

Product Selection Guide

产品选型手册

# 射频同轴机械开关

苏州莱尔微波技术有限公司

Suzhou Lair Microwave Technology Inc.

# 简介

## 苏州莱尔微波技术有限公司

— 射频、微波、毫米波解决方案专业厂家

苏州莱尔微波技术有限公司位于美丽的苏州工业园区，是一家专业研发、制造、销售射频微波产品及微波毫米波系统集成设备的国家级高新技术企业，由射频微波领域资深专家教授共同组建。

公司产品频率覆盖DC-110GHz，主要包括高性能射频电缆、射频连接器、射频微波电缆组件、微波毫米波器件及组件、矩阵开关、微波天线、光互联产品等，广泛应用于军工、航空航天、移动网络、宽带通信及大数据、物联网、量子通信等前沿科技领域。

多年来，我们持续践行“品质就是尊严”的质量方针。为满足军工市场对产品质量和产品可靠性、一致性的严格要求，莱尔微波所有产品的生产测试环节均采用世界先进的生产测试设备，包括数台瑞士进口自动剥线机、数控弯线机、精密焊接机、金丝键合机、67GHz矢量网络分析仪、三阶互调仪、频谱分析仪、信号源、噪

声测试仪等国际先进的生产测试设备。公司通过ISO9001-2015及GJB9001C-2017武器装备质量管理体系认证，所有产品均依标准进行严格测试，射频性能指标处于国内领先水平。卓越的产品和服务，赢得客户广泛肯定。

莱尔微波始终坚持“科技领先”发展战略。公司设有专家领导下的产品战略委员会，着眼于通信行业发展趋势和前景，构建具有未来竞争力的特色产品矩阵，研发投入占比连年大幅提升，拥有数十项产品专利，并获得国家级高新技术企业称号。强大的技术团队，优秀的工艺控制水平以及对品质和服务的极致追求，奠定了莱尔微波国内行业领先地位。

致力于成为中国射频微波行业领导品牌，莱尔微波Lair Microwave期待与您携手，共创未来。



# ▽ 资质 ▽

莱尔出品，必是精品!



# ▽ 专利 ▽



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## 射频微波器件 -- 机械开关

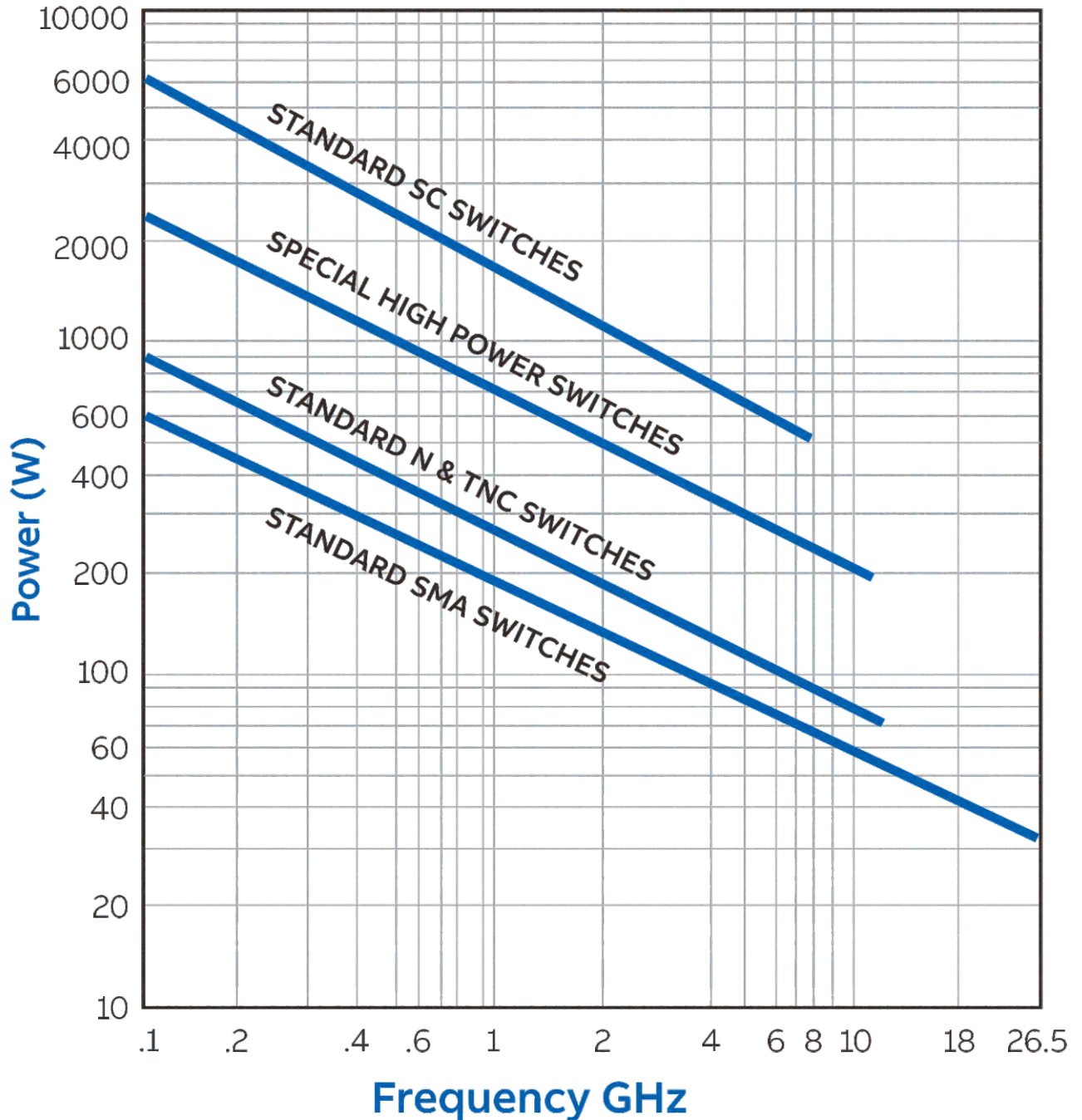
射频同轴开关RF Coaxial Switch（也称微波开关），是一种通过传输路径路由高频信号的设备。射频微波开关广泛用于微波测试系统中，用于被测仪器和设备之间进行信号路由。将开关整合到开关矩阵系统中，使您能够将信号从多台仪器路由到单个或多个DUT。通过射频开关的多端口连接，从而允许使用相同系统设置执行多路测试，而无需频繁断开连接。



莱尔微波自主研发生产射频同轴开关，频率DC-40GHz。

接口类型有SMA,N,2.92mm,2.4mm,BNC,TNC,7/16等，广泛用于ATE自动测试、手机测试生产线、WLAN/WIFI/LTE等移动通信设备的测试等。

## Coaxial Switches Power Handling vs. Frequency



VSWR	DERATING FACTOR
1.5:1	0.96
2.0:1	0.88
2.5:1	0.84
3.0:1	0.75

VSWR	DERATING FACTOR
3.5:1	0.70
4.0:1	0.64
4.5:1	0.60
5.0:1	0.56

# 选型对照表

Numbering scheme

Model Number									
LR	<u>X</u> ①	—	<u>X</u> ②	<u>X</u> ③	<u>XX</u> ④	<u>X</u> ⑤	<u>XX</u> ⑥	—	<u>X</u> ⑦
Example: LR1-S18F12-T (SPDT,SMA,DC-18GHz,12V,Failsafe,TTL) All standard switches are ROHS compliant. Contact factory for other options.									
<b>①</b>	<b>性能类别 Product Type</b>								
	1: SPDT		7: SP7T		D: SP13T				
	2: DPDT		8: SP8T		E: SP14T				
	3: SP3T		9: SP9T		F: SP15T				
	4: SP4T		A: SP10T		G: SP16T				
	5: SP5T		B: SP11T		H: SP17T				
	6: SP6T		C: SP12T		I: SP18T				
<b>②</b>	<b>特殊选项 Special Options</b>								
	Blank: Standard		E: Extended temperature		T: With termination				
	P: High power		H: High performance						
<b>③</b>	<b>连接器类型 Connector Type</b>								
	V: 1.85mm female		L: 2.4mm female		K: 2.92mm female				
	S: SMA female		N: N female		C: SC female				
<b>④</b>	<b>频率范围 Frequency Range</b>								
	01: DC-1GHz		03: DC-3GHz		06: DC-6GHz				
	12: DC-12.4GHz		18: DC-18GHz		26: DC-26.5GHz				
	40: DC-40GHz		50: DC-50GHz		67: DC-67GHz				
<b>⑤</b>	<b>工作模式 Relay Function</b>								
	N: Normally Open		F: Failsafe		L: Latching				
<b>⑥</b>	<b>额定电压 Rated Coil Voltage</b>								
	12: 12Vdc		18: 18Vdc		24: 24Vdc				28: 28Vdc
<b>⑦</b>	<b>其他选项 Other information</b>								
	Blank: No special options		T: TTL		L: Low PIM				
	M: Moisture seal		D: "D"connector		N: Narrow Body (SPDT Only)				
	K: Indicators		S: Self cutoff (for latching only)		P: Positive Common				

## 射频同轴机械开关技术指标一览表

Series(Commercial/Elite)		LR1	LR1T	LR1P	LR2
Configuration		SPDT	SPDT	SPDT	DPDT
Contact Material		Plated Au	Plated Au	Plated Au	Plated Au
Switching Sequence		Break before Make	Break before Make	Break before Make	Break before Make
Switching Time (max)		15 msec	15 msec	15 msec	15 msec
Impedance		50 Ω	50 Ω	50 Ω	50 Ω
Temperature Range	Standard ("E"option)	-25°C to +65°C	-25°C to +65°C	-55°C to +85°C	-25°C to +65°C
		-55°C to +85°C	-55°C to +85°C	—	-55°C to +85°C
Relative Humidity		5 to 85%	5 to 85%	5 to 85%	5 to 85%
Operation Life	Standard ("H"option)	1000000 cycles	1000000 cycles	1000000 cycles	1000000 cycles
		5000000 cycles	5000000 cycles	—	—
Vibration (operating)		10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz
Mechanical Shock (nonoperating)		50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec
Frequency		DC-40GHz	DC-40GHz	DC-12.4GHz	DC-26.5GHz
Typical RF Performance (Standard)	VSWR (max)	DC-6 GHz:1.20	DC-6 GHz:1.20	DC-2 GHz:1.15	DC-6 GHz:1.20
		6-12 GHz:1.25	6-12 GHz:1.25	2-4 GHz:1.20	6-12 GHz:1.25
		12-18 GHz:1.40	12-18 GHz:1.40	4-12.4:1.50	12-18 GHz:1.40
		18-26.5 GHz:1.70	18-26.5 GHz:1.70	—	18-26.5 GHz:1.70
		26.5-32 GHz:1.90	26.5-32 GHz:1.90	—	—
		32-40 GHz:2.00	32-40 GHz:2.00	—	—
	Insertion Loss (max)	DC-6 GHz:0.20dB	DC-6 GHz:0.20dB	DC-2 GHz:0.02dB	DC-6 GHz:0.20dB
		6-12 GHz:0.25dB	6-12 GHz:0.25dB	2-4 GHz:0.25dB	6-12 GHz:0.25dB
		12-18 GHz:0.40dB	12-18 GHz:0.40dB	4-12.4:0.50dB	12-18 GHz:0.40dB
		18-26.5 GHz:0.70dB	18-26.5 GHz:0.70dB	—	18-26.5 GHz:0.70dB
		26.5-32 GHz:0.80dB	26.5-32 GHz:0.80dB	—	—
		32-40 GHz:1.00dB	32-40 GHz:1.00dB	—	—
	Isolation (max)	DC-6 GHz:70dB	DC-6 GHz:70dB	DC-2 GHz:80dB	DC-6 GHz:70dB
		6-12 GHz:70dB	6-12 GHz:70dB	2-4 GHz:80dB	6-12 GHz:70dB
		12-18 GHz:60dB	12-18 GHz:60dB	4-12.4:60dB	12-18 GHz:60dB
		18-26.5 GHz:55dB	18-26.5 GHz:55dB	—	18-26.5 GHz:55dB
		26.5-32 GHz:50dB	26.5-32 GHz:50dB	—	—
		32-40 GHz:50dB	32-40 GHz:50dB	—	—
Options	Self Cutoff (Latching Only)	√	√	√	—
	Indicator Contacts	√	√	√	√
	Self Cutoff and Indicator Contacts (Latching Only)	√	√	√	—
	TTL Interface	√	√	√	√
	TTL Decoder	—	—	—	—
	Moisture Seal	√	√	√	√
	Narrow Body	—	—	—	—
	Sub-D Connector	√	√	√	√



