	Cage Code:	Title:	Date:	Rev:	Model no:
Hill Engineering Division	02WL0	PRODUCT DATA	8/5/03	None	M20-030
		(subject to change)			

This document describes the performance of a high power 1P2T/TR switch. This is a cold-switched design i.e.; switched while RF is off. Proper bias connections must be made before operation of this switch. See section 11, below.

ITEM	CHARACTERISTIC	CONDITIONS	MIN	MAX	UNITS	COMMENTS
NO 1	POWER SPECIFICATION	IN BAND				
1.1	FREQUENCY		20	500	MHz	
1.2	PEAK POWER	100 uS duration	20	500	WATTS	
1.2	PULSE WIDTH			100		TRANSMIT PATH
1.4	DUTY			50	μs %	TRANSMIT PATH
1.4	AVG POWER	ABSOLUTE MAX		250	∕₀ WATTS	TRANSMIT PATH
1.6	Receive power	ABSOLUTE MAX		30	WATTS	TRANSMIT PATH
2	POWER SPECIFICATIONS	GUARD BAND			WAIIS	RECEIVE PATH
	FREQUENCY	GUARD BAIND	500	700	MHz	
2.1	PEAK POWER		500			
2.2	PEAK POWER PULSE WIDTH		C)W/	5	WATTS	
2.3			CW		μs	
2.4	DUTY		CW		%	
2.5	CW POWER			5	WATTS	
3	POWER SPECIFICATIONS	OUT OF BAND				
3.1	FREQUENCY		>700		MHz	
3.2	PEAK POWER			33	dBm	
3.3	PULSE WIDTH			CW	μs	
3.4	DUTY			CW	%	
3.5	CW POWER			33	dBm	
4	OPERATING FREQUENCY		20	500	MHz	
5	INSERTION LOSS					
5.1	RCV	J3-J2		0.8	dB	
5.2	TX	J1-J3		0.5	dB	
6	ISOLATION					
6.1	ТΧ	J1-J3	40		dB	
6.2	RCV	J1-J2	50		dB	
7	PHASE					
7.1	MATCHING/TRACKING					NOT SPECIFIED
8	VSWR					
8.1	RCV PORT SELECTED	J3-J2		1.7:1		RECEIVE PATH
8.1.1	TX PORT SELECTED	J1-J3		1.5:1		TRANSMIT PATH

