



SPM3211

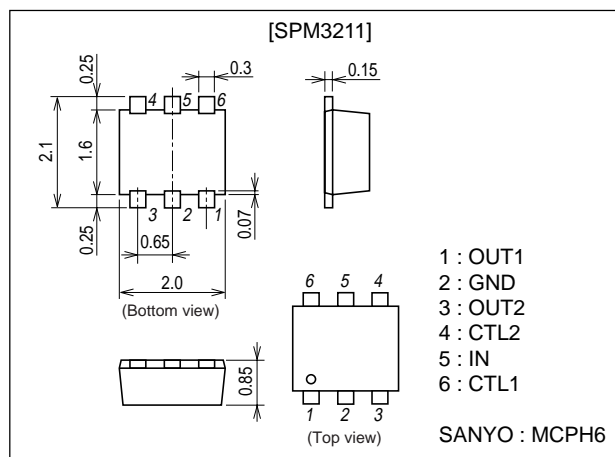
Wide-band Switch MMIC Operating with Single Power Supply

Features

- Control voltage : +3 / 0V.
- Small package (MCPH6).
- High isolation.
- Low Insertion loss.
- High surge breakdown voltage.

Package Dimensions

unit : mm
1322



Specifications

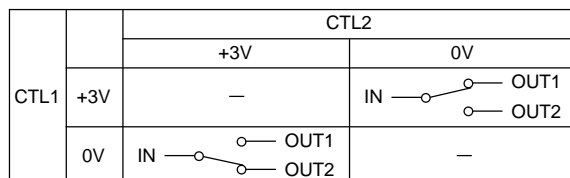
Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Control Voltage	V _{CTL}		5.0	V
Power Dissipation	P _D		150	mW
Storage Temperature	T _{stg}		-55 to +150	°C
Operating Temperature	T _{opr}		-40 to +85	°C

Electrical Characteristics at Ta=25°C Control Voltage 1, 2 : 0 / +3V

Parameter	Conditions	Ratings			Unit
		min	typ	max	
Insertion Loss	IN-OUT1, IN-OUT2	f=1GHz	0.45	0.75	dB
		f=2GHz	0.5	0.8	dB
		f=2.5GHz	0.55	0.85	dB
Isolation	IN-OUT1, IN-OUT2	f=1GHz	19	22	dB
		f=2GHz	15	18	dB
		f=2.5GHz	13	16	dB

