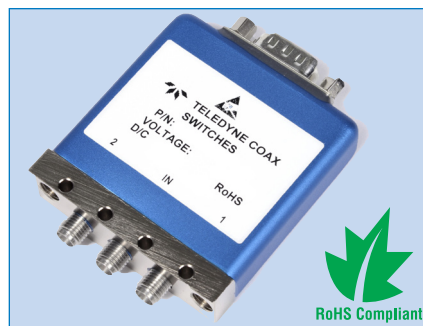


PART NUMBER	DESCRIPTION
CCRT-33S	Commercial, Latching, SPDT, DC-18GHz, Internal 50Ω Termination
CRT-33S	Elite, Latching, SPDT, DC-22GHz, Internal 50Ω Termination

The CCRT/CRT-33S is an internally terminated, broadband, SPDT, electromechanical coaxial switch designed to switch a microwave signal from a common input to either of two outputs. This series switch is offered with a latching actuator to switch between female SMA connectors. The switches are available in the frequency range from DC to 22GHz featuring excellent RF and mechanical performance with broadband operation, high isolation and low insertion loss. The characteristic impedance is 50Ω. Internal terminations provide an impedance match for the unselected port, making it ideal for applications where port matching is required.



ENVIRONMENTAL AND PHYSICAL CHARACTERISTICS	
Storage Temperature	-55°C to 90°C
Operating Temperature	
CCRT-33S	-25°C to 65°C
CRT-33S	-55°C to 85°C
CRT-33S w/ indicator contacts	-45°C to 85°C
Vibration ¹ , 10 ~ 2000 Hz, 300 s MIL-STD-202 Method 204, Condition C	10 G peak
Shock, Half-Sine Pulse MIL-STD-202 Method 213, Condition D	500 G peak
Moisture Resistance ²	95% RH Non-condensing
Mechanical Life	5,000,000 cycles (min)
Mechanical Life w/ Additional Features	1,000,000 cycles (min)
Connector Type	SMA
Weight	2.65 oz. max (75.12 g)

1. Non-operating
2. When moisture seal option is selected

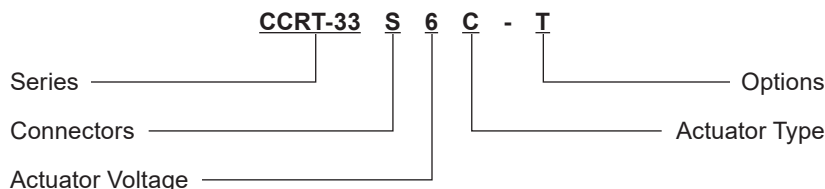
ELECTRICAL CHARACTERISTICS	
RF Contacts	Break before make
Frequency Range	
CCRT-33S	DC – 18 GHz
CRT-33SS	DC – 22 GHz
Characteristic Impedance	50Ω
Terminations	50Ω, 2 Watts CW max
Switching Time	20 ms max
Actuation Voltage (VDC) 20°C	12 15 24 28
Actuation Current (mA)	420 350 280 200
TTL/Decoders Voltage/Current ¹	
Low Level (Logic 0)	0.0 ~ 0.7 V / 3.2 mA Max at 0.7 V
High Level (Logic 1)	2.4 ~ 5.5 V / 80 μA Max at 2.4 V
Indicator Contact Rating ²	30 Vdc, 50 mA max
Magnetic Sensitivity	5 Gauss, 0.5 inch max

1. For switches with TTL driver or decoder
2. For switches with indicator

TYPICAL PERFORMANCE CHARACTERISTICS				
Frequency	DC–6 GHz	6–12 GHz	12–18 GHz	18–22 GHz
Insertion Loss (max)	0.2 dB	0.4 dB	0.5 dB	0.6 dB
Isolation (min)	70 dB	60 dB	60 dB	50 dB
VSWR (max)	1.25:1	1.40:1	1.50:1	1.60:1

Please see charts on page 3.