Federal Cage Code 02WLO

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R.2 PORT NOT SELECTED >20:1 INFINITY 8.3 LOAD 2.0:1 INFINITY 8.4 SOURCE 1.5:1 INFINITY 8.4 SOURCE 1.5:1 INFINITY 9 HARMONICS & SPURS Internal (Control (Contret)) Internal (Contret) </th <th>ITEM NO</th> <th>CHARACTERISTIC</th> <th>CONDITIONS</th> <th>MIN</th> <th>MAX</th> <th>UNITS</th> <th>COMMENTS</th>	ITEM NO	CHARACTERISTIC	CONDITIONS	MIN	MAX	UNITS	COMMENTS
8.4 SOURCE 1.5:1 9 HARMONICS & SPURS 1 9.1 INTERNALLY GENERATED TRANSMIT MODE -50 dBc 10.1 SPEED TO 0.50DB I.L. 30 µs 10.2 SWITCHING 2 KHz 10.3 VIDEO LEAKAGE 20 Vpp Across 50 Ohms 10.4 COMMAND LOGIC RS-422 2 10.5 10.5 LOGIC TABLE 2 KHz 10.0 11 D.C. POWER 2 10.5 LOGIC TABLE 20 VDC 11.1 POSITIVE BIAS VOLTAGE -240 -260 VDC 11.1 11.2 NEGATIVE BIAS CURRENT 25 mA 11.1 11.4 NEGATIVE BIAS CURRENT 25 mA 11.1 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 250V 11.6 11.5 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 250V.		PORT NOT SELECTED			>20:1		INFINITY
9 HARMONICS & SPURS Image: constraint of the second seco	8.3	LOAD			2.0:1		
9.1 INTERNALLY GENERATED TRANSMIT MODE -50 dBc 10 SWITCHING 10.1 SPEED TO 0.50DB I.L. 30 µs 10.2 SWITCHING RATE 2 KHz 10.1 SPEED TO 0.50DB I.L. 30 µs 10.2 SWITCHING RATE 2 KHz 10.3 VIDEO LEAKAGE 20 Vpp Across 50 Ohms 10.4 COMMAND LOGIC RS-422 10.5 LOGIC TABLE DWG: 3714 BELOW 11 D.C. POWER 11 D.C. POWER 11.1 POSITIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.1 POSITIVE BIAS CURRENT 1 500 mA 11.1.4 NEGATIVE BIAS CURRENT 1 500 mA 11.4 NEGATIVE BIAS CURRENT 1 25 mA 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 12 CONNECTORS 14 14 14	8.4	SOURCE			1.5:1		
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10.2 SWITCHING RATE 2 KHz 10.3 VIDEO LEAKAGE 20 Vpp Across 50 Ohms 10.4 COMMAND LOGIC RS-422 DWG: 3714 BELOW 10.5 LOGIC TABLE DWG: 3714 BELOW 11 D.C. POWER DWG: 3714 BELOW 11.1 POSITIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.2 NEGATIVE BIAS VOLTAGE 1 -240 -260 VDC 11.3 POSITIVE BIAS CURRENT 1 500 mA 11.4 NEGATIVE BIAS CURRENT 1 25 mA 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 10 12.1 RF INPUT & XMIT Type NF 12.3 DC 9 pin "D" type 13.1 WEIGHT 0.9 LBS 13.2 OUTLINE 0.9 DWG: 3714 BELOW 14 E	10.1	SPEED	TO 0.50DB I.L.		30	μs	
10.4 COMMAND LOGIC RS-422 Image: Common sequence in the second sec	10.2	SWITCHING RATE			2	KHz	
10.5 LOGIC TABLE DWG: 3714 BELOW 11 D.C. POWER DWG: 3714 BELOW 11.1 POSITIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.1 POSITIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.2 NEGATIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.3 POSITIVE BIAS CURRENT 1 500 mA 11.4 NEGATIVE BIAS CURRENT 1 500 mA 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 25 12.1 RF INPUT & XMIT Type NF 12.3 DC 9 pin "D" type 13.1 WEIGHT 0.9 LBS 13.2 OUTLINE DWG: 3714 BELOW 14.1 OPERATING -20 -20 13.2 OUTLINE DWG: 3714 BELOW 14.1 OPERATING -20 -20 14.2 STORAGE TEMPERATURE -20 -2	10.3	VIDEO LEAKAGE			20	Vpp	Across 50 Ohms
11 D.C. POWER Image: Comparison of the system of the	10.4	COMMAND LOGIC	RS-422				
