



OTHER section

RF Microwave products

See Page Others - 2

Space qualified products

See Page Others - 3

Switch applications

See Page Others 4 and 5



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Technical data sheets are available on : www.radiall.com

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GENERAL INFORMATION

Specialized in passive RF& Microwave components, RADIALL engineering staff develops and manufactures a wide range of others coaxial standard devices including terminations, attenuators, couplers, coaxial detectors, lightning protectors, rotary joints, covering a wide frequency spectrum from DC to 40 GHz for telecom, aeronautic, instrumentation and military application.

For SPACE application, RADIALL offers too a full package of space components according with ESA specifications including attenuators, terminations, couplers, connectors, coaxial cable assemblies (with SHF or semi-rigid cables) for L, S, C, X, Ku and Ka band application.

RF MICROWAVE PRODUCTS

Terminations up to 40 GHz



(R404 & R405) 50 & 75 Ω / 1W to 120W. Connectorized in SMA, QMA, SMB, SMC, BMA, BNC, N, TNC, QN, 7/16 etc. Version

Also available: **cable load.....**



Couplers up to 18 GHz



(R432 & R433) 50 Ω . Connectorized, hybrid (3 dB) and directional (6, 10, 20, 30 dB)

Attenuators up to 40 GHz



(R410 & R420) 50 Ω & 75 Ω / 1W to 100W. Connectorized in SMA, QMA, SMB, SMC, BNC, N; TNC, QN, 7/16.

Lightning protectors



(R445 & R446) 50 Ω . Quarter wave stub and gas discharge technologies. Available in N, 7/16, TNC, QN, etc. Style

Rotary joints



(R447) 50 Ω Available in SMA and N style up to 18 GHz

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Phase Shifters up to 18 GHz



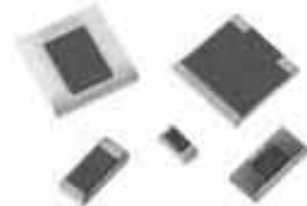
(R499) 50 Ω . Available in SMA style, 0 to 180° phase shift

DC Blocks up to 40 GHz



(R443) 50 Ω . Available in SMA, BNC, TNC, N and QMA style

SMT Couplers & Terminations



(R431) 50 Ω . Available in standard and mini size, hybrid (3 dB) and directional (6 or 10 dB)
(R401) 50 ohms/ 2W to 120W/ ALN or Al2O3 chip

SPACE QUALIFIED PRODUCTS

- Coaxial connectors DC to 40 GHz
- Low losses cables assemblies DC to 40 GHz
- Coaxial terminations DC to 40 GHz
- Coaxial attenuators DC to 40 GHz
- Coaxial couplers up to 31 GHz
- Coaxial switches DC to 31 GHz
- Coaxial phase shifters DC to 18 GHz



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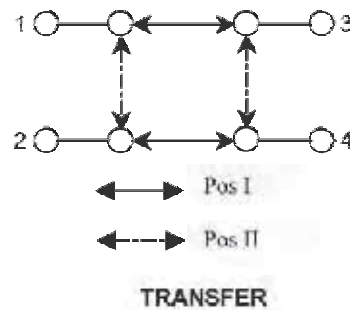
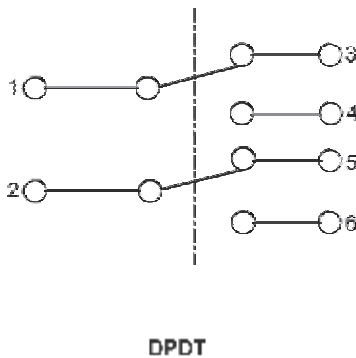


SWITCHES APPLICATIONS

Coaxial Transfer switches or DPDT .

A DPDT is Double Pole Double Throw switch that provides two independent pairs of RF paths through it. These pairs are actuated simultaneously .The transfer switch is basically a modified DPDT device. A true DPDT switch is a six port device that contains completely independent transmission paths.