PART NUMBERING SYSTEM



Connector

S: SMA Female

Actuator Voltage

- 1: 28 Vdc Latching
- 2: 15 Vdc Latching
- 3: 12 Vdc Latching
- 4: 24 Vdc Latching

Actuator Type

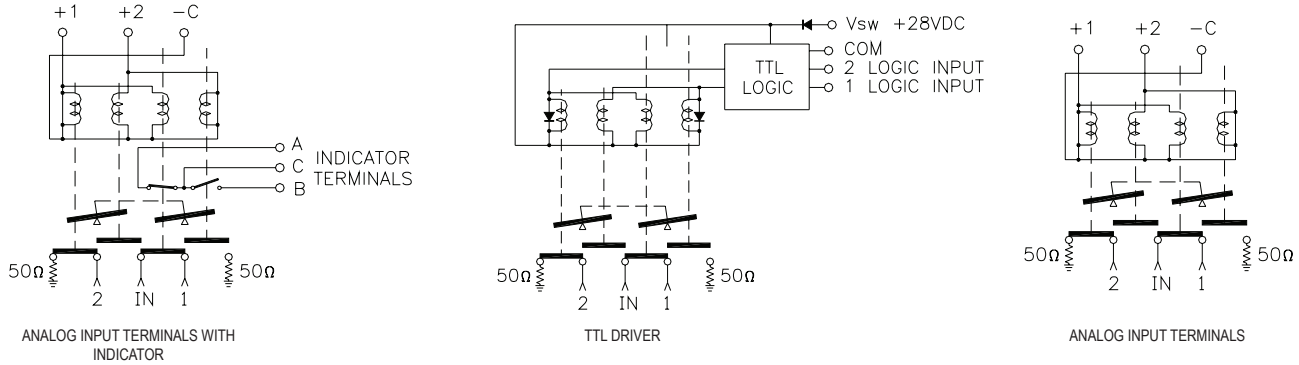
- 0: Standard Contacts
- C: Indicator Contacts
- D: Self Cutoff Only
- E: Indicators and Self Cutoff

Options

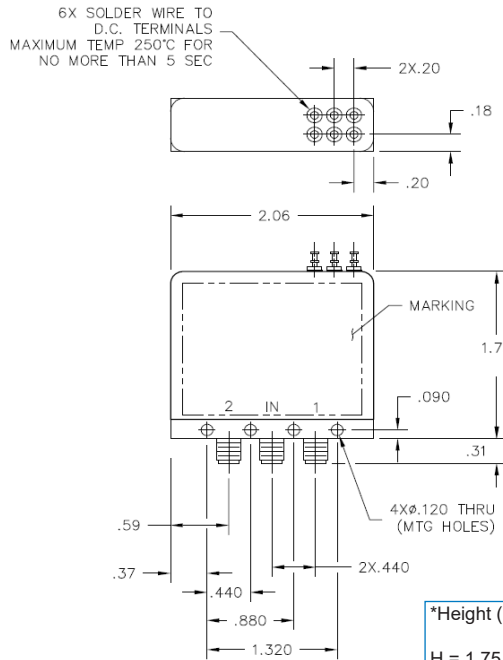
- T: TTL Drivers with Diodes
- D: Transient Suppression Diodes
- R: Positive + Common
- M: Moisture Seal
- S: 9 Pin D-Sub Connector (Male)



