

2016



RF Switch IC

Selection Guide

Making your Switch Selection
Fast and Easy

About CEL



CEL (California Eastern Laboratories) is an engineering, sales and marketing company focused on RF Semiconductors, Optical Semiconductors and Wireless Connectivity Solutions.

CEL serves designers, OEMs and contract manufacturers in various RF, Wireless and Optical markets. With over 55 years experience in high frequency design, customer support and fulfillment, CEL is ideally positioned to provide its customers with a stable supply of products to meet their specific needs.

CEL maintains extensive inventories and provides engineering and applications assistance at its technical centers in Santa Clara, CA., Buffalo Grove, IL and Lafayette, CO. The company supports customers through sales offices, sales representatives and distributors in numerous locations.



RF & Microwave



Optical Isolation



Lasers & Detectors



Signal Processing
& Interfaces



Wireless Solutions

RF Switch Table

Part Number	Type	Frequency Range [GHz]	Vcontrol [V]	# of Controls	Insertion Loss [dB]	Isolation [dB]	P0.1dB [dBm]	P1dB [dBm]	Control Current [uA]	Switching Speed [ns]	Logic For "ON"	Package Styles	Price Rank
NEW CG2179M2	SPDT	0.05 to 3.0	1.8, 3.0, 5.0	2	0.45 @ 2.5GHz	26 @ 2.5GHz	+30 @ 3.0GHz	—	1	50	Low	M2	①
NEW CG2214M6	SPDT	0.05 to 3.0	1.8, 3.0, 5.0	2	0.35 @ 2.5GHz	25 @ 2.5GHz	+30 @ 3.0GHz	—	1	50	Low	M6	②
NEW CG2185X2	SPDT	2.0 to 6.0	1.8, 3.0, 5.0	2	0.35 @ 2.5GHz 0.40 @ 6.0GHz	28 @ 2.5GHz 26 @ 6.0GHz	+29 @ 2.5GHz +29 @ 6.0GHz	+32 @ 2.5GHz +32 @ 6.0GHz	2	50	Low	X2	③
NEW CG2415M6	SPDT	0.5 to 6.0	1.8, 3.0, 5.3	2	0.35 @ 2.5GHz 0.45 @ 6.0GHz	32 @ 2.5GHz 26 @ 6.0GHz	+31 @ 2.5GHz +31 @ 6.0GHz	+35 @ 2.5GHz +35 @ 6.0GHz	5	100	High	M6	④
UPG2408TB	SPDT	0.05 to 3.0	2.5, 3.0, 5.3	2	0.50 @ 2.5GHz	18 @ 2.5GHz	+29 @ 2.5GHz	—	0.3	50	Low	TB	⑤
UPG2214TB	SPDT	0.05 to 3.0	1.8, 3.0, 5.3	2	0.35 @ 2.5GHz	26 @ 2.5GHz	+23 @ 2.5GHz	+27 @ 2.5GHz	4	20	Low	TB	⑥
UPD5713TK	SPDT	0.05 to 2.5	1.8, 2.8, 3.6	1	0.95 @ 2.5GHz	22.5 @ 2.5GHz	+17 @ 1.0GHz	+21 @ 1.0GHz	0.01	30		TK	⑦
UPG2406TK	SPDT	0.01 to 3.0	1.8, 2.7, 5.3	2	0.47 @ 2.5GHz	17 @ 2.5GHz	+29 @ 2.5GHz	+30.5 @ 2.5GHz	0.2	50	High	TK	⑦
UPG2214TK	SPDT	0.05 to 3.0	1.8, 3.0, 5.3	2	0.35 @ 2.5GHz	26 @ 2.5GHz	+23 @ 2.5GHz	+27 @ 2.5GHz	4	20	Low	TK	⑧
NEW CG2163X3	SPDT	2.4 to 2.5 4.9 to 6.0	1.8, 3.0, 5.0	2	0.40 @ 2.5GHz 0.50 @ 6.0GHz	40 @ 2.5GHz 31 @ 6.0GHz	—	+33 @ 2.5GHz +32 @ 6.0GHz	2	80	High	X3	⑨