## 射频同轴机械开关技术指标一览表

Series(Commercial/Elite)		LR4	LR4T	LR6
Configuration		SP4T	SP4T	SP6T
Contact Material		Plated Au	Plated Au	Plated Au
Switching Sequence		Break before Make	Break before Make	Break before Make
Switching Time (max)		15 msec	15 msec	15 msec
Impedance		50 Ω	50 Ω	50 Ω
Temperature Range	Standard ("E"option)	-25°C to +65°C	-25°C to +65°C	-25°C to +65°C
		-55°C to +85°C	-55°C to +85°C	-55°C to +85°C
Relative Humidity		5 to 85%	5 to 85%	5 to 85%
Operation Life	Standard ("H"option)	1000000 cycles	1000000 cycles	1000000 cycles
Vibration (operating)		10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz
Mechanical Shock (nonoperating)		50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec
Frequency		DC-40GHz	DC-18GHz	DC-40GHz
Typical RF Performance (Standard)	VSWR (max)	DC-6 GHz:1.30	DC-6 GHz:1.30	DC-6 GHz:1.30
		6-12 GHz:1.40	6-12 GHz:1.40	6-12 GHz:1.40
		12-18 GHz:1.50	12-18 GHz:1.50	12-18 GHz:1.50
		18-26.5 GHz:1.70	—	18-26.5 GHz:1.70
		26.5-32 GHz:1.90	—	26.5-32 GHz:1.90
		32-40 GHz:2.00	—	32-40 GHz:2.00
	Insertion Loss (max)	DC-6 GHz:0.30dB	DC-6 GHz:0.30dB	DC-6 GHz:0.30dB
		6-12 GHz:0.40dB	6-12 GHz:0.40dB	6-12 GHz:0.40dB
		12-18 GHz:0.50dB	12-18 GHz:0.50dB	12-18 GHz:0.50dB
		18-26.5 GHz:0.70dB	—	18-26.5 GHz:0.70dB
		26.5-32 GHz:0.80dB	—	26.5-32 GHz:0.80dB
		32-40 GHz:1.00dB	—	32-40 GHz:1.00dB
	Isolation (max)	DC-6 GHz:70dB	DC-6 GHz:70dB	DC-6 GHz:70dB
		6-12 GHz:60dB	6-12 GHz:60dB	6-12 GHz:60dB
		12-18 GHz:60dB	12-18 GHz:60dB	12-18 GHz:60dB
		18-26.5 GHz:55dB	—	18-26.5 GHz:55dB
		26.5-32 GHz:50dB	—	26.5-32 GHz:50dB
		32-40 GHz:50dB	—	32-40 GHz:50dB
Options	Self Cutoff (Latching Only)	—	—	—
	Indicator Contacts	√	√	√
	Self Cutoff and Indicator Contacts (Latching Only)	—	—	—
	TTL Interface	√	√	√
	TTL Decoder	—	—	—
	Moisture Seal	√	√	√
	Narrow Body	—	—	—
	Sub-D Connector	√	√	√

## 射频同轴机械开关技术指标一览表

Series(Commercial/Elite)		LR6P	LR6T-S18	LR6T-K40
Configuration		SP6T	SP6T	SP6T
Contact Material		Plated Au	Plated Au	Plated Au
Switching Sequence		Break before Make	Break before Make	Break before Make
Switching Time (max)		15 msec	15 msec	15 msec
Impedance		50 Ω	50 Ω	50 Ω
Temperature Range	Standard ("E"option)	-25°C to +65°C	-25°C to +65°C	-25°C to +65°C
		-55°C to +85°C	-55°C to +85°C	——
Relative Humidity		5 to 85%	5 to 85%	5 to 85%
Operation Life	Standard ("H"option)	1000000 cycles	1000000 cycles	1000000 cycles
Vibration (operating)		10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz
Mechanical Shock (nonoperating)		50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec
Frequency		DC-12.4GHz	DC-18GHz	DC-40GHz
Typical RF Performance (Standard)	VSWR (max)	DC-4 GHz:1.25	DC-6 GHz:1.30	DC-6 GHz:1.30
		4-8 GHz:1.45	6-12 GHz:1.40	6-12 GHz:1.40
		8-12.4 GHz:1.60	12-18 GHz:1.50	12-18 GHz:1.50
		——	——	18-26.5 GHz:1.70
		——	——	26.5-32 GHz:1.90
		——	——	32-40 GHz:2.00
	Insertion Loss (max)	DC-4 GHz:0.30dB	DC-6 GHz:0.30dB	DC-6 GHz:0.30dB
		4-8 GHz:0.40dB	6-12 GHz:0.40dB	6-12 GHz:0.40dB
		8-12.4 GHz:0.60dB	12-18 GHz:0.50dB	12-18 GHz:0.50dB
		——	——	18-26.5 GHz:0.70dB
		——	——	26.5-32 GHz:0.80dB
		——	——	32-40 GHz:1.00dB
	Isolation (max)	DC-4 GHz:70dB	DC-6 GHz:70dB	DC-6 GHz:70dB
		4-8 GHz:60dB	6-12 GHz:60dB	6-12 GHz:70dB
		8-12.4 GHz:55dB	12-18 GHz:60dB	12-18 GHz:60dB
		——	——	18-26.5 GHz:55dB
		——	——	26.5-32 GHz:50dB
		——	——	32-40 GHz:50dB
Self Cutoff (Latching Only)		——	——	——
Indicator Contacts		√	√	√
Self Cutoff and Indicator Contacts (Latching Only)		——	——	——
TTL Interface		√	√	√
TTL Decoder		——	——	——
Moisture Seal		√	√	√
Narrow Body		——	——	——
Sub-D Connector		√	√	√
Options	Self Cutoff (Latching Only)		——	——
	Indicator Contacts		√	√
	Self Cutoff and Indicator Contacts (Latching Only)		——	——
	TTL Interface		√	√
	TTL Decoder		——	——
	Moisture Seal		√	√
	Narrow Body		——	——
	Sub-D Connector		√	√

## 射频同轴机械开关技术指标一览表

Series(Commercial/Elite)		LR8	LR8T	LRA	
Configuration		SP8T	SP8T	SP10T	
Contact Material		Plated Au	Plated Au	Plated Au	
Switching Sequence		Break before Make	Break before Make	Break before Make	
Switching Time (max)		15 msec	15 msec	15 msec	
Impedance		50 Ω	50 Ω	50 Ω	
Temperature Range	Standard ("E"option)	-25°C to +65°C	-25°C to +65°C	-25°C to +65°C	
		-55°C to +85°C	-55°C to +85°C	-55°C to +85°C	
Relative Humidity		5 to 85%	5 to 85%	5 to 85%	
Operation Life	Standard ("H"option)	1000000 cycles	1000000 cycles	1000000 cycles	
Vibration (operating)		10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz	
Mechanical Shock (nonoperating)		50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec	
Frequency		DC-18GHz	DC-18GHz	DC-18GHz	
Typical RF Performance (Standard)	VSWR (max)	DC-4 GHz:1.20	DC-6 GHz:1.30	DC-4 GHz:1.20	
		4-8 GHz:1.30	6-12 GHz:1.40	4-8 GHz:1.30	
		8-12.4 GHz:1.40	12-18 GHz:1.50	8-12.4 GHz:1.40	
		12.4-18 GHz:1.60	—	12.4-18 GHz:1.60	
	Insertion Loss (max)	DC-4 GHz:0.2dB	DC-6 GHz:0.20dB	DC-4 GHz:0.20dB	
		4-8 GHz:0.3dB	6-12 GHz:0.30dB	4-8 GHz:0.30dB	
		8-12.4 GHz:0.4dB	12-18 GHz:0.40dB	8-12.4 GHz:0.40dB	
		12.4-18 GHz:0.6dB	—	12.4-18 GHz:0.60dB	
	Isolation (max)	DC-4 GHz:75dB	DC-6 GHz:75dB	DC-4 GHz:75dB	
		4-8 GHz:65dB	6-12 GHz:65dB	4-8 GHz:65dB	
		8-12.4 GHz:60dB	12-18 GHz:60dB	8-12.4 GHz:60dB	
		12.4-18 GHz:60dB	—	12.4-18 GHz:55dB	
Self Cutoff (Latching Only)		—	—	—	
Indicator Contacts		√	√	√	
Self Cutoff and Indicator Contacts (Latching Only)		—	—	—	
Options	TTL Interface		√	√	√
	TTL Decoder		—	—	—
	Moisture Seal		√	√	√
	Narrow Body		—	—	—
	Sub-D Connector		√	√	√

## 射频同轴机械开关技术指标一览表

Series(Commercial/Elite)		LRA-K26	LRAT	LRC
Configuration		SP10T	SP10T	SP12T
Contact Material		Plated Au	Plated Au	Plated Au
Switching Sequence		Break before Make	Break before Make	Break before Make
Switching Time (max)		15 msec	15 msec	15 msec
Impedance		50 Ω	50 Ω	50 Ω
Temperature Range	Standard ("E"option)	-25°C to +65°C	-25°C to +65°C	-25°C to +65°C
		-55°C to +85°C	-55°C to +85°C	-55°C to +85°C
Relative Humidity		5 to 85%	5 to 85%	5 to 85%
Operation Life	Standard ("H"option)	1000000 cycles	1000000 cycles	1000000 cycles
Vibration (operating)		10G RMS,20-2000Hz	10G RMS,20-2000Hz	10G RMS,20-2000Hz
Mechanical Shock (nonoperating)		50G,1/2Sine,11msec	50G,1/2Sine,11msec	50G,1/2Sine,11msec
Frequency		DC-26.5GHz	DC-18GHz	DC-16GHz
Typical RF Performance (Standard)	VSWR (max)	DC-3 GHz:1.30	DC-6 GHz:1.30	DC-4 GHz:1.20
		3-10 GHz:1.40	6-12 GHz:1.40	4-8 GHz:1.40
		10-18 GHz:1.60	12-18 GHz:1.60	8-12.4 GHz:1.50
		18-26.5 GHz:1.80	—	—
	Insertion Loss (max)	DC-3 GHz:0.30dB	DC-6 GHz:0.30dB	DC-4 GHz:0.20dB
		3-10 GHz:0.40dB	6-12 GHz:0.40dB	4-8 GHz:0.40dB
		10-18 GHz:0.60dB	12-18 GHz:0.60dB	8-12.4 GHz:0.60dB
		18-26.5 GHz:0.80dB	—	—
	Isolation (max)	DC-3 GHz:85dB	DC-6 GHz:80dB	DC-4 GHz:70dB
		3-10 GHz:80dB	6-12 GHz:70dB	4-8 GHz:65dB
		10-18 GHz:60dB	12-18 GHz:55dB	8-12.4 GHz:60dB
		18-26.5 GHz:55dB	—	—
Self Cutoff (Latching Only)		—	—	—
Indicator Contacts		√	√	√
Self Cutoff and Indicator Contacts (Latching Only)		—	—	—
TTL Interface		√	√	√
TTL Decoder		—	—	—
Moisture Seal		√	√	√
Narrow Body		—	—	—
Sub-D Connector		√	√	√
Options				

# SPDT | 1.85 | DC-67GHz

## LATCHING 机械性能指标

频率	DC-67GHz
阻抗	50Ω
射频连接器类型	1.85
使用寿命 (周期)	2,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	3Pin (控制端)
重量	60g
扩展温度	-45°C to +85°C ("e" option)
驱动类型	Latching

## PINOUT 引脚定义

Pin.No	功能定义	备注
E1	状态1: 负脉冲 (时间大于15ms)	射频通道C-1闭合
E2	状态2: 负脉冲 (时间大于15ms)	射频通道C-2闭合
Vcc	额定电压控制端	输入+24VDC

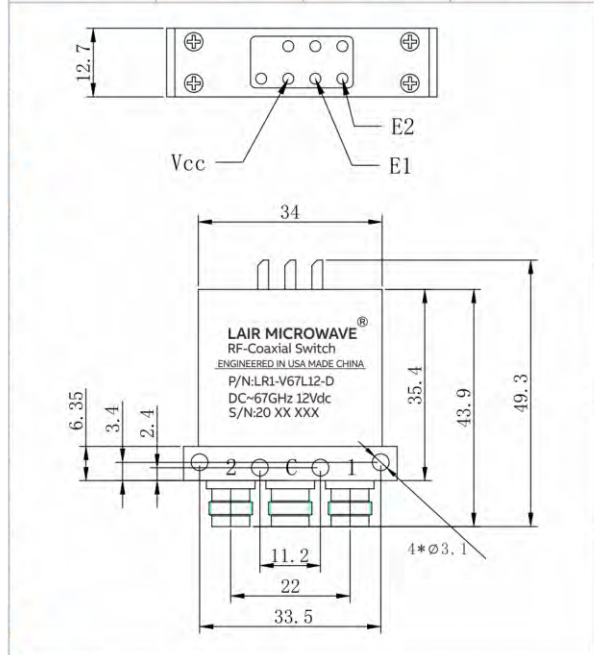
## LATCHING 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-35	—	0.60	—
35-40	—	0.80	—
40-67	—	1.20	—
DC-40	1.30	—	—
40-50	1.60	—	—
50-67	1.80	—	—
DC-20	—	—	70
20-30	—	—	60
30-35	—	—	50
35-67	—	—	45

电压 (V)	+12	+18	+24	+28
电流 (mA)	Latching	—	150	—



高度 (H)	标准型	TTL控制型	带指示型
mm	40	50	60



注: 单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

## LR1系列 单刀双掷机械开关选型

LR	1	X	X	XX	X	XX	X
特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项		
Blank: Standard T: With termination P: High power H: High performance E: Extended temperature	V: 1.85mm female L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)		

# SPDT | SMA/2.92 | DC-40GHz

FAILSAFE / LATCHING 机械性能指标	
频率	DC-40GHz
阻抗	50Ω
射频连接器类型	SMA、2.92
使用寿命 (周期)	1,000,000 (Standard)
	5,000,000 ("h" option)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	接线柱 或 9芯D型头
温度范围	-25°C to +65°C (Standard)
扩展温度	-55°C to +85°C ("e" option)