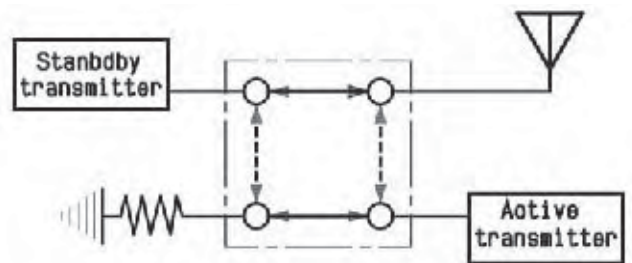
In a transfer switch, two transmission paths are not totallity independent as shown below .



Examples of applications of the transfer switch :

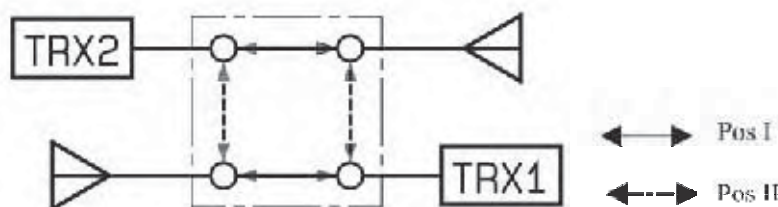
R577 Ramses or R593 Platinum series can be selected for this application

Redundancy of two transmitters :



Active transmitter is connected to antenna. In a same time, for redundancy / maintenance purpose, a second transmitter is terminated to a medium power termination, in hot standby position, ready for switching to antenna in case of failure of active transmitter

Two transmitters to two antennas :



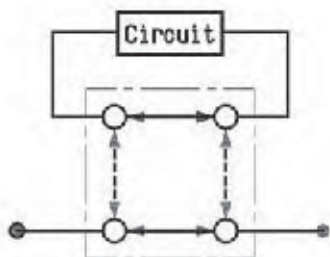
For a better diversity of signal, 2 antennas are alternately connected to either two transmitters

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Coaxial Transfert as a Bypass switch use for circuit insertion :

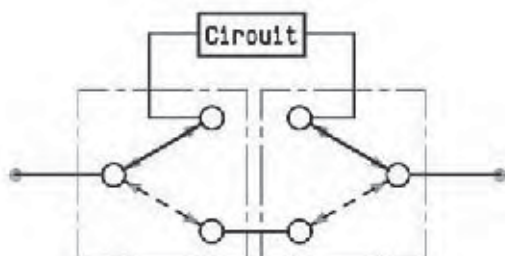


A full RF or microwave passive circuit or circuit element as a filter can be inserted into a coaxial transmission line by using a transfer switch. This element is shorted by a blade of transfer in through way position.

Other RF arrangements for a Bypass function :

Two SPDT switches configured to operate as a Bypass switch

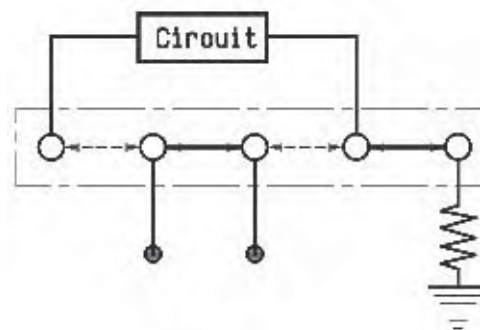
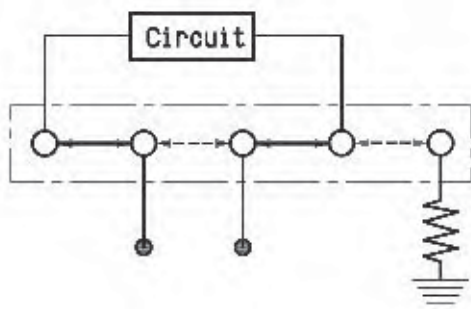
R570 Ramses, R596 (Surface Mount Technology) or R595 Platinum series can be perfectly used to achieve a Bypass function :



The basic product called SPDT (Single Pole Double Throw) can be used to perform a Bypass switch. The advantages of using 2 SPDT relays instead of a transfer switch are a possible reduction in total package size. In general, use of 2 SPDT allows a higher isolation than a transfer switch.