UPG2408TK	SPDT	0.05 to 3.0	2.5, 3.0, 5.3	2	0.50 @ 2.5GHz	18 @ 2.5GHz	+29 @ 2.5GHz	—	0.3	50	Low	TK	⑨
UPG2422TK	SPDT	0.05 to 6.0	1.8, 3.0, 5.3	2	0.35 @ 2.5GHz 0.55 @ 6.0GHz	28 @ 2.5GHz 24 @ 6.0GHz	+28 @ 2.5GHz +28 @ 6.0GHz	+31 @ 2.5GHz +31 @ 6.0GHz	0.1	40	High	TK	⑨
UPG2163T5N	SPDT	0.5 to 8.0	2.8, 3.0, 5.0	2	0.40 @ 2.5GHz 0.50 @ 6.0GHz 0.90 @ 8.0GHz	38 @ 2.5GHz 30 @ 6.0GHz 23 @ 8.0GHz	—	+31 @ 2.5GHz +29 @ 6.0GHz	0.1	50	Low	T5N	⑩
UPG2164T5N	DPDT	2.4 to 2.5 4.9 to 6.0	2.8, 3.0, 5.0	2	0.50 @ 2.5GHz 0.70 @ 6.0GHz	25 @ 2.5GHz 17 @ 6.0GHz	—	+31 @ 2.5GHz +29 @ 6.0GHz	0.1	50	High	T5N	⑩
UPG2030TK	SPDT	0.5 to 3.0	2.7, 2.8, 5.4	2	0.35 @ 2.5GHz	24 @ 2.5GHz	+27 @ 2.5GHz	—	4	50	Low	TK	⑪
UPG2406TB	SPDT	0.01 to 3.0	1.8, 2.7, 5.3	2	0.47 @ 2.5GHz	17 @ 2.5GHz	+29 @ 2.5GHz	+30.5 @ 2.5GHz	0.2	50	High	TB	⑫
UPG2415TK	SPDT	0.5 to 6.0	2.7, 3.0, 5.3	2	0.45 @ 2.5GHz 0.65 @ 6.0GHz	28 @ 2.5GHz 26 @ 6.0GHz	+31 @ 2.5GHz +31 @ 6.0GHz	+34 @ 2.5GHz +34 @ 6.0GHz	0.1	50	High	TK	⑫
NEW CG2430X1	SP3T	0.1 to 6.0	1.8, 3.0, 5.0	3	0.50 @ 2.5GHz 0.60 @ 6.0GHz	28 @ 2.5GHz 25 @ 6.0GHz	+28 @ 2.5GHz +28 @ 6.0GHz	+31 @ 2.5GHz +31 @ 6.0GHz	2	80	High	X1	⑬
UPD5738T6N	DPDT	0.01 to 2.5	1.5, 2.8, 3.6	2	1.60 @ 2.5GHz	15 @ 2.5GHz	+15 @ 1.0GHz	+20 @ 1.0GHz	0.01	400	Low	T6N	⑬
NEW CG2176X3	Absorptive SPDT	2.3 to 2.7 3.3 to 3.8 4.9 to 5.85	1.8, 3.0, 5.0	2	0.45 @ 2.5GHz 0.55 @ 5.8GHz	30 @ 2.5GHz 22 @ 5.8GHz	—	+38 @ 2.5GHz +38 @ 6.0GHz	16	100	High	X3	⑭
UPG2409TB	SPDT	0.5 to 3.8	2.7, 3.0, 5.3	2	0.45 @ 2.5GHz	26 @ 2.5GHz	+33.5 @ 2.5GHz	+35 @ 2.5GHz	0.1	100	High	TB	⑮
UPG2415T6X	SPDT	0.05 to 6.0	2.7, 3.0, 3.3	2	0.45 @ 2.5GHz 0.55 @ 6.0GHz	28 @ 2.5GHz 26 @ 6.0GHz	+31 @ 2.5GHz +31 @ 6.0GHz	+35 @ 2.5GHz +35 @ 6.0GHz	0.1	50	High	T6X	⑯
UPG2409T6X	SPDT	0.05 to 6.0	2.7, 3.0, 3.3	2	0.45 @ 2.5GHz 0.65 @ 6.0GHz	30 @ 2.5GHz 27 @ 6.0GHz	+34 @ 2.5GHz +34 @ 6.0GHz	+36 @ 2.5GHz +36 @ 6.0GHz	0.1	100	High	T6X	⑰
UPG2176T5N	Absorptive SPDT	2.3 to 2.7 3.3 to 3.8 4.9 to 5.85	2.5, 3.0, 5.0	2	0.45 @ 2.5GHz 0.70 @ 6.0GHz	27 @ 2.5GHz 21 @ 6.0GHz	—	+37 @ 2.5GHz +37 @ 5.8GHz	16	100	High	T5N	⑱
UPG2009TB	SPDT	0.5 to 2.5	2.7, 2.8, 3.0	2	0.40 @ 2.5GHz	25 @ 2.5GHz	+34 @ 1.0GHz	—	1	150	High	TB	⑲
UPG2162T5N	DPDT	2.4 to 2.5 4.9 to 6.0	2.8, 3.0, 5.0	2	0.60 @ 2.5GHz 0.85 @ 6.0GHz	30 @ 2.5GHz 27 @ 6.0GHz	—	+31 @ 2.5GHz +29 @ 6.0GHz	0.1	150	High	T5N	⑳
UPG2155TB	SPDT	0.5 to 2.5	2.4, 2.6, 5.0	2	0.45 @ 2.5GHz	17 @ 2.5GHz	+37.5 @ 1.8GHz	—	0.5	1000	High	TB	㉑