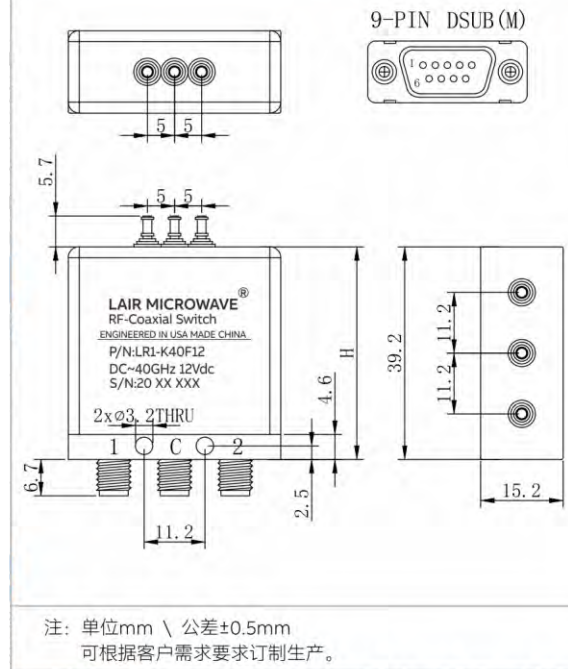
PINOUT 引脚定义				
Pin.No	Failsafe	FailsafeTTL	Latching	LatchingTTL
1	A1/V1(J1-COM)	A1/V1(J1-COM)	A1/V1(J1-COM)	A1/V1(J1-COM)
2	UNUSED	UNUSED	A2/V2(J2-COM)	A2/V2(J2-COM)
3	COM-	COM-	COM-	COM-
4	UNUSED	UNUSED	UNUSED	UNUSED
5	1 (IND.)	1 (IND.)	1 (IND.)	1 (IND.)
6	2 (IND.)	2 (IND.)	2 (IND.)	2 (IND.)
7	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)
8	UNUSED	UNUSED	UNUSED	UNUSED
9	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI

高度 (H)	标准型	TTL控制型	带指示型
mm	40	50	60

FAILSAFE / LATCHING 电气性能指标				
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)	
DC-6	1.20	0.20	70	
6-12	1.25	0.25	70	
12-18	1.40	0.40	60	
18-26.5	1.70	0.70	55	
26.5-32	1.90	0.80	50	
32-40	2.00	1.00	50	

电压 (V)		+12	+18	+24	+28
电流 (mA)	Failsafe	190	136	98	83
	Latching	200	119	90	85



## LR1系列 单刀双掷机械开关选型

LR	1	X	X	XX	X	XX	X
	①	②	③	④	⑤	⑥	⑦
<b>特殊选项</b>	<b>连接器类型</b>	<b>频率范围</b>	<b>机械性能</b>	<b>额定电压</b>	<b>其他选项</b>		
Blank: Standard T: With termination P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)		

# SPDT Terminated | SMA/2.92 | DC-40GHz

## FAILSAFE / LATCHING 机械性能指标

频率	DC-40GHz
阻抗	50Ω
射频连接器类型	SMA、2.92
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	接线柱 或 9芯D型头
温度范围	-25°C to +65°C (Standard)
扩展温度	-55°C to +85°C ("e" option)

## PINOUT 引脚定义

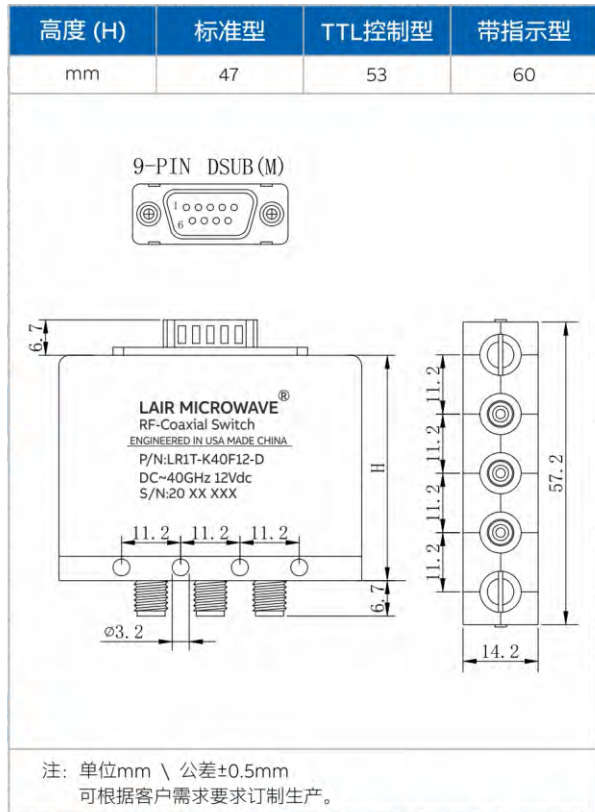
Pin.No	Failsafe	FailsafeTTL	Latching	LatchingTTL
1	A1/V1(J1-COM)	A1/V1(J1-COM)	A1/V1(J1-COM)	A1/V1(J1-COM)
2	UNUSED	UNUSED	A2/V2(J2-COM)	A2/V2(J2-COM)
3	COM-	COM-	COM-	COM-
4	UNUSED	UNUSED	UNUSED	UNUSED
5	1 (IND.)	1 (IND.)	1 (IND.)	1 (IND.)
6	2 (IND.)	2 (IND.)	2 (IND.)	2 (IND.)
7	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)
8	UNUSED	UNUSED	UNUSED	UNUSED
9	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI

## FAILSAFE / LATCHING 电气性能指标

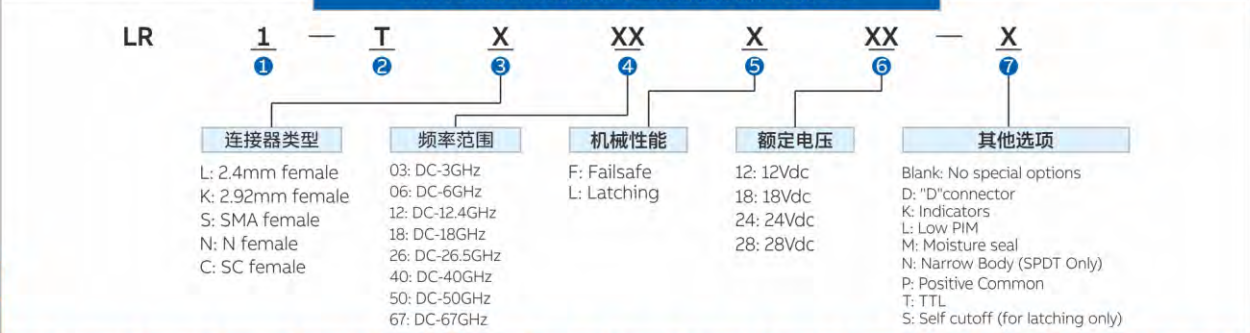
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-6	1.20	0.20	70
6-12	1.25	0.25	70
12-18	1.40	0.40	60
18-26.5	1.70	0.70	55
26.5-32	1.90	0.80	50
32-40	2.00	1.00	50

电压 (V)	+12	+18	+24	+28	
电流 (mA)	Failsafe	380	280	200	170
	Latching	400	240	180	170



## LR1T系列 单刀双掷内置负载机械开关选型



# DPDT | SMA/2.92/1.85 | DC-67GHz

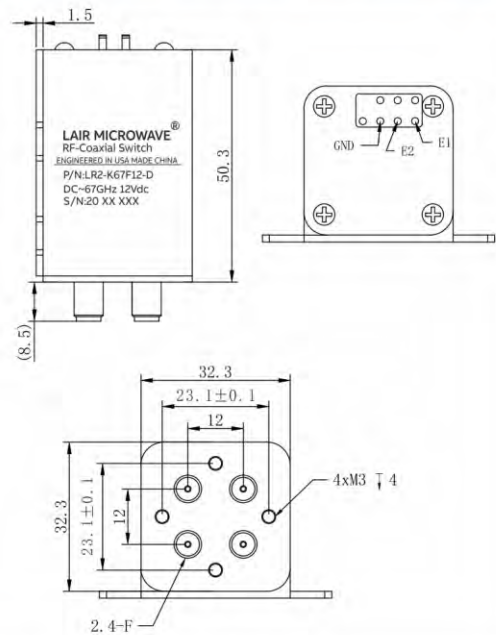
LATCHING 机械性能指标	
频率	DC-67GHz
阻抗	50Ω
射频连接器类型	1.85
使用寿命 (周期)	2,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	6Pin (控制端)
重量	200g
扩展温度	-45°C to +85°C ("e" option)
驱动类型	Latching

PINOUT 引脚定义		
Pin.No	功能定义	备注
+1	状态1: 正脉冲 (时间大于15ms的12V电压)	射频通道1-2闭合 射频通道3-4闭合
+2	状态2: 正脉冲 (时间大于15ms的12V电压)	射频通道1-3闭合 射频通道2-4闭合
-C	额定电压控制端	接地
C	遥测公共端	—
I1	状态1时: I1和Ic接通	—
I2	状态2时: I2和Ic接通	—

LATCHING 电气性能指标					
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)		
DC-35	—	0.60	—		
35-40	—	0.80	—		
40-67	—	1.20	—		
DC-40	1.30	—	—		
40-50	1.60	—	—		
50-67	1.80	—	—		
DC-20	—	—	70		
20-30	—	—	60		
30-35	—	—	50		
35-67	—	—	45		
电压 (V)		+12	+18	+24	+28
电流 (mA)	Latching	320	—	—	—



高度 (H)	标准型	TTL控制型	带指示型
mm	50.3	53	60



注: 单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

## LR2系列 双刀双掷机械开关选型

LR	①	②	③	④	⑤	⑥	⑦
特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项		
Blank: Standard P: High power H: High performance E: Extended temperature	V: 1.85mm female L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)		



# DPDT | 2.4 | DC-50GHz

## LATCHING 机械性能指标

频率	DC-50GHz
阻抗	50Ω
射频连接器类型	2.4
使用寿命 (周期)	2,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	6Pin (控制端)
重量	200g
扩展温度	-55°C to +85°C ("e" option)
驱动类型	Latching

## PINOUT 引脚定义

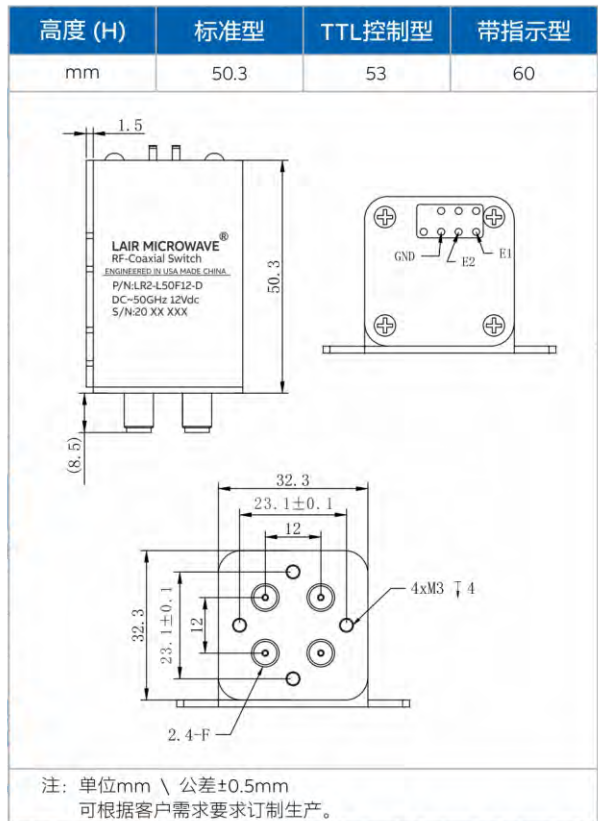
Pin.No	功能定义	备注
E1	状态1: 正脉冲 (时间大于15ms的12v电压)	射频通道1-2闭合 射频通道3-4闭合
E2	状态2: 正脉冲 (时间大于15ms的12v电压)	射频通道1-3闭合 射频通道2-4闭合
END	额定电压控制端	接地
Ic	遥测公共端	——
I1	状态1时: I2和Ic接通	——
I2	状态2时: I2和Ic接通	——

## LATCHING 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-35	1.40	0.60	60
35-40	1.60	0.80	50
40-50	1.80	1.00	45

电压 (V)	+12	+18	+24	+28
电流 (mA)	Latching	320	——	——



## LR2系列 双刀双掷机械开关选型

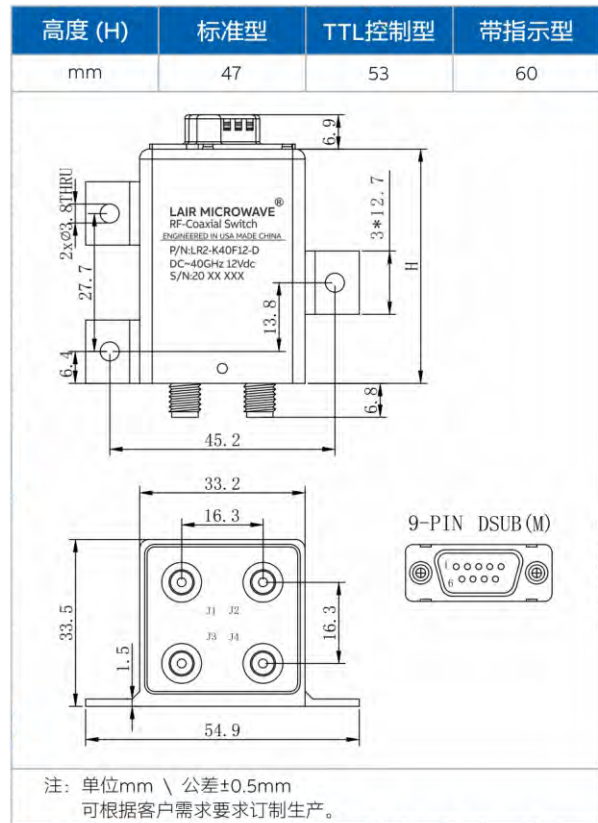
特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# DPDT | SMA/2.92 | DC-40GHz