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Marking : RD

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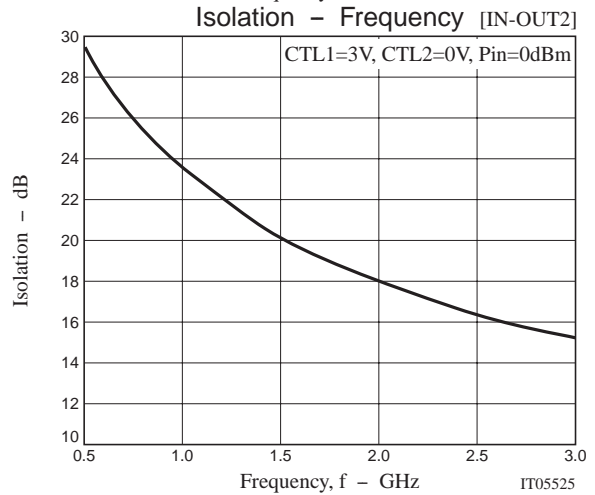
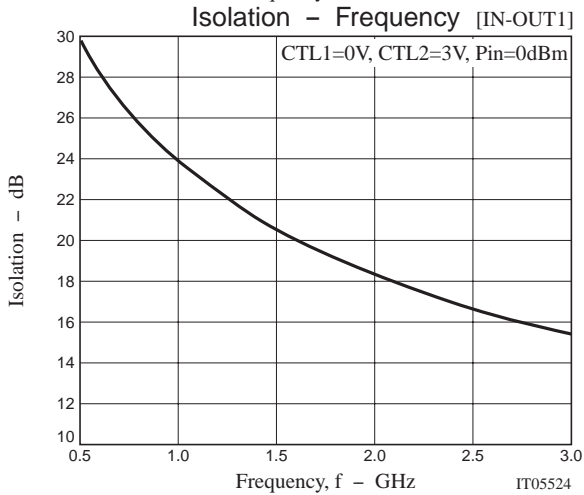
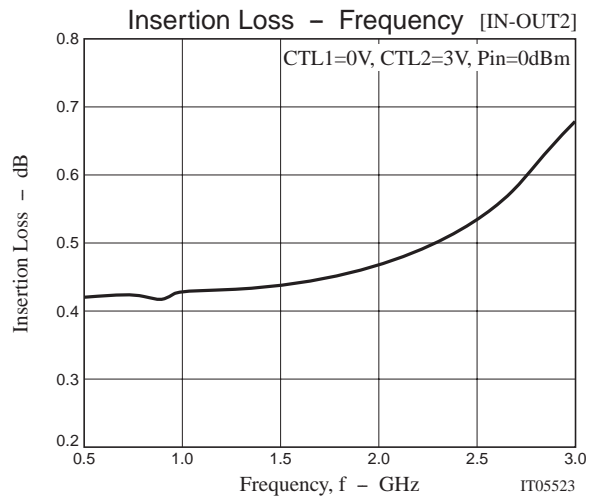
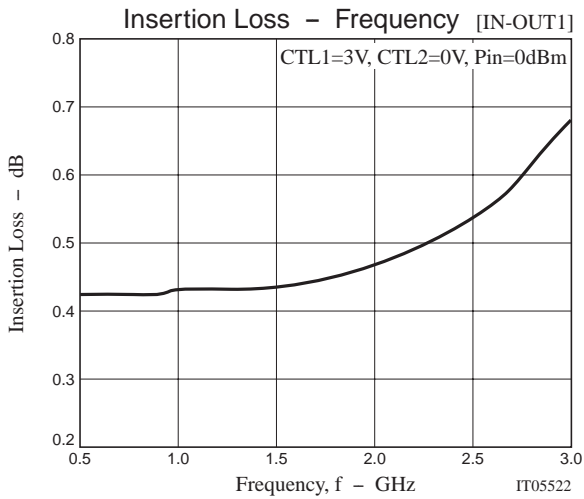
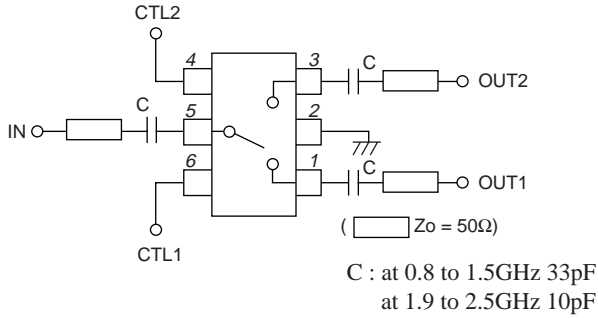
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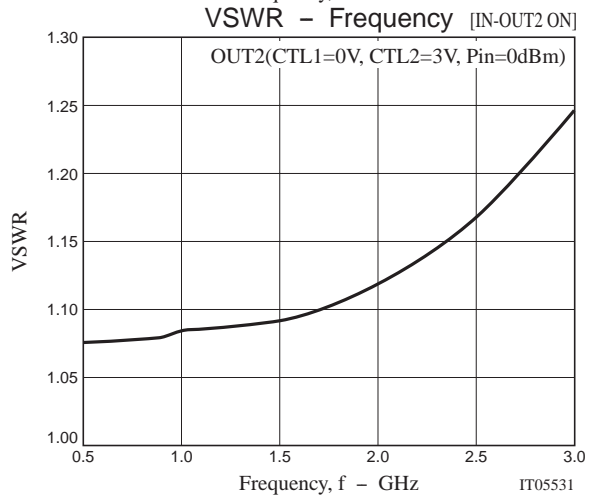