SCHEMATICS AND MECHANICAL OUTLINE

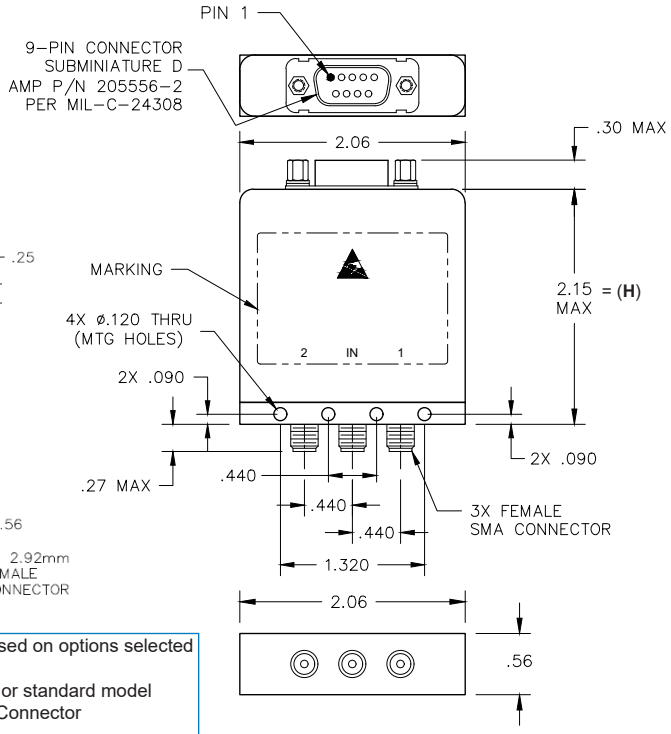


Standard Model with Indicators



*Height (H) will change based on options selected
 H = 1.75 max for indicator or standard model
 H = 2.05 max with D-Sub Connector
 H = 2.20 max with TTL
 - Contact factory for additional model outlines