FAILSAFE / LATCHING 机械性能指标	
频率	DC-40GHz
阻抗	50Ω
射频连接器类型	SMA、2.92
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	接线柱 或 9芯D型头
温度范围	-25°C to +65°C (Standard)
扩展温度	-55°C to +85°C ("e" option)

PINOUT 引脚定义				
9-Pin D-SUB Pinout				
Pin.No	Failsafe	FailsafeTTL	Latching	LatchingTTL
1	A1/V1 (NO.J1-J3,J2-J4)	A1/V1 (NO.J1-J3,J2-J4)	A1/V1 (POS1.J1-J3,J2-J4)	A1/V1 (POS1.J1-J3,J2-J4)
2	UNUSED	UNUSED	A2/V2 (POS2.J1-J2,J3-J4)	A2/V2 (POS2.J1-J2,J3-J4)
3	COM-	COM-	COM-	COM-
4	UNUSED	UNUSED	UNUSED	UNUSED
5	1 (IND.) (NO.J1-J3,J2-J4)	1 (IND.) (NO.J1-J3,J2-J4)	1 (IND.) (POS1.J1-J3,J2-J4)	1 (IND.) (POS1.J1-J3,J2-J4)
6	2 (IND.) (NO.J1-J2,J3-J4)	2 (IND.) (NO.J1-J2,J3-J4)	2 (IND.) (POS2.J1-J2,J3-J4)	2 (IND.) (POS2.J1-J2,J3-J4)
7	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)	COM_I (IND.)
8	UNUSED	UNUSED	UNUSED	UNUSED
9	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI	+VDC/+VDCI

FAILSAFE / LATCHING 电气性能指标					
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)		
DC-6	1.20	0.20	70		
6-12	1.25	0.25	70		
12-18	1.40	0.40	60		
18-26.5	1.70	0.70	55		
26.5-40	2.00	1.30	50		
电压 (V)		+12	+18	+24	+28
电流 (mA)	Failsafe	380	280	200	170
	Latching	400	240	180	170



## LR2系列 单刀双掷机械开关选型



FAILSAFE 机械性能指标

频率	DC-40GHz
阻抗	50Ω
射频连接器类型	2.92
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	6Pin (控制端)
扩展温度	-45°C to +85°C ("e" option)
驱动类型	Failsafe

PINOUT 引脚定义

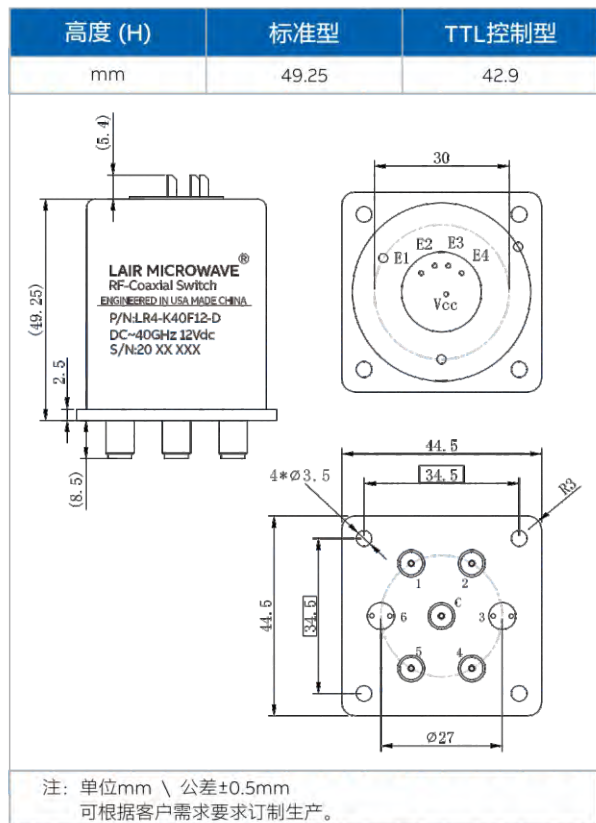
Pin.No	功能定义	备注
E1	状态1(+24脉冲)	射频通道1-C闭合
E2	状态2(+24脉冲)	射频通道2-C闭合
E3	状态3(+24脉冲)	射频通道3-C闭合
E4	状态4(+24脉冲)	射频通道4-C闭合
RTN	控制公共端	接地

FAILSAFE 电气性能指标

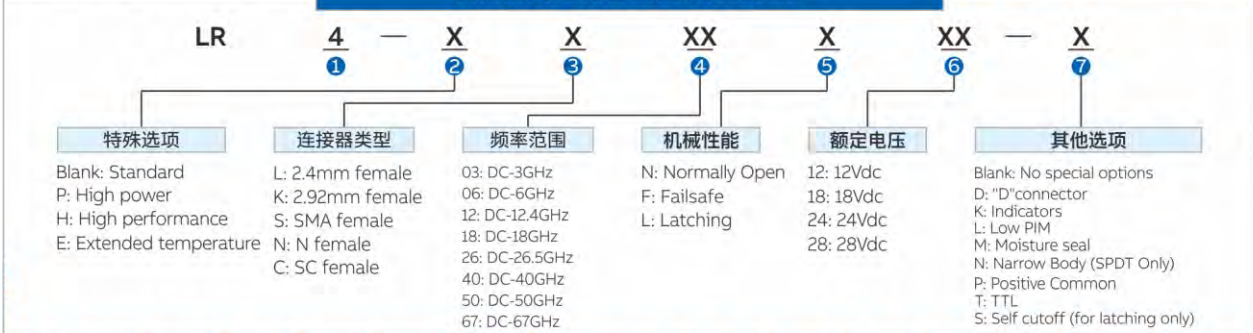
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-18	1.50	0.50	60
18-26.5	1.60	0.70	55
26.5-40	1.80	1.00	50

电压 (V)	+12	+18	+24	+28
电流 (mA)	Failsafe	—	150	—



LR4系列 单刀四掷机械开关选型



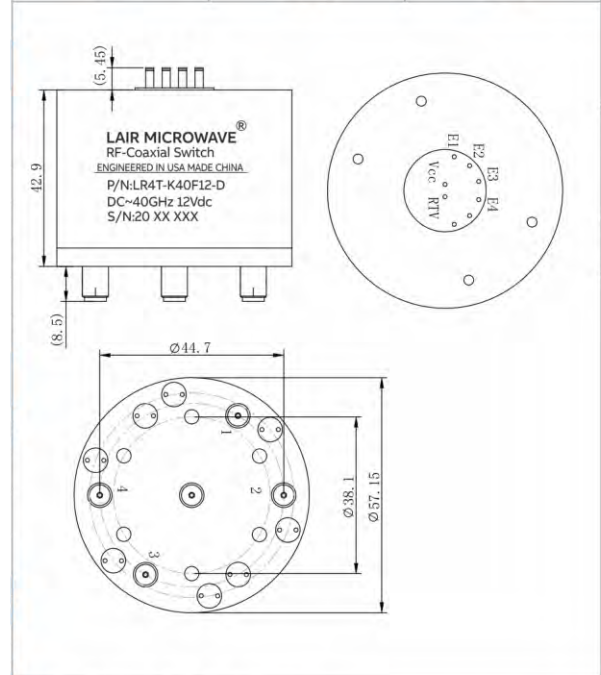
# SP4T Terminated | SMA/2.92 | DC-40GHz

FAILSAFE 机械性能指标	
频率	DC-40GHz
阻抗	50Ω
射频连接器类型	2.92
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
负载	带50Ω负载
指令形式	TTL 高电平保持 (3.8~5.5v)
电源与控制接口连接器	6Pin (控制端)
扩展温度	-45°C to +85°C ("e" option)
驱动类型	Failsafe TTL



PINOUT 引脚定义		
Pin.No	功能定义	备注
Vcc	+24VDC	额定电压控制端
RTN	接地	公共接地端
E1	TTL 高电平保持	射频通道1-C闭合
E2	TTL 高电平保持	射频通道2-C闭合
E3	TTL 高电平保持	射频通道3-C闭合
E4	TTL 高电平保持	射频通道4-C闭合

高度 (H)	标准型	TTL控制型
mm	49.25	42.9



注: 单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

FAILSAFE 电气性能指标			
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-18	1.50	0.50	60
18-26.5	1.60	0.70	55
26.5-40	1.80	1.00	50

电压 (V)	+12	+18	+24	+28
电流 (mA)	Fail-safe	—	150	—

## LR4系列 单刀四掷内置负载机械开关选型

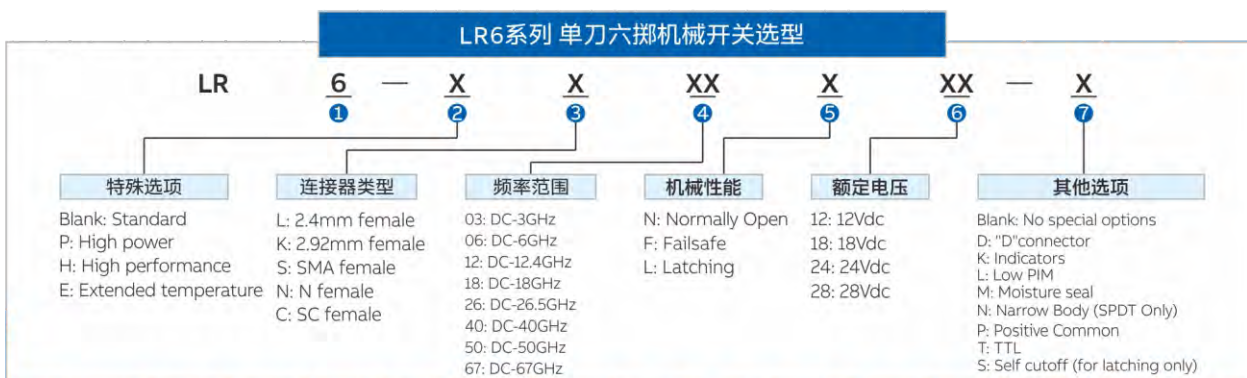
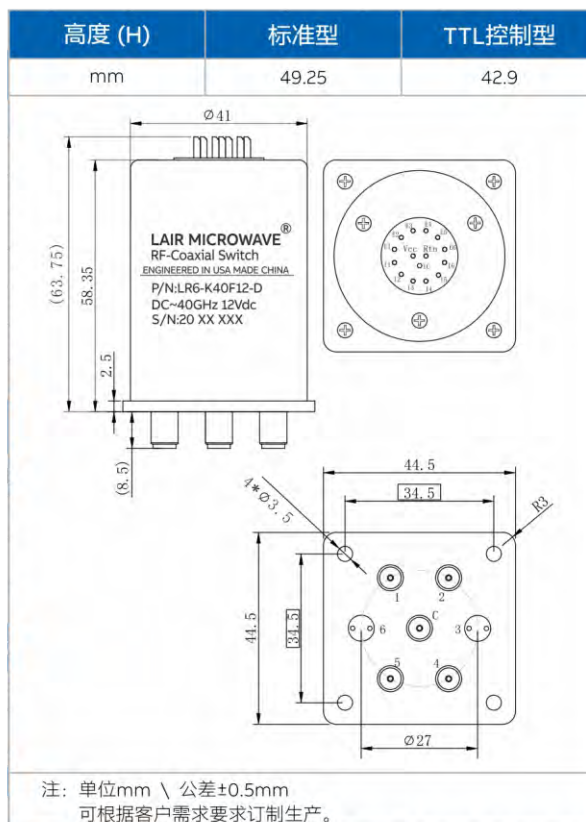
LR	<u>4</u>	—	<u>T</u>	<u>X</u>	<u>XX</u>	<u>X</u>	<u>XX</u>	—	<u>X</u>
	①		②	③	④	⑤	⑥		⑦
	<b>连接器类型</b>		<b>频率范围</b>		<b>机械性能</b>		<b>额定电压</b>		<b>其他选项</b>
	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female		03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz		N: Normally Open F: Failsafe L: Latching		12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc		Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP6T | 2.92 | DC-40GHz

NORMALLY OPEN 机械性能指标	
频率	DC-40GHz
阻抗	50Ω
射频连接器类型	2.92
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	7Pin (控制端)
扩展温度	-45°C to +85°C ("e" option)
驱动类型	Normally Open

PINOUT 引脚定义		
Pin.No	功能定义	备注
Vcc	额定电压控制端	输入+24VDC
E1	状态1 (GND)	射频通道1-C闭合
E2	状态2 (GND)	射频通道2-C闭合
E3	状态3 (GNG)	射频通道3-C闭合
E4	状态4 (GND)	射频通道4-C闭合
E5	状态5 (GNG)	射频通道5-C闭合
E6	状态6 (GND)	射频通道6-C闭合

NORMALLY OPEN 电气性能指标					
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)		
DC-18	1.50	0.50	60		
18-26.5	1.60	0.70	55		
26.5-40	1.80	1.00	50		
电压 (V)		+12	+18	+24	+28
电流 (mA)	Failsafe	—	—	150	—



# SP3T~SP6T | SMA | DC-18GHz

## NORMALLY OPEN 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL
n=1-6	Vn (Jn-COM)	An (Jn-COM)
7	COM(-)	COM(-)
8	1 (IND: J1-C)	1 (IND: J1-C)
9	2 (IND: J2-C)	2 (IND: J2-C)
10	3 (IND: J3-C)	3 (IND: J3-C)
11	4 (IND: J4-C)	4 (IND: J4-C)
12	5 (IND: J5-C)	5 (IND: J5-C)
13	6 (IND: J6-C)	6 (IND: J6-C)
14	COM_I	COM_I
15	+VDCI	+VDC
	PIN 8-15: For optional INDICAOTRS only.	PIN 8-14: For optional INDICAOTRS only.