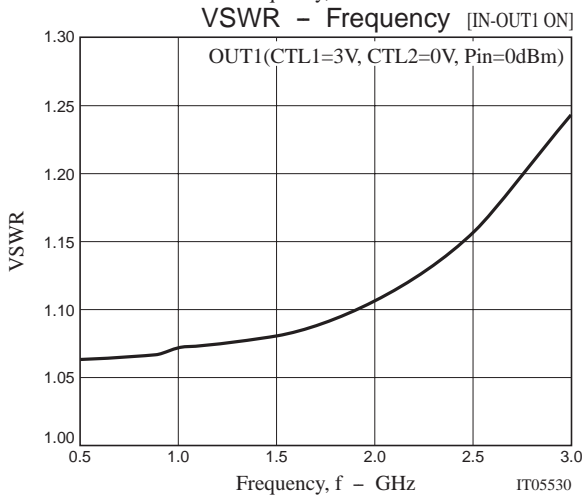
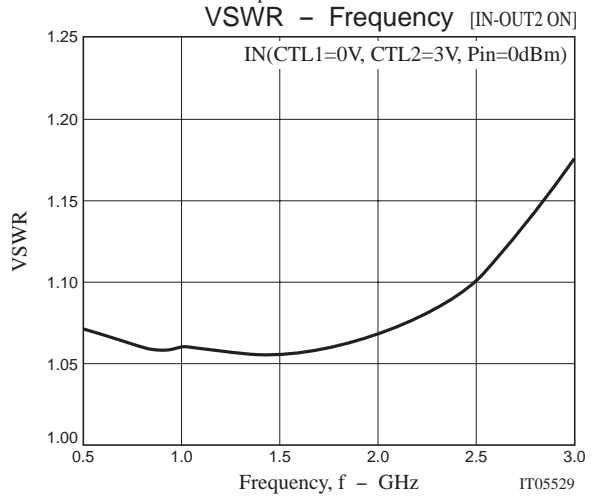
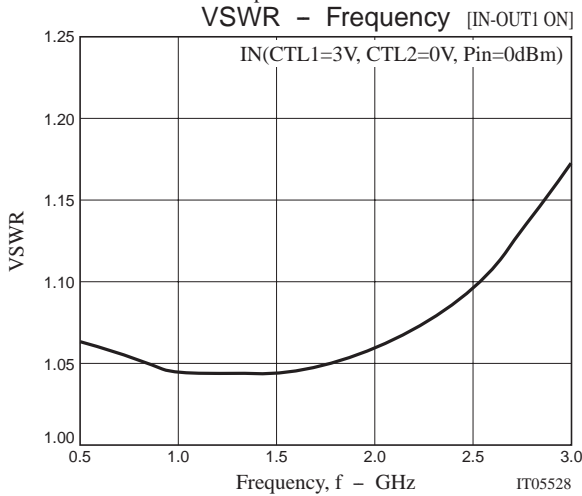
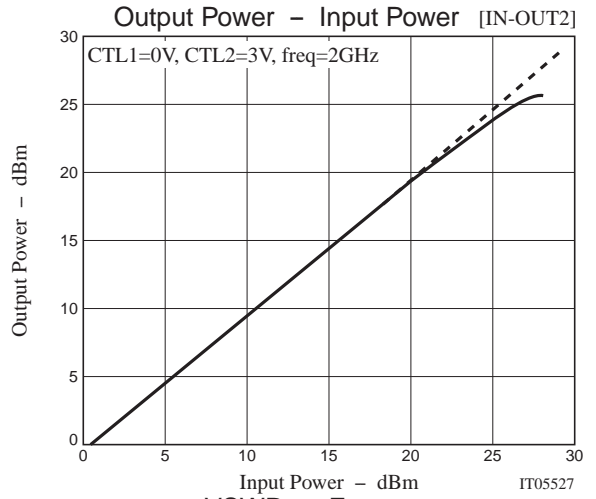
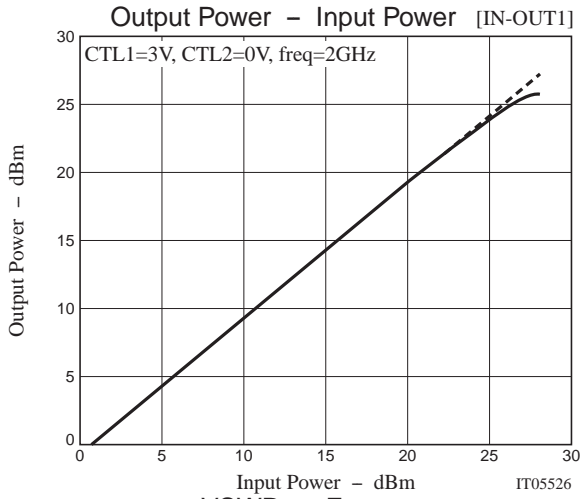
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Parameter	Conditions	Ratings			Unit
		min	typ	max	
VSWR	IN-OUT1, IN-OUT2	f=1GHz to 2.5GHz			
Switching Time		f=1GHz to 2.5GHz			ns
P _{IN} 1dB	IN-OUT1, IN-OUT2	24	28		dBm