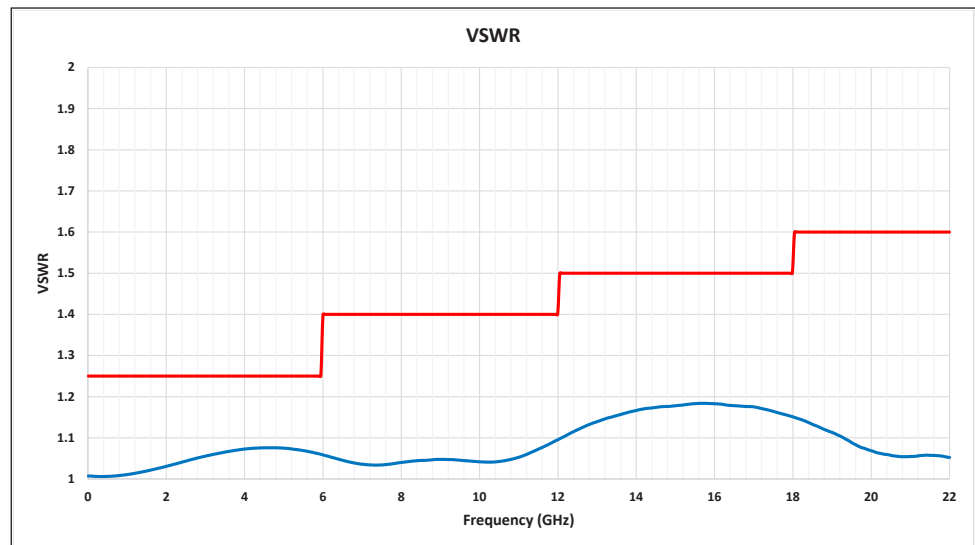
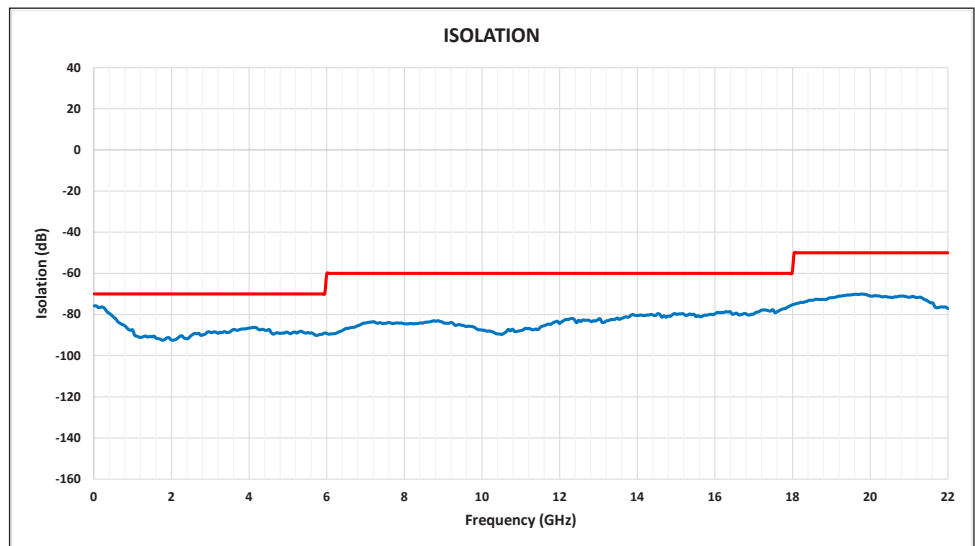
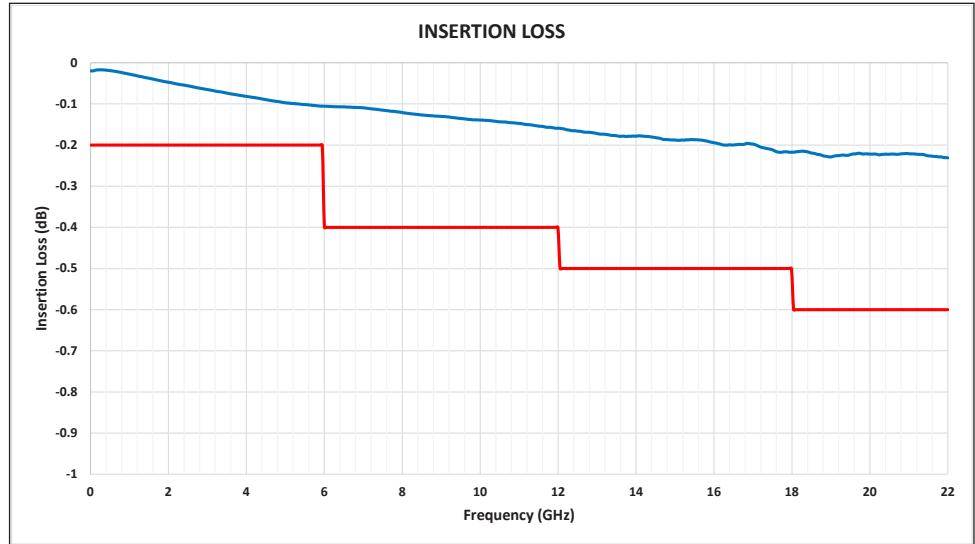
D-Sub with TTL Model



9 PIN D-SUB PINOUT FOR LATCHING SPDT				
Pin No.	OPTIONS			
	Standard	Indicator	TTL	TTL + IND
1	POS 1	POS 1		
2	POS 2	POS 2		
3	COM	COM	COM	COM
4			TTL 1	TTL 1
5				
6			Vsw	Vsw
7		IND 1 (A)		IND 1 (A)
8		IND 2 (B)		IND 2 (B)
9		IND COM (C)		IND COM (C)

TRUTH TABLE (w/ TTL Option)					
Logic Input		RF Path		Indicator (if applicable)	
1	2	IN to 1	IN to 2	A	B
0	0	No Change			
1	0	On	Off	C	0
0	1	Off	On	0	C
1	1	Forbidden			