## 1PnT 端口配置

1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	—
1P4T	1	2	—	4	5	—
1P3T	1	—	3	—	5	—

注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN 电气性能指标

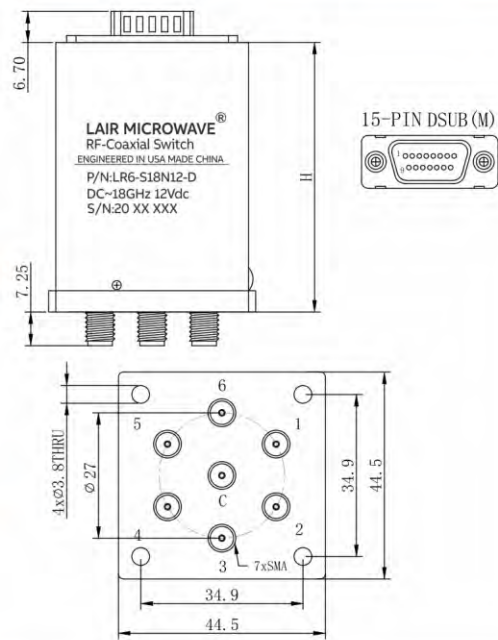
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-6	1.30	0.30	70
6-12	1.40	0.40	60
12-18	1.50	0.50	60

电压 (V)	+12	+18	+24	+28	
电流 (mA)	Normally Open	290	180	150	130



高度 (H)	标准型	TTL控制型
mm	62	72



注：单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

## LR3~6系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
3: SP3T 4: SP4T 5: SP5T 6: SP6T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D" connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP3T~SP6T Terminated | SMA | DC-18GHz

## NORMALLY OPEN / LATCHING 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 1 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL	Latching	Latching TTL & Self Cutoff
n=1-6	Vn (Jn-COM)	An (Jn-COM)	+▲Vn (Jn-COM)	An (Jn-COM)
7	COM(-)	COM(-)	COM(-)	COM(-)
8-14	—	UNUSED	+▲VR (Reset ALL OPEN)	UNUSED
8-15	UNUSED	—	—	—
9-14	—	—	UNUSED	—
15	—	+VDC	—	+VDC

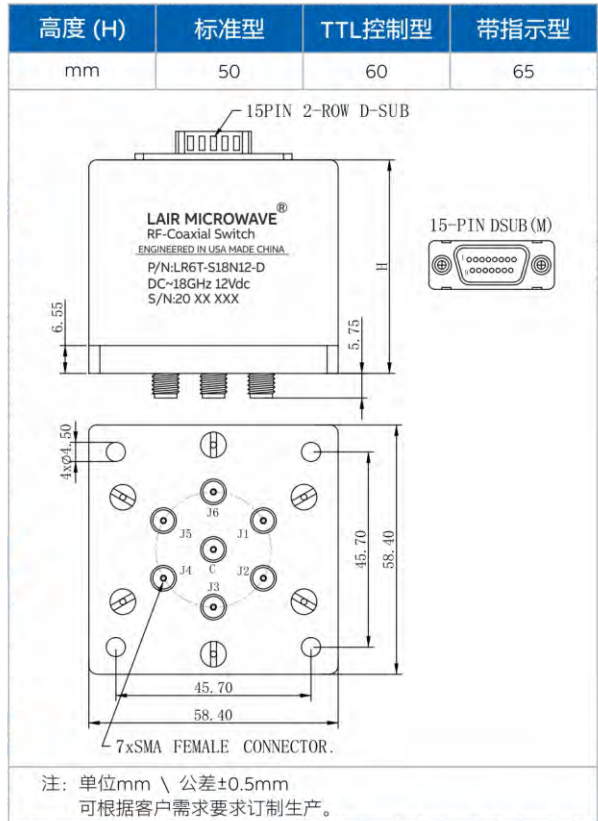
## 1PnT 端口配置

1PnT	Ports Used						Pin.No	PINOUT
1P6T	1	2	3	4	5	6	8	1 (IND: J1-C)
1P5T	1	2	3	4	5	—	9	2 (IND: J2-C)
1P4T	1	2	—	4	5	—	10	3 (IND: J3-C)
1P3T	1	—	3	—	5	—	11	4 (IND: J4-C)
							12	5 (IND: J5-C)
							13	6 (IND: J6-C)
							14	COM_I
							15	+VDCI

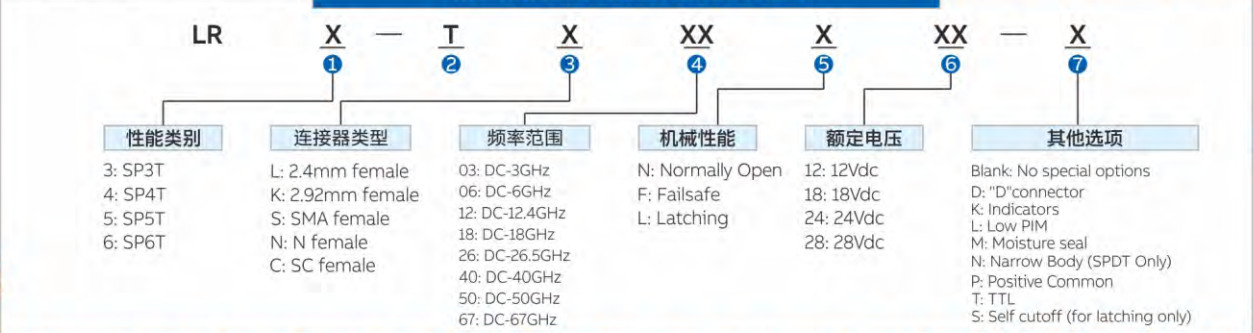
注意:“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN / LATCHING 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)			
DC-6	1.30	0.30	80			
6-12	1.40	0.40	70			
12-18	1.50	0.50	60			
电压 (V)		+12	+18	+24	+28	
电流 (mA)	Normally Open	300	220	167	140	
	Latching	200	120	90	70	



## LR3~6系列 内置负载机械开关选型



# SP3T~SP6T | N | DC-12.4GHz

NORMALLY OPEN 机械性能指标	
频率	DC-12.4GHz
阻抗	50Ω
射频连接器类型	N
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
扩展温度	-25°C to +65°C (Standard)

PINOUT 引脚定义 <small>15-Pin D-SUB Pinout</small>		
Pin.No	Normally Open	Normally Open TTL
n=1-6	Vn (Jn-COM)	An (Jn-COM)
7	COM(-)	COM(-)
8	1 (IND: J1-C)	1 (IND: J1-C)
9	2 (IND: J2-C)	2 (IND: J2-C)
10	3 (IND: J3-C)	3 (IND: J3-C)
11	4 (IND: J4-C)	4 (IND: J4-C)
12	5 (IND: J5-C)	5 (IND: J5-C)
13	6 (IND: J6-C)	6 (IND: J6-C)
14	COM_I	COM_I
15	+VDCI	+VDC
	<small>PIN -815: For optional INDICAOTRS only.</small>	<small>PIN 8-14: For optional INDICAOTRS only.</small>

1PnT 端口配置						
1PnT	Ports Used					
1P6T	1	2	3	4	5	6
1P5T	1	2	3	4	5	—
1P4T	1	2	—	4	5	—
1P3T	1	—	3	—	5	—

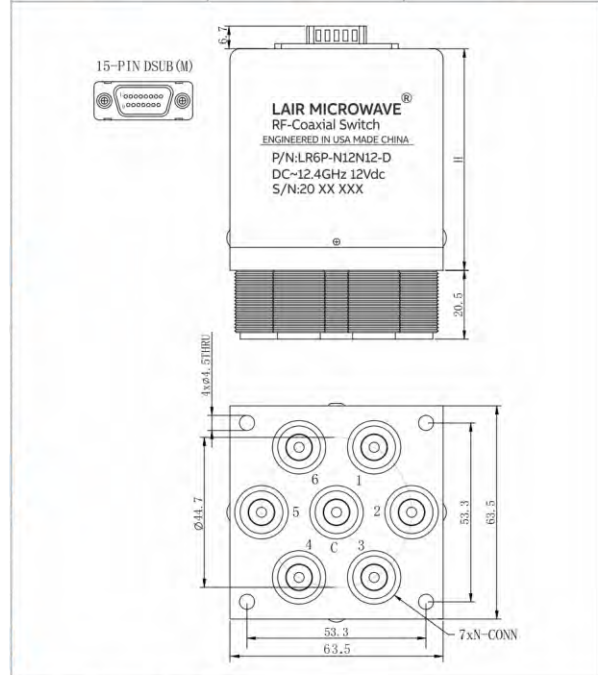
注意：“空白”表示未使用的RF和相应的控制端口。

NORMALLY OPEN 电气性能指标			
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-4	1.25	0.30	70
4-8	1.45	0.40	60
8-12.4	1.70	0.70	55

电压 (V)	+12				+18				+24				+28			
	Standard		High Power		Standard		High Power		Standard		High Power		Standard		High Power	
电流 (mA)	140		100		70		60		240		160		140		100	



高度 (H)	标准型	TTL控制型
mm	66	76



注：单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

## LR3~6系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
3: SP3T 4: SP4T 5: SP5T 6: SP6T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D" connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)



# SP7T~SP8T | SMA | DC-18GHz

## NORMALLY OPEN 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL
n=1-8	Vn (Jn-COM)	An (Jn-COM)
9	COM(-)	COM(-)
10-14	—	UNUSED
10-15	UNUSED	—
15	—	+VDC

## 1PnT 端口配置

1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	—

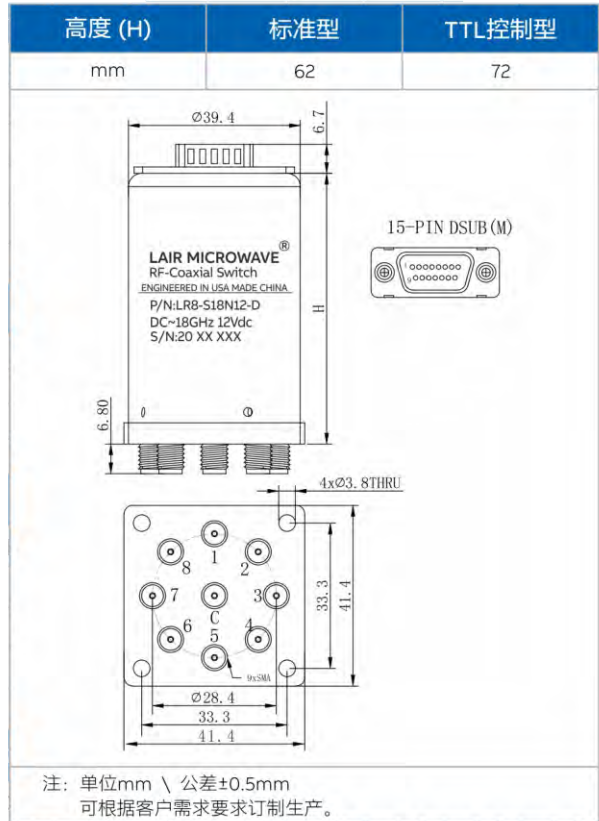
注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-4	1.20	0.20	75
4-8	1.30	0.30	65
8-12.4	1.40	0.40	60
12.4-18	1.60	0.60	60

电压 (V)	+12	+18	+24	+28	
电流 (mA)	Normally Open	290	180	120	100



## LR7-8系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
7: SP7T 8: SP8T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP7T~SP8T Terminated SMA DC-18GHz

## NORMALLY OPEN / LATCHING 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命(周期)	1,000,000 (Standard)
振动(运行)	10G RMS, 20-2000Hz
机械冲击(未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL	Latching(Pulse)	Latching TTL & Self Cutoff
n=1-8	Vn (Jn-COM)	An (Jn-COM)	+Vn (Jn-COM)	An (Jn-COM)
9	COM(-)	COM(-)	COM(-)	COM(-)
10	---	UNUSED	+VR(Reset All Open)	---
10-14	---	---	---	UNUSED
10-15	UNUSED	---	11-15 / UNUSED	---
11-14	---	---	---	---
15	---	+VDC	---	+VDC

## 1PnT 端口配置

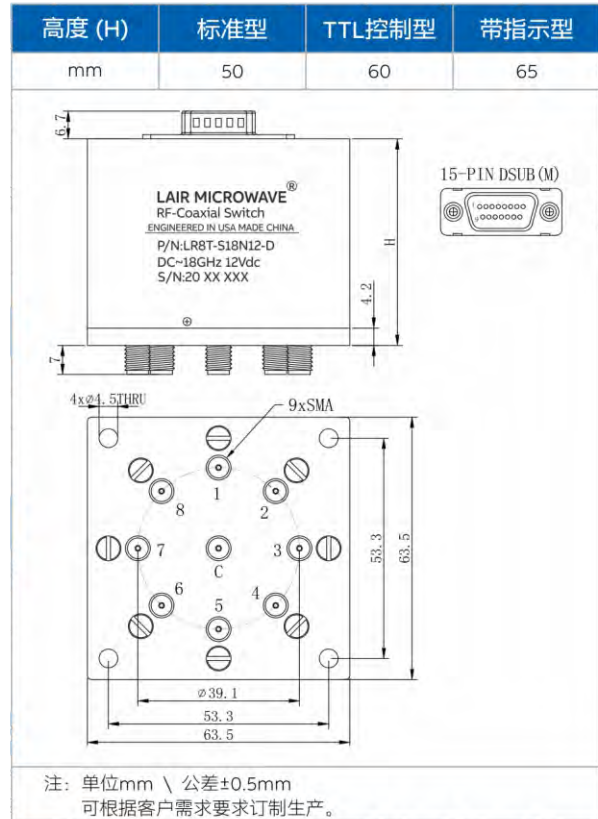
1PnT	Ports Used							
1P8T	1	2	3	4	5	6	7	8
1P7T	1	2	3	4	5	6	7	---