Focus Features

Package Styles and Dimensions

M2, TB Package

1.25 x 2.0 x 0.9

Top

M6, TK Package

1.1 x 1.5 x 0.55

Top

X3, T5N Package

1.5 x 1.5 x 0.37

Top

Bottom

T6N, T6X Package

1.5 x 1.5 x 0.37

Top

Bottom

X1 Package

1.5 x 1.5 x 0.37

Top

Bottom

X2 Package

1.0 x 1.0 x 0.37

Top

Bottom

Switch Application Examples

WLAN/ Wi-Fi

Bluetooth

MobileComm

ZigBee/ 802.15.4

AMR/AMI

General Purpose/
Short Range Wireless

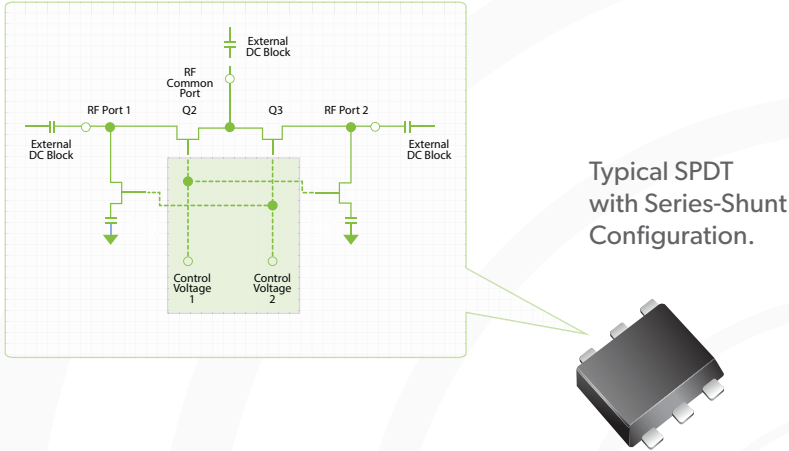
RF Switch Basics

RF Switch Description

An RF switch is a microwave device that routes high frequency signals through transmission paths. CEL Switches are used for diverse applications such as WLAN, Mobile Communications, Wireless Security, Wireless Home Automation, Digital TV and many other RF applications.

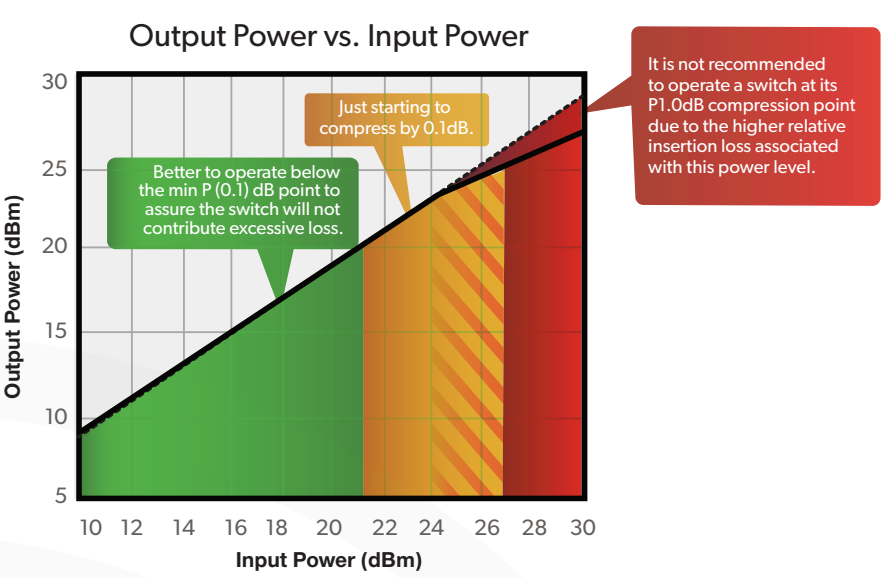
CEL offers a broad selection of RF Switches with many configurations, package styles and performance attributes.

Inside an RF Switch IC

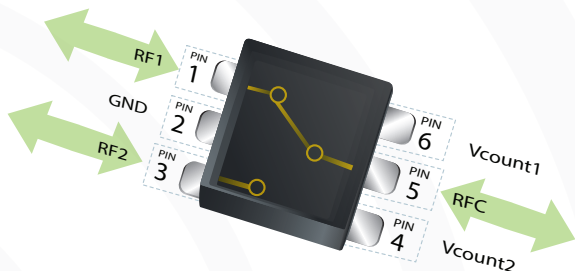


Typical SPDT with Series-Shunt Configuration.

Power Considerations for your RF Switches



Bidirectional RF Switch Operation



**HIGH QUALITY AND
RELIABILITY SINCE 1959**



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