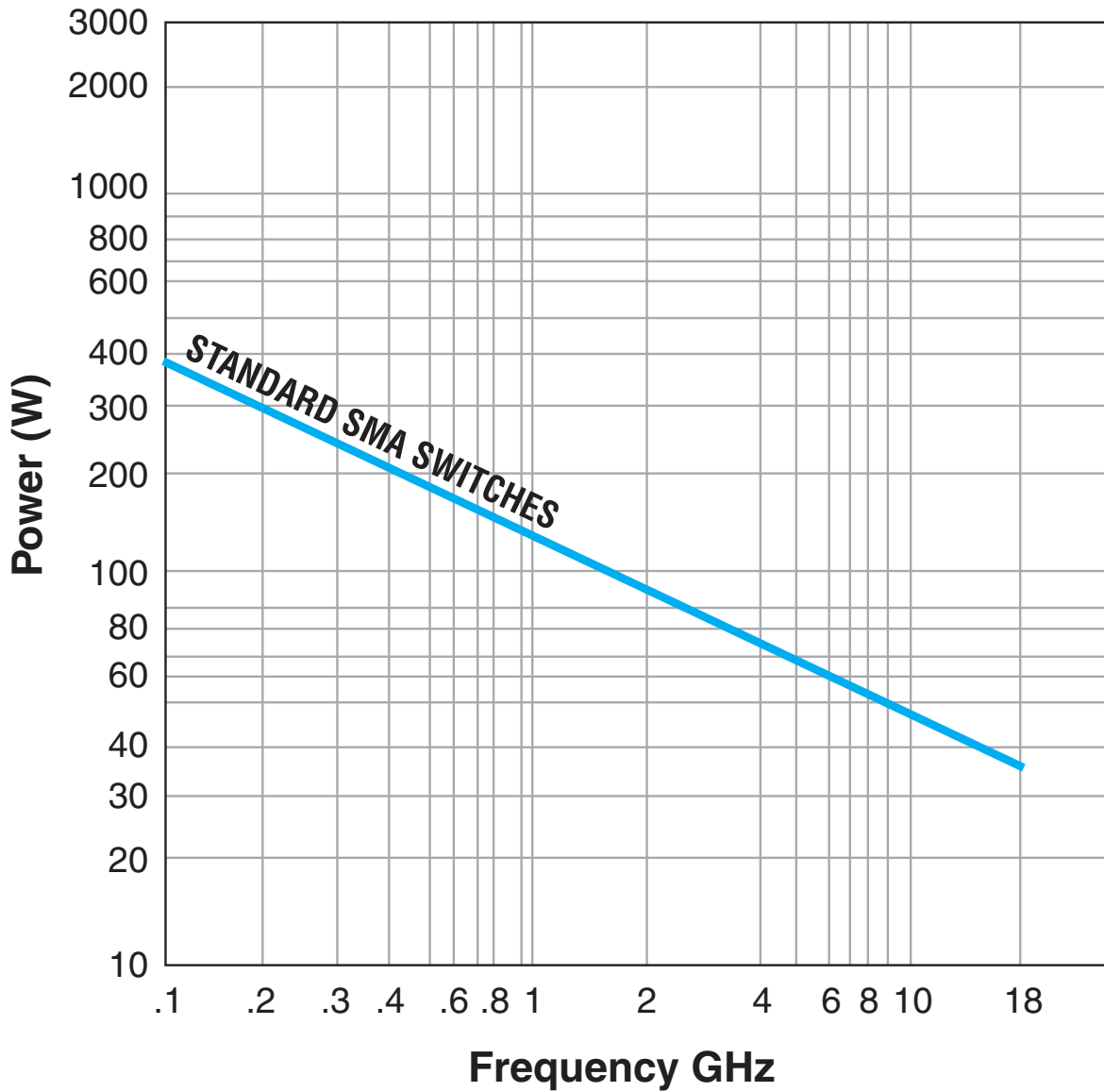
RF PERFORMANCE CURVES



— TYPICAL
 — MAXIMUM TEST LIMIT

TYPICAL POWER PERFORMANCE CURVE

Power Handling vs. Frequency



Estimates based on the following reference conditions:

- Ambient temperature of 40°C or less
- Sea level operation
- Load VSWR of 1.20:1 maximum
- No high-power (hot) switching

Please contact Teledyne Coax Switches for derating factors when applications do not meet the foregoing reference conditions.