注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN / LATCHING 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-6	1.30	0.30	80
6-12	1.40	0.40	70
12-18	1.50	0.50	60

电压 (V)	+12 +18 +24 +28				
	电流 (mA)	Normally Open	330	220	167
	Latching	290	225	150	120



## LR7-8系列 内置负载机械开关选型



# SP9T~SP10T | SMA | DC-18GHz

## NORMALLY OPEN 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命(周期)	1,000,000 (Standard)
振动(运行)	10G RMS, 20-2000Hz
机械冲击(未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL
n=1-10	Vn (Jn-COM)	An (Jn-COM)
11	COM(-)	COM(-)
12-14	—	UNUSED
12-15	UNUSED	—
15	—	+VDC

## 1PnT 端口配置

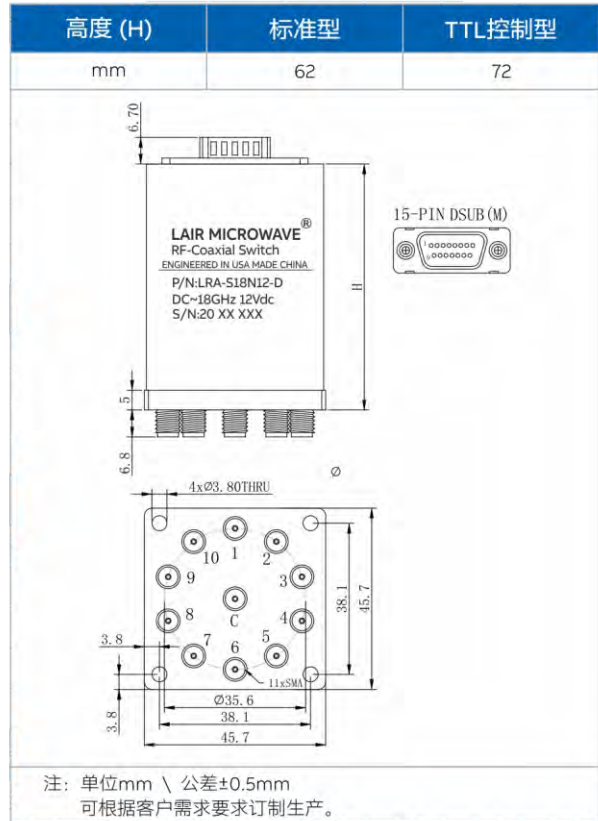
1PnT	Ports Used									
1P10T	1	2	3	4	5	6	7	8	9	10
1P9T	1	2	3	4	5	6	7	8	9	—

注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-4	1.20	0.20	70
4-8	1.30	0.30	65
8-12.4	1.40	0.40	60
12.4-18	1.60	0.60	55

电压 (V)	+12	+18	+24	+28	
电流 (mA)	Normally Open	290	145	125	100



## LR9-A系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
9: SP9T A: SP10T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP9T-SP10T Terminated SMA DC-18GHz

## NORMALLY OPEN / LATCHING 机械性能指标

频率	DC-18GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命(周期)	1,000,000 (Standard)
振动(运行)	10G RMS, 20-2000Hz
机械冲击(未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL	Latching(Pulse)	Latching TTL & Self Cutoff
n=1-10	Vn (Jn-COM)	An (Jn-COM)	+▲Vn (Jn-COM)	An (Jn-COM)
11	COM(-)	COM(-)	COM(-)	COM(-)
12	—	—	+▲VR(Reset All Open)	—
12-14	—	UNUSED	—	UNUSED
12-15	UNUSED	—	—	—
13-15	—	—	UNUSED	—
15	—	+VDC	—	+VDC

## 1PnT 端口配置

1PnT	Ports Used									
1P10T	1	2	3	4	5	6	7	8	9	10
1P9T	1	2	3	4	5	6	7	8	9	—

注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN / LATCHING 电气性能指标

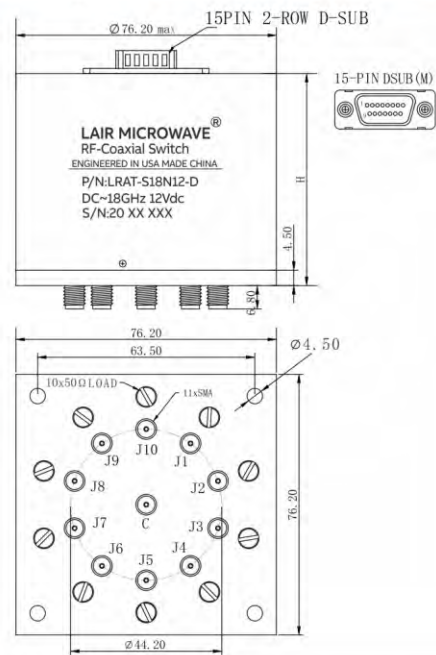
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-6	1.30	0.30	80
6-12	1.40	0.40	70
12-18	1.60	0.60	55

电压 (V)		+12	+18	+24	+28
电流 (mA)	Normally Open	330	220	167	140
	Latching	290	225	150	120



## 高度 (H) 标准型 TTL控制型 带指示型

高度 (H)	标准型	TTL控制型	带指示型
mm	50	60	65



注：单位mm \ 公差±0.5mm  
可根据客户需求要求订制生产。

## LR9-A系列 内置负载机械开关选型



# SP11T-SP12T | SMA | DC-16GHz

## NORMALLY OPEN 机械性能指标

频率	DC-16GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

## PINOUT 引脚定义 15-Pin D-SUB Pinout

Pin.No	Normally Open	Normally Open TTL
n=1-12	Vn (Jn-COM)	An (Jn-COM)
13	COM(-)	COM(-)
14	—	UNUSED
14-15	UNUSED	—
15	—	+VDC

## 1PnT 端口配置

1PnT	Ports Used											
1P12T	1	2	3	4	5	6	7	8	9	10	11	12
1P11T	1	2	3	4	5	6	7	8	9	10	11	—

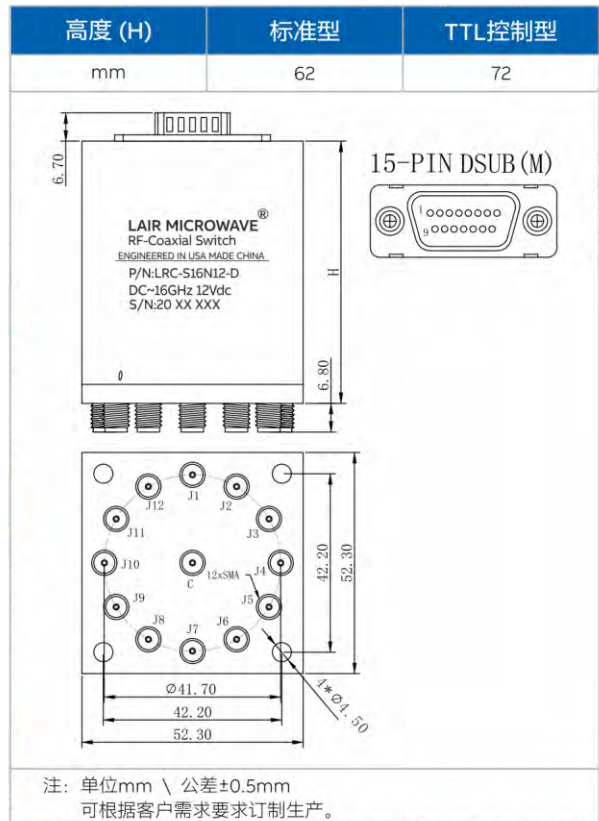
注意：“空白”表示未使用的RF和相应的控制端口。

## NORMALLY OPEN 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)
DC-4	1.20	0.20	70
4-8	1.40	0.40	65
8-12.4	1.50	0.60	60
12.4-16	1.80	0.80	60

电压 (V)	+12	+18	+24	+28	
电流 (mA)	Normally Open	290	145	125	100



## LRB-C系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
B: SP11T C: SP12T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz 26: DC-26.5GHz 40: DC-40GHz 50: DC-50GHz 67: DC-67GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP9T~SP12T | N | DC-1GHz

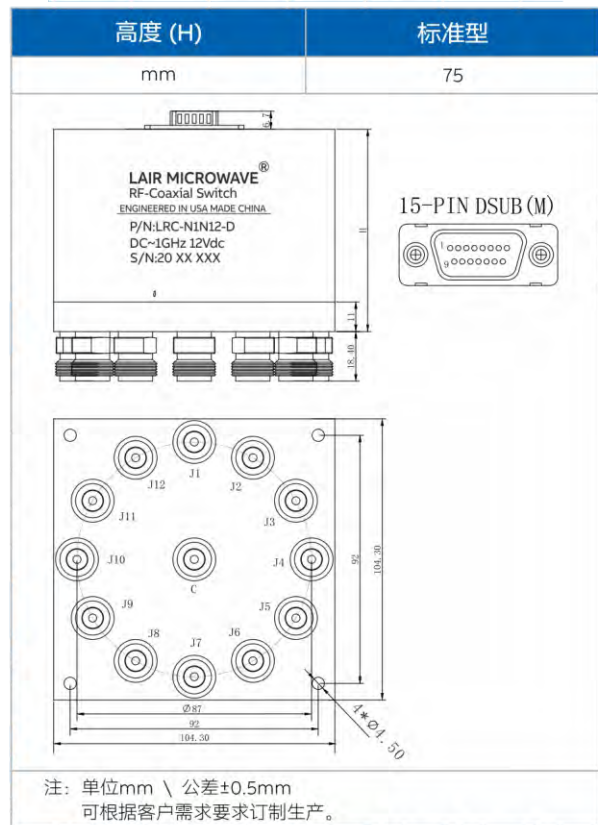
NORMALLY OPEN 机械性能指标	
频率	DC-1GHz
阻抗	50Ω
射频连接器类型	N
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	15芯D型头
温度范围	-25°C to +65°C (Standard)

PINOUT 引脚定义 <small>15-Pin D-SUB Pinout</small>		
Pin.No	Normally Open	Normally Open TTL
n=1-12	Vn (Jn-COM)	An (Jn-COM)
13	COM(-)	COM(-)
14	—	UNUSED
14-15	UNUSED	—
15	—	+VDC

1PnT 端口配置												
1PnT	Ports Used											
1P12T	1	2	3	4	5	6	7	8	9	10	11	12
1P11T	1	2	3	4	5	6	7	8	9	10	11	—
1P10T	1	2	3	—	5	6	7	8	9	—	11	12
1P9T	1	2	3	—	5	6	7	—	9	10	11	—

注意：“空白”表示未使用的RF和相应的控制端口。

NORMALLY OPEN 电气性能指标					
频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)		
DC-1	1.20	0.20	70		
电压 (V)		+12	+18	+24	+28
电流 (mA)	Normally Open	290	145	140	100



## LR9~C系列 机械开关选型

性能类别	特殊选项	连接器类型	频率范围	机械性能	额定电压	其他选项
9: SP9T A: SP10T B: SP11T C: SP12T	Blank: Standard P: High power H: High performance E: Extended temperature	L: 2.4mm female K: 2.92mm female S: SMA female N: N female C: SC female	01: DC-1GHz 03: DC-3GHz 06: DC-6GHz 12: DC-12.4GHz 18: DC-18GHz	N: Normally Open F: Failsafe L: Latching	12: 12Vdc 18: 18Vdc 24: 24Vdc 28: 28Vdc	Blank: No special options D: "D"connector K: Indicators L: Low PIM M: Moisture seal N: Narrow Body (SPDT Only) P: Positive Common T: TTL S: Self cutoff (for latching only)

# SP13T-SP18T | SMA | DC-4GHz

## NORMALLY OPEN 机械性能指标

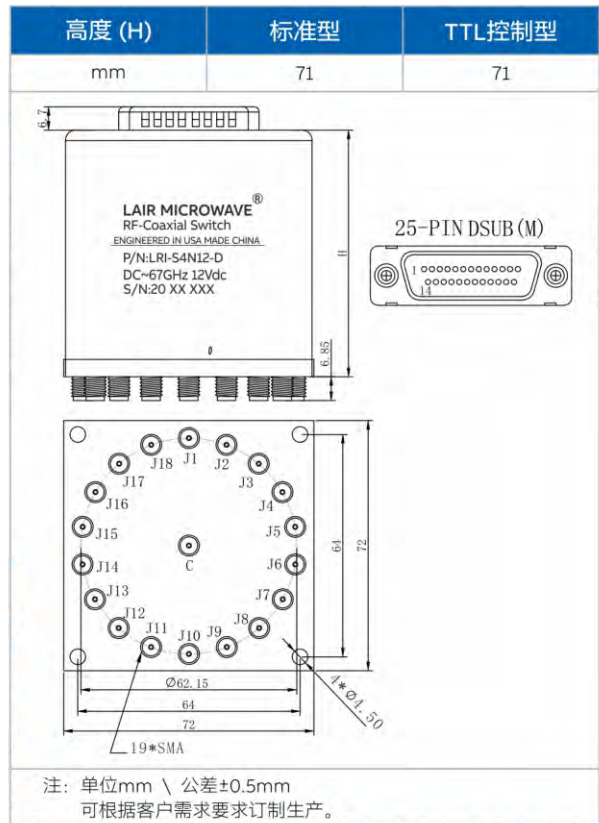
频率	DC-4GHz
阻抗	50Ω
射频连接器类型	SMA
使用寿命 (周期)	1,000,000 (Standard)
振动 (运行)	10G RMS, 20-2000Hz
机械冲击 (未运行)	50G, 1/2 Sine, 11msec
开关顺序	Break before Make
切换时间	15msec
电源与控制接口连接器	25芯D型头
温度范围	-25°C to +65°C (Standard)
扩展温度	-55°C to +85°C ("e" option)
相对湿度	95%±3% (30~60°C±5°C)