11.1POSITIVE BIAS VOLTAGE 14.805.20VDC11.2NEGATIVE BIAS VOLTAGE-240-260VDC11.3POSITIVE BIAS CURRENT 1500mA11.4NEGATIVE BIAS CURRENT 125mA11.5NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V.11.6NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port.12CONNECTORS912.1RFINPUT & XMIT13.1MECHANICAL913.1WEIGHT0.913.2OUTLINE014.1OPERATING TEMPERATURE-2014.2STORAGE TEMPERATURE-2014.3VIBRATION LEVEL6	10.5	LOGIC TABLE					DWG: 3714 BELOW
11.1 POSITIVE BIAS VOLTAGE 1 4.80 5.20 VDC 11.2 NEGATIVE BIAS VOLTAGE -240 -260 VDC 11.3 POSITIVE BIAS CURRENT 1 500 mA 11.4 NEGATIVE BIAS CURRENT 1 25 mA 11.4 NEGATIVE BIAS CURRENT 25 mA 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 2 12.1 RF INPUT & XMIT Type NF 12.3 DC 9 pin "D" type 13.1 MECHANICAL 2 9 pin "D" type 13.1 WEIGHT 0.9 LBS 13.2 OUTLINE 2 DWG: 3714 BELOW 14.1 OPERATING TEMPERATURE -20 +55 °C 14.1 OPERATING -20 +55 °C 14.3 VIBRATION LEVEL 40 +70 °C							
11.2 NEGATIVE BIAS VOLTAGE -240 -260 VDC 11.3 POSITIVE BIAS CURRENT 1 500 mA 11.4 NEGATIVE BIAS CURRENT 25 mA 11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection - This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 20 12.1 RF INPUT & XMIT Type NF 12.3 DC 9 pin "D" type 13 MECHANICAL 20 9 pin "D" type 13.1 WEIGHT 0.9 LBS 13.2 OUTLINE 20 DWG: 3714 BELOW 14 ENVIRONMENTAL 20 20 14.1 OPERATING -20 +55 °C 14.3 VIBRATION LEVEL -20 +55 °C	11	D.C. POWER					
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11.5 NOTE 1: Power on sequence - To prevent possible damage to the switch, the + 5Vshould be applied first, then the -250V. 11.6 NOTE 2: Voltage Protection – This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 12.1 RF 12.3 DC 9 pin "D" type 13 MECHANICAL 13.1 WEIGHT 13.2 OUTLINE 14 ENVIRONMENTAL 14 OPERATING TEMPERATURE 14.1 OPERATING TEMPERATURE 14.2 STORAGE TEMPERATURE 14.3 VIBRATION LEVEL	11.3	POSITIVE BIAS CURRENT 1			500	mA	
-250V. 11.6 NOTE 2: Voltage Protection – This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 12.1 RF INPUT & XMIT Type NF 12.3 DC 9 pin "D" type 13.1 MECHANICAL DWG: 3714 BELOW 13.1 WEIGHT OUTLINE 14 ENVIRONMENTAL 14.1 OPERATING TEMPERATURE -20 *55 °C 14.2 STORAGE TEMPERATURE -40 +70 °C	11.4	NEGATIVE BIAS CURRENT			25	mA	
11.6 NOTE 2: Voltage Protection – This unit does not have over-voltage or reverse polarity protection on any bias port. 12 CONNECTORS 12.1 RF 12.3 DC 13 MECHANICAL 13.1 WEIGHT 13.2 OUTLINE 14 ENVIRONMENTAL 14 ENVIRONMENTAL 14.1 OPERATING TEMPERATURE 14.2 STORAGE TEMPERATURE 14.3 VIBRATION LEVEL	11.5	NOTE 1: Power on sequence -	To prevent possible dar		e switch, t	he + 5Vsho	uld be applied first, then the
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Image: constraint of the second sec	12.1	RF	INPUT & XMIT				Type NF
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14ENVIRONMENTAL					0.9	LB2	
14.1OPERATING TEMPERATURE-20+55°C14.2STORAGE TEMPERATURE-40+70°C14.3VIBRATION LEVEL-40-40GROUND TRANSPORT	13.2	OUTLINE					DVVG: 3714 BELOVV
TEMPERATURE14.2STORAGE TEMPERATURE14.3VIBRATION LEVEL14.3GROUND TRANSPORT	14	ENVIRONMENTAL					
14.2 STORAGE TEMPERATURE -40 +70 °C 14.3 VIBRATION LEVEL GROUND TRANSPORT	14.1			-20	+55	°C	
	14.2			-40	+70	°C	
14.4 HUMIDITY RH @ +40 DEG C 95%	14.3	VIBRATION LEVEL					GROUND TRANSPORT
	14.4	HUMIDITY RH	@ +40 DEG C		95%		

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