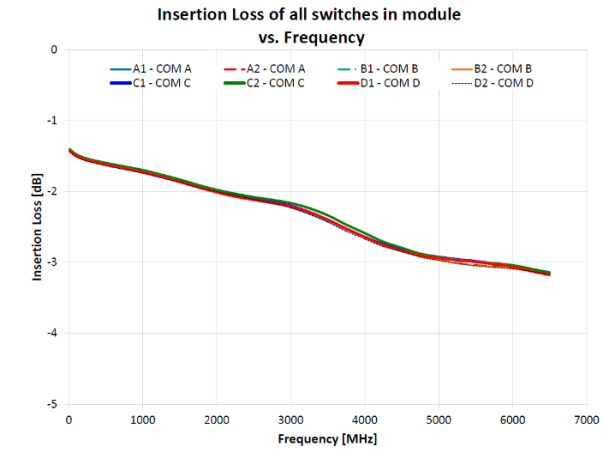
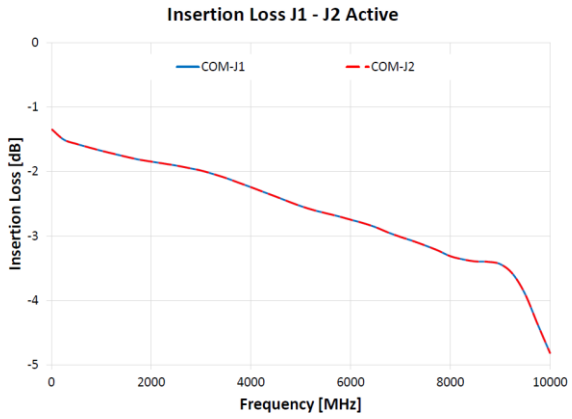
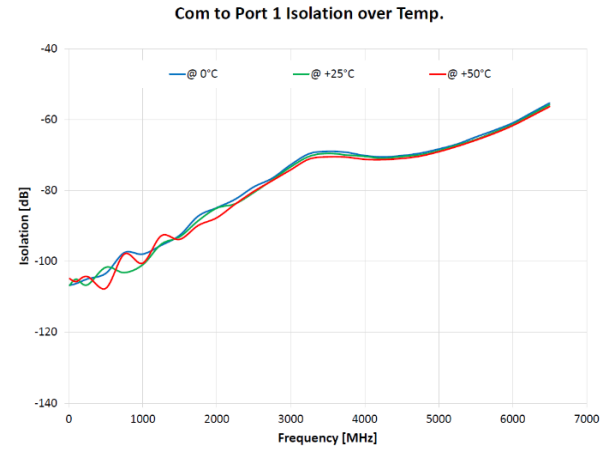
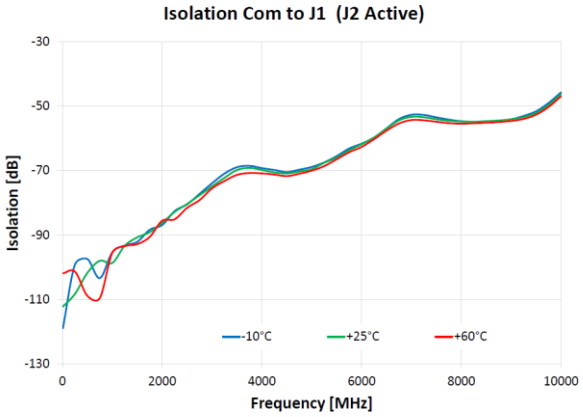
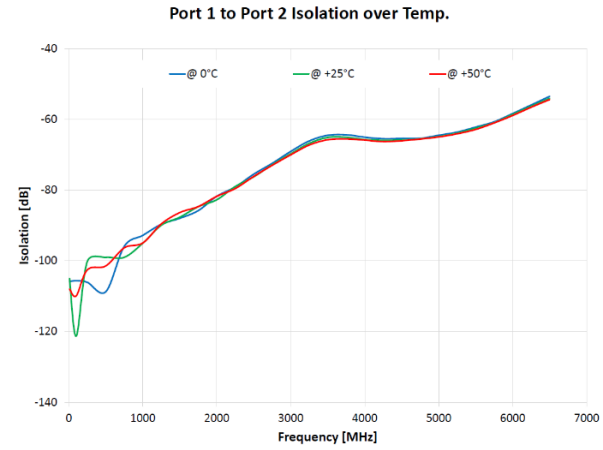
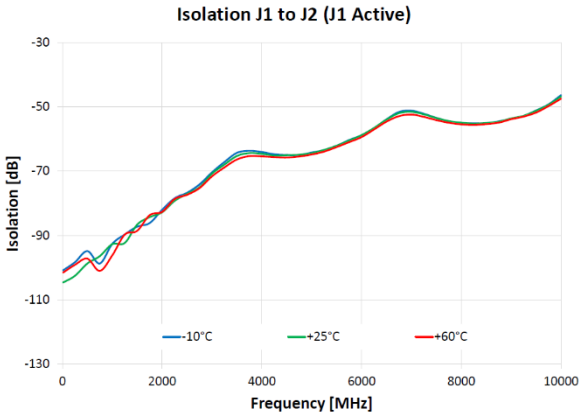
SUMMARY ELECTRICAL PERFORMANCE CHARACTERISTICS			
Parameters	**Conditions (MHz)**	**USB-4SP2T-63H (Original part)**	**USB-4SP2T-852H (Replacement part)**
Frequency	–	10 - 6000	10 - 8500
Insertion Loss	6000 - 7200 7200 - 8000 8000 - 8500	– – –	3.0 dB Typ, 4.5 dB Max 3.4 dB Typ, 4.8 dB Max 3.6 dB Typ, 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 6000 - 8500	100 dB Typ, 63 dB Min –	100 dB Typ, 65 dB Min 100 dB Typ, 65 dB Min
Return Loss (Com port, active)	6000 - 7200 7200 - 8000 8000 - 8500	– – –	18.0 dB Typ 15.0 dB Typ 12.5 dB Typ
Return Loss (any port to Com)	6000 - 7200 7200 - 8000 8000 - 8500	– – –	18.0 dB Typ 15.0 dB Typ 12.5 dB Typ
Return Loss (any terminated port)	6000 - 7200 7200 - 8000 8000 - 8500	– – –	18.0 dB Typ 17.0 dB Typ 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:

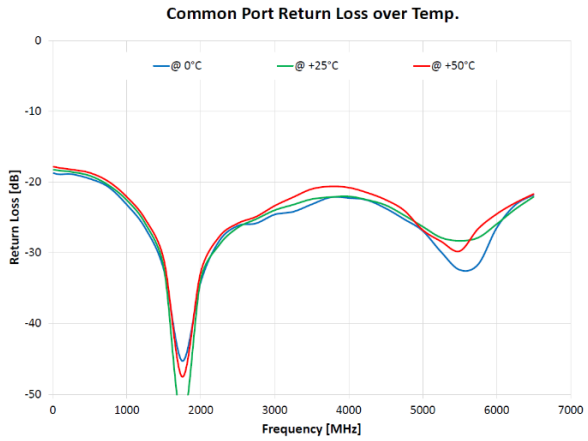
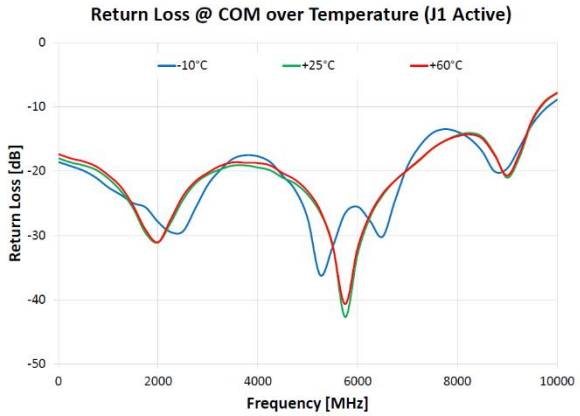
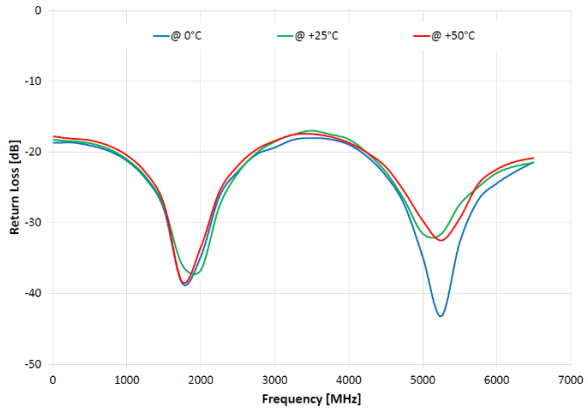
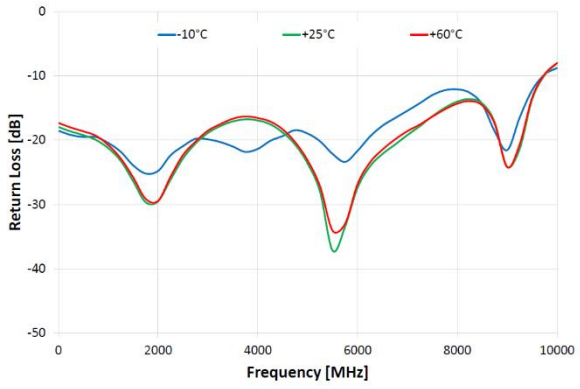
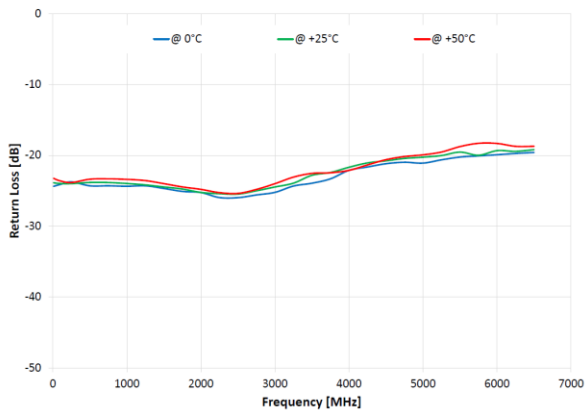
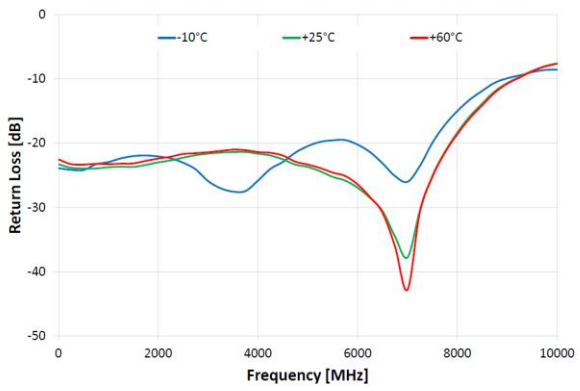
- Electrical specification has been extended for the 6000 - 8500 MHz frequency range.
- Improvement in isolation (crosstalk) between switches.
- Improvement in operating RF input power.
- Improvement in operating and storage temperatures.

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

TYPICAL PERFORMANCE GRAPHS

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

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.