## PINOUT 引脚定义 25-Pin D-SUB Pinout

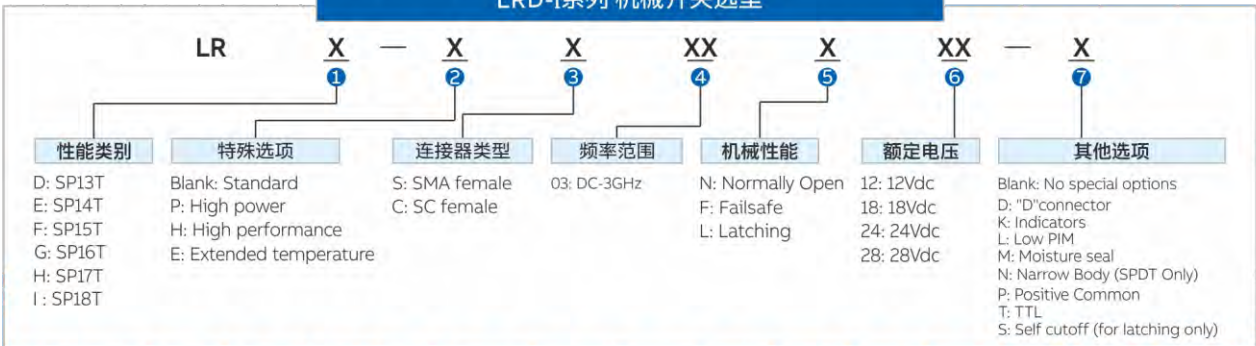
Pin.No	PINOUT	1PnT 端口配置																		
1	B1	1PnT	Ports Used																	
2	B2	1P18T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	B3	1P17T	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
4	B4	1P16T	1	2	3	4	5	6	7	8	10	11	12	13	14	15	16	17	18	
5	B5	1P15T	1	2	3	4	5	7	8	9	10	11	13	14	15	16	17	18		
6	B6	1P14T	1	2	3	5	6	7	8	10	11	12	13	15	16	17	18			
7	B7	1P13T	1	2	4	5	6	8	9	10	12	13	14	16	17	18				
8	B8	注意: "空白"表示未使用的RF和相应的控制端口。																		
9	COM(-)																			
10-24	UNUSED																			
25	+VDC																			

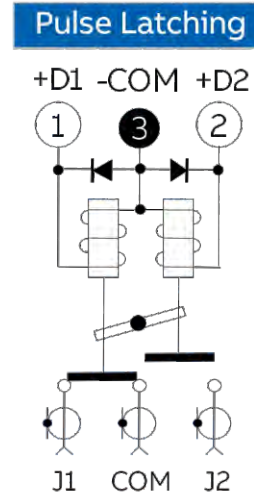
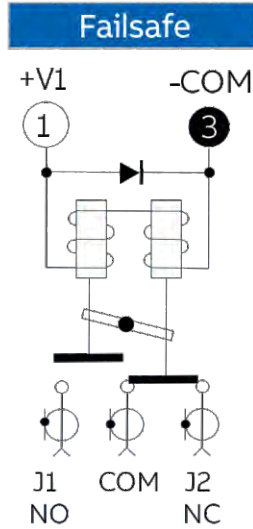
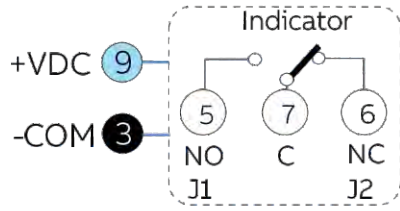
## NORMALLY OPEN 电气性能指标

频率范围 (GHz)	驻波	插损 (dB)	隔离度 (dB)		
DC-1	1.15	0.15	90		
1-4	1.25	0.25	80		
电压 (V)		+12	+18	+24	+28
电流 (mA)	Normally Open	290	145	125	100



## LRD-I系列 机械开关选型

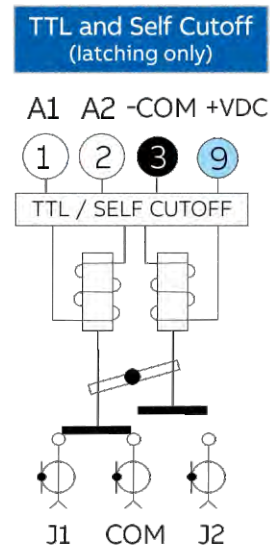
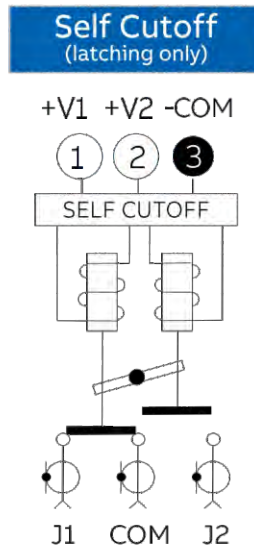
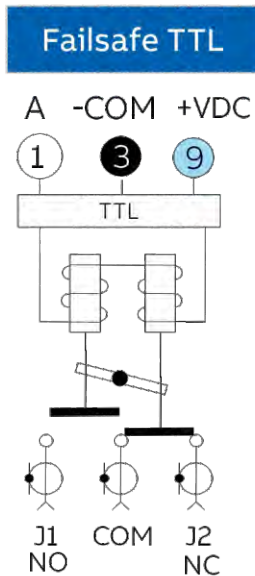




TTL LOGIC TRUTH TABLE (FAILSAFE)		
RF PATH	LOGIC INPUT "A"	INDICATOR
J1-COM	1	NO-COM
J2-COM	0	NC-COM

TTL LOGIC TRUTH TABLE (SELF CUTOFF)			
RF PATH	LOGIC INPUT A1	LOGIC INPUT A2	INDICATOR
J1-COM	1	0	J1-COM
J2-COM	0	1	J2-COM

TTL logic: low "0" = 0.0V - 0.8V  
high "1" = 2.4V - 5.5V

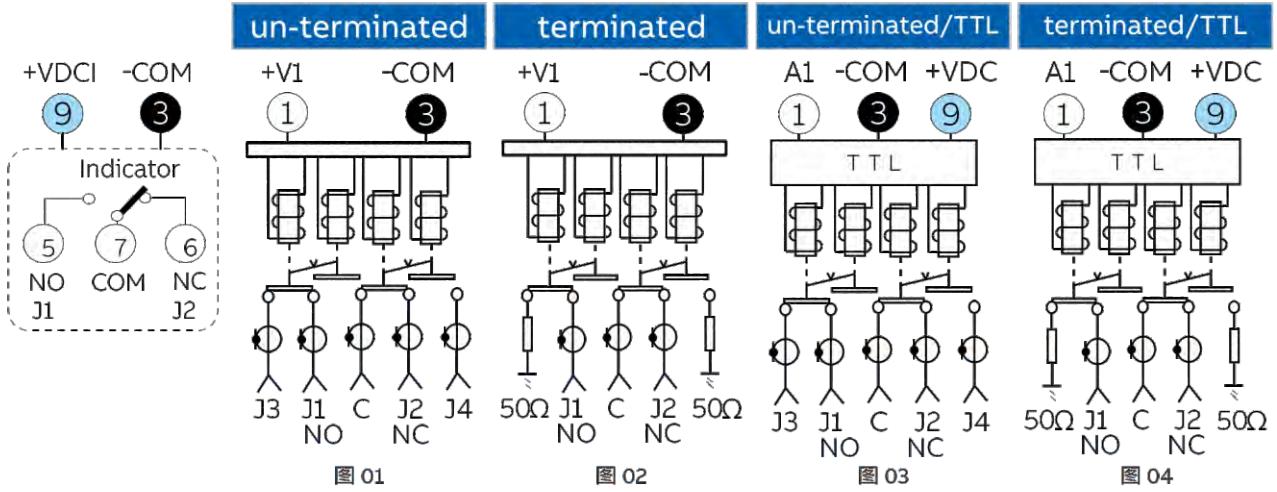


NOTE

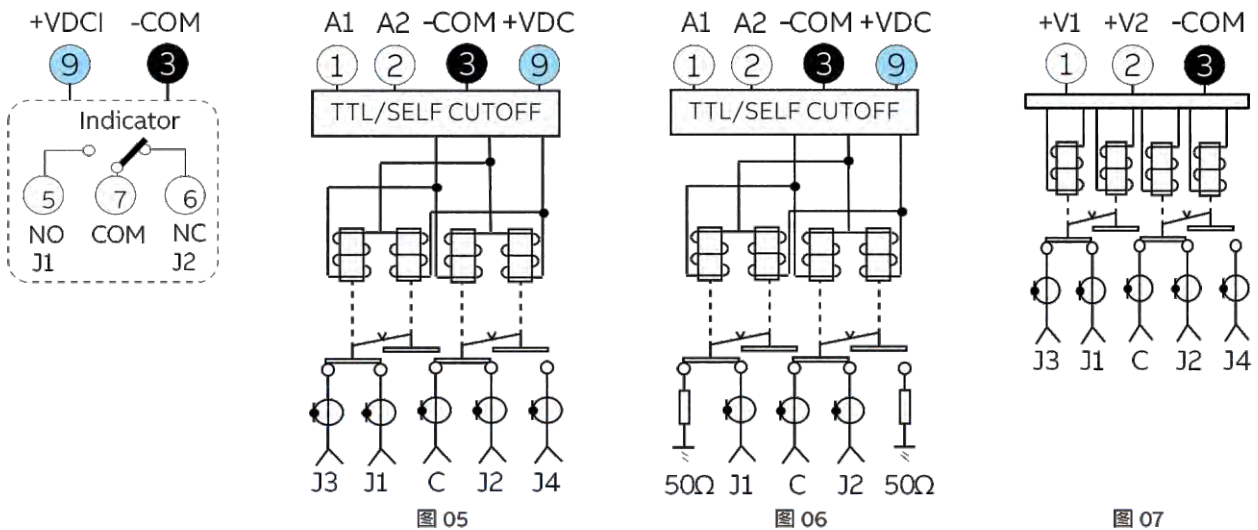
- (1) TTL logic: low "0" = 0.0V-0.8V; high "1" = 2.4V-5.5V.
- (2) -C = GROUND; +VDC = +Rated Voltage.
- (3) Optional: +VDCI = +RATED VOLTAGE (for optional optoelectronic indicators).
- (4) "T" = 50Ω termination.
- (5) "NC" = Normally Closed; "NO" = Normally Open.
- (6) Consult the factory for the positive COM option.



FAILSAFE



LATCHING



LOGIC TRUTH TABLE

FAILSAFE 图 01-02			PULSE LATCHING 图 07		
RF PATH	+V1	-COM	RF PATH	+V1	+V2
J1-C, J2-J4(T)	+VDC	GND	J1-C, J2-J4(T)	+DV	0
J2-C, J1-J3(T)	0	GND	J2-C, J1-J3(T)	0	+DV
NOTE:+VDC=Positive rated voltage.			NOTE:+DV=Positive rated voltage pulse.		
FAILSAFE TTL 图 03-04			LATCHING TTL/SELF CUTOFF 图 05-06		
RF PATH		A	RF PATH	A1	A2
J1-C, J2-J4(T)		1	J1-C, J2-J4(T)	1	0
J2-C, J1-J3(T)		0	J2-C, J1-J3(T)	0	1
NOTE:+VDC=Positive rated voltage.			NOTE:+DV=Positive rated voltage pulse.		

NOTE

- (1) TTL logic: low "0" = 0.0V-0.8V; high "1" = 2.4V-5.5V.
- (2) -C = GROUND; +VDC = +Rated Voltage.
- (3) Optional: +VDCI= +RATED VOLTAGE (for optional optoelectronic indicators).
- (4) "T"=50Ωtermination.
- (5) "NC"=Normally Closed; "NO"=Normally Open.
- (6) Consult the factory for the positive COM option.