ADP3T switch configured to operate as a transfer switch

A R585 Ramses or R595 Platinum series can be selected to insert a passive or active component or circuit in a RF or microwave ligne.



An active component as an amplifier can be inserted in a microwave line; this amplifier is connected on a 50 Ω termination (as a booster in Hot standby status) when non inserted in main coaxial ligne.

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NOTES

A global range

To meet your needs



ANTENNAS

RADIALl develops and produces antennas for frequencies from 27 MHz to 6 GHz.

- Technologies used: wire, patch, printed, wire-plate, PIFA
- Numerous types of antennas: single pole, dipole, network, passive or active (with LNA), adaptable and intelligent, outdoor or integrated.



AEP CONNECTORS

AEP, a Radiall US subsidiary, design RF connectors for the demanding requirements of military field radio and avionics systems:

- Coaxial waterproof connectors with a unique system of sealing.
- MIL-PRF-39012 QPL connectors
- SSMB and SSMC superior connectors
- SLB Self Aligning connector system.



FIBER OPTIC CONNECTORS

Wide range of interconnect solutions, including standard connector interfaces for multimode and singlemode fiber (LC, SC, FC, ST...) as well as connectors and terminations (MIL-T-29504, ARINC 801) for harsh environment applications (aeronautic, military, naval, medical, railway...). Great flexibility for custom design.



HARNESSES

The combination of design and manufacturing of RF and microwave cables as well as multipin connectors (EPX, ARINC 404 and 600) allows Radiall to be a specialist of harnesses for on-board (aeronautic, navy...) or land (railways, removed antenna...) equipment or communications systems. All types of contacts can be used and mixed such as signal, power, RF, quadax, fiber optic...



RF & MICROWAVE SWITCHES

Wide range of coaxial switching products for commercial, military and instrumentation applications. Available with a large choice of interfaces (SMA, QMA, N, ...), from DC to 40 GHz.

Main products:

- Standard RAMSES series.
- PLATINUM series with high repeatability (0.03dB) on insertion loss during 10 million actuations.
- Subminiature SPnT up to 26.5 GHz.
- SMT high power micro-SPDT.



MICROWAVE COMPONENTS

Wide range of coaxial terminations and attenuators using standard interfaces (SMA, QMA, N, QN...) from low (1W) to high power (100W) and new cable load solution, chip terminations up to 18 GHz, hybrid or directional SMT couplers up to connectorized couplers, lightning protectors, detectors, rotary joints, phase shifters, DC Blocks...



MULTIPIN CONNECTORS

The range includes rack and panel connectors (Arinc 404 & MIL-C-81659B DSX, Arinc 600 NSX & SW280WS1 BPX, EN3682/MIL-C-83527 MPX JN1123 TCX), modular connector (EPX A & B), compatible with a large variety of contacts: signal, power, RF, data bus, fiber optic, quadax and twinax.

A range of wire to wire and wire to board is also available: B & MCSR duty connectors, M, MM, MB, MBC rectangular miniature series, MMC.



MICROWAVE SUB-SYSTEMS

We design Filters, Duplexers, Splitters and Combiners, Switching matrix, interconnection racks and enclosures, Custom assemblies, ... Our expertise includes Microwave passive systems design, Mechanical integration to customer environment, Thermal management, Cabling, wiring, harnessing, ...



RF & MICROWAVE CABLE ASSEMBLIES

RG, Eco-Friendly, Handformable, Semi-rigid, SHF Ultra-low loss (General Interconnect, Outdoor, Airframe phase matching large choice of interfaces, Lightweight), ...



RF COAXIAL CONNECTORS

The widest range of coaxial connectors in the world from microminiature (UMP) to standard connectors (7/16) covering the frequency range of DC to 65 GHz mixing standardized and custom interfaces (UMP, IMP, MMS, MMT, QMA, QN, MMBX).



AEROSPACE



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DEFENSE



INDUSTRIAL



INSTRUMENTATION



MEDICAL



SPACE



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