FAILSAFE

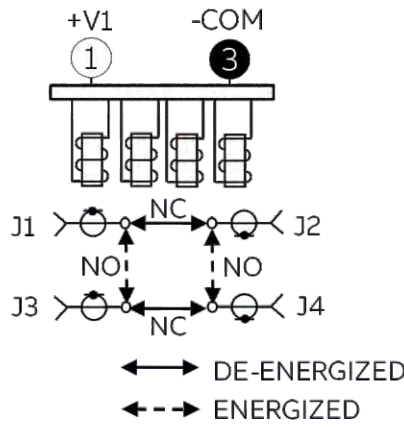
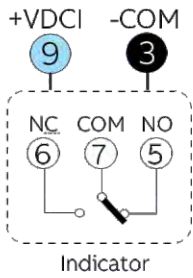


图 01

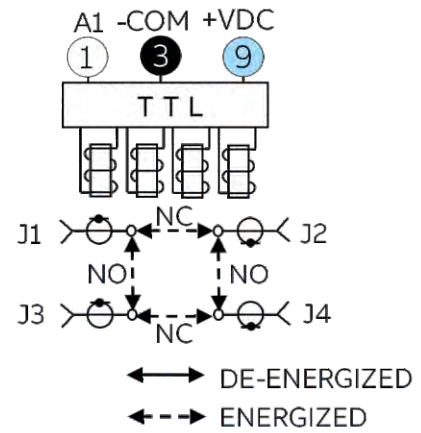


图 02

LATCHING

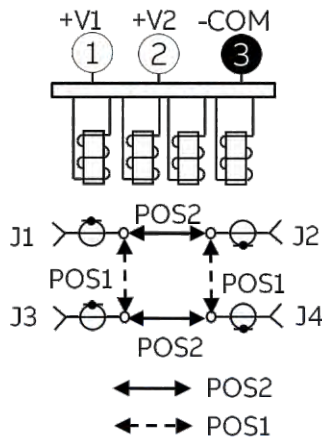
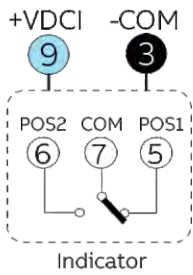


图 03

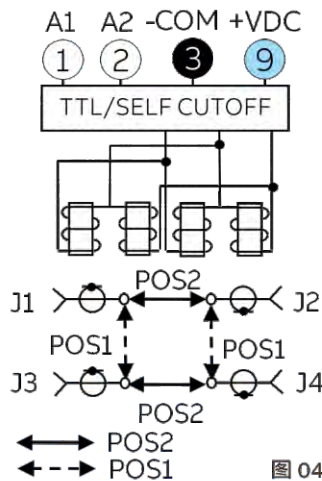


图 04

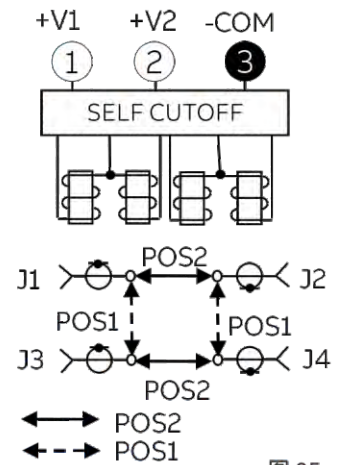


图 05

LOGIC TRUTH TABLE

FAILSAFE 图 01			
	RF PATH	+V1	-COM
POS1	J1-J3, J2-J4	0	GND
POS2	J1-J2, J3-J4	+VDC	GND

NOTE: +VDC=Positive rated voltage.

FAILSAFE TTL 图 02			
	RF PATH	A	
POS1	J1-J3, J2-J4	0	
POS2	J1-J2, J3-J4	1	

PULSE LATCHING 图 03			
	RF PATH	+V1	+V2
POS1	J1-J3, J2-J4	+DV	0
POS2	J1-J2, J3-J4	0	+DV

NOTE: +DV=Positive rated voltage pulse.

LATCHING TTL/SELF CUTOFF 图 04			
	RF PATH	A1	A2
POS1	J1-J3, J2-J4	1	0
POS2	J1-J2, J3-J4	0	1

LATCHING SELF CUTOFF 图 05				
	RF PATH	IND PATH	+V1	+V2
POS1	J1-J3, J2-J4	IND1-C	+VDC	0
POS2	J1-J2, J3-J4	IND2-C	0	+VDC

NOTE

- (1) TTL logic: low "0" = 0.0V~0.8V; high "1" = 2.4V~5.5V.
- (2) "NC"=Normally Closed; "NO"=Normally Open.
- (3) Consult the factory for the positive COM option.

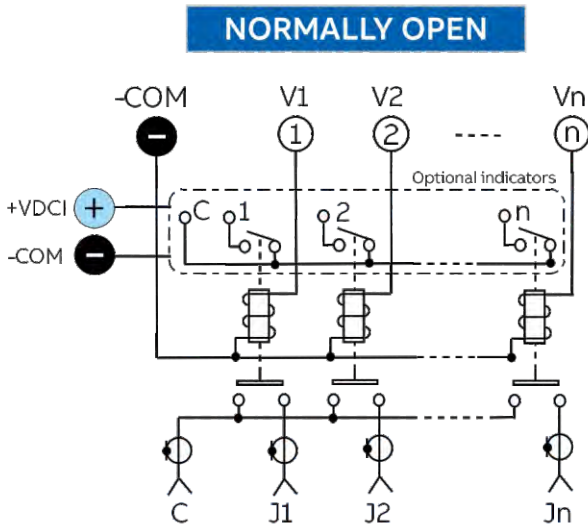


图 01

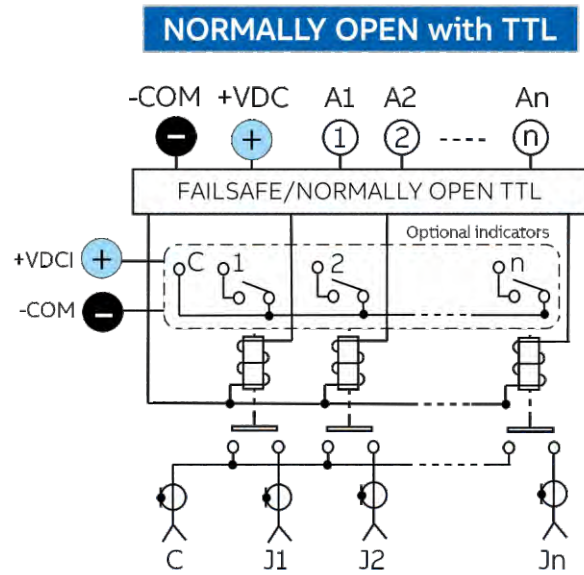


图 02

LOGIC TRUTH TABLE

NORMALLY OPEN 图 01			NORMALLY OPEN with TTL 图 02			
RF PATH	V(n)	COM	RF PATH	A(n)	+VDC	COM
J(n)-C	Rated +V	GND	J(n)-C	1	Rated +V	GND
J(n) Open	0	GND	J(n) Open	0	Rated +V	GND
<b>NOTE</b>	TTL logic input A(n): low "0" = 0.0V-0.8V; high "1" = 2.4V-5.5V.					

NORMALLY OPEN 图 01	
15-PIN D-SUB PINOUT	
Pin No.	PINOUT
1	V1 (J1-COM)
2	V2 (J2-COM)
3	V3 (J3-COM)
4	V4 (J4-COM)
5	V5 (J5-COM)
6	V6 (J6-COM)
7	V7 (J7-COM)
8	V8 (J8-COM)
9	V9 (J9-COM)
10	V10 (J10-COM)
11	V11 (J11-COM)
12	V12 (J12-COM)
13	COM(-)
14-15	UNUSED

NORMALLY OPEN with TTL 图 02	
15-PIN D-SUB PINOUT	
Pin No.	PINOUT
1	V1 (J1-COM)
2	V2 (J2-COM)
3	V3 (J3-COM)
4	V4 (J4-COM)
5	V5 (J5-COM)
6	V6 (J6-COM)
7	V7 (J7-COM)
8	V8 (J8-COM)
9	V9 (J9-COM)
10	V10 (J10-COM)
11	V11 (J11-COM)
12	V12 (J12-COM)
13	COM(-)
14	UNUSED
15	+VDC

NORMALLY OPEN

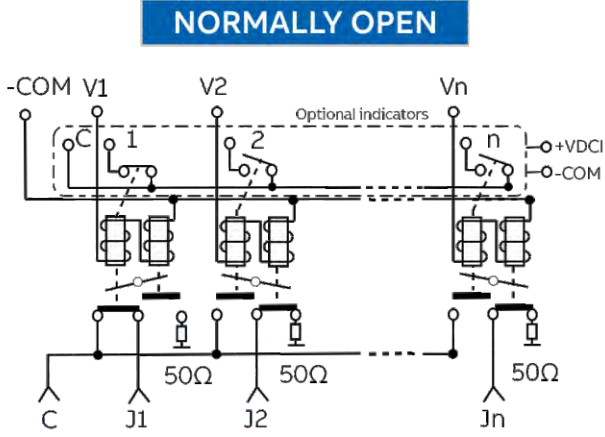


图 01

NORMALLY OPEN with TTL

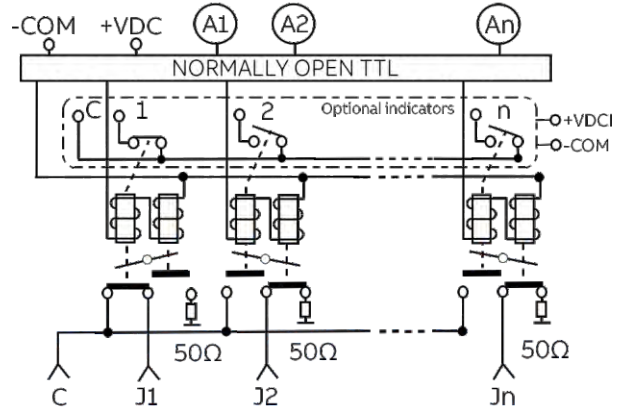


图 02

Normally open on each unused position.

LOGIC TRUTH TABLE

NORMALLY OPEN			NORMALLY OPEN with TTL			
图 01			图 02			
RF PATH	V(n)	COM	RF PATH	A(n)	+VDC	COM
J(n)-C	+VDC	GND	J(n)-C	1	Rated +V	GND
J(n)-T or Open	0	GND	J(n)-T or Open	0	Rated +V	GND
<b>NOTE</b>	(1) TTL logic input A(n): low "0" = 0.0V-0.8V; high "1" = 2.4V-5.5V. (2) +VDC=Rated voltage.					

LATCHING

LATCHING (Pulse)

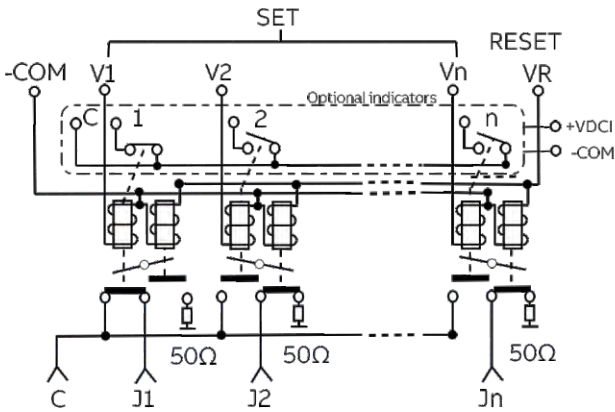


图 01

LATCHING (TTL)

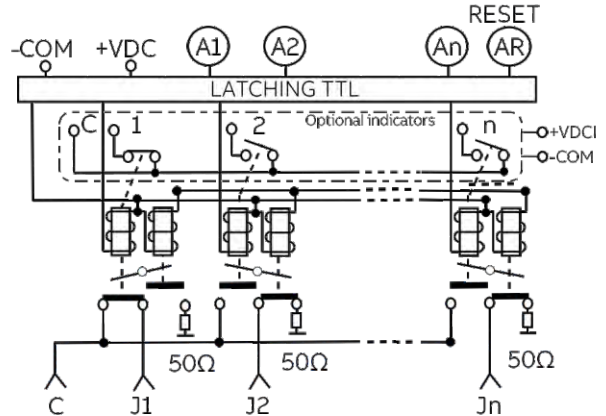


图 02

LATCHING (SELF CUTOFF)

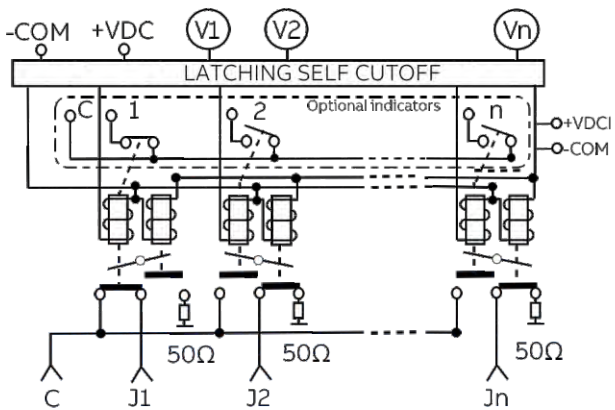


图 04

LATCHING (TTL SELF CUTOFF)

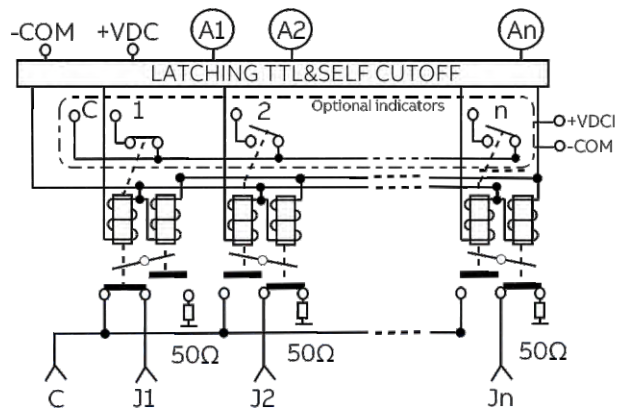


图 05

LOGIC TRUTH TABLE

LATCHING (Pulse) 图 01			LATCHING with TTL 图 02		
RF PATH	V(n)	VR	RF PATH	A(n)	AR
J(n)-C	+DV	GND	J(n)-C	1	0
ALL J(n)-T or Open	GND	+DV	ALL J(n)-T or Open	0	1
LATCHING (SELF CUTOFF) 图 03			LATCHING with TTL & SELF CUTOFF 图 04		
RF PATH	V(n)		RF PATH	A(n)	
J(n)-C	+VDC		J(n)-C	1	
J(n)-T or Open	GND		J(n)-T or Open	0	
<b>NOTE</b>	(1) TTL logic input A(n): low "0" = 0.0V-0.8V; high "1" = 2.4V-5.5V.				
	(2) +VDC=Rated voltage; +DV=Pulse of rated voltage.				



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