Application Circuit



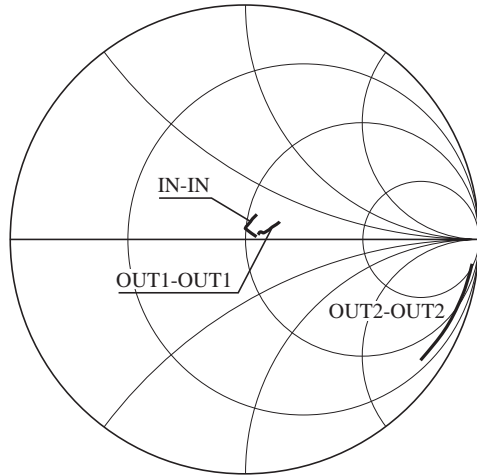
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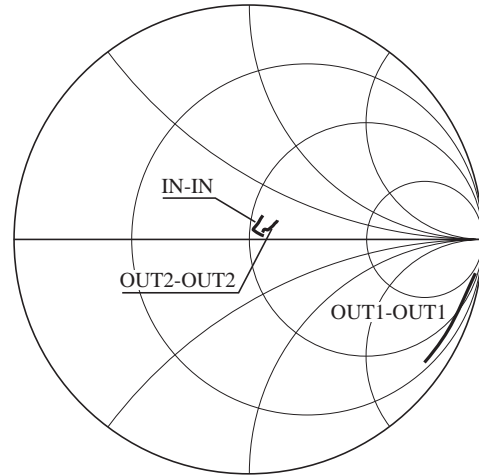
S-parameter

(CTL1=3V, CTL2=0V, Pin=0dBm, f=0.5 to 3GHz)



S-parameter

(CTL1=0V, CTL2=3V, Pin=0dBm, f=0.5 to 3GHz)



IN-OUT1 ON

(CTL1=3V, CTL2=0V, 0dBm)

Frequency (GHz)	IN-IN		IN-OUT2		IN-OUT1		OUT2-IN		OUT2-OUT2		OUT2-OUT1		OUT1-IN		OUT1-OUT2		OUT1-OUT1	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.030	11.9	0.033	81.8	0.946	-3.0	0.034	77.1	0.980	-6.1	0.032	77.4	0.948	-3.1	0.031	82.2	0.032	20.3
0.6	0.028	14.9	0.040	81.8	0.946	-3.6	0.041	77.6	0.979	-7.3	0.038	78.1	0.946	-3.6	0.037	82.6	0.034	21.4
0.7	0.026	18.7	0.046	81.6	0.944	-4.2	0.048	77.9	0.976	-8.6	0.045	78.4	0.944	-4.1	0.043	83.1	0.033	25.4
0.8	0.025	23.8	0.052	81.5	0.942	-4.7	0.054	78.4	0.974	-9.7	0.051	79.6	0.943	-4.6	0.049	83.3	0.035	26.2
0.9	0.022	29.8	0.059	80.9	0.939	-5.3	0.060	78.0	0.972	-11.1	0.056	79.2	0.942	-5.3	0.055	82.2	0.035	27.3
1.0	0.021	36.2	0.065	80.5	0.938	-5.8	0.067	77.9	0.969	-12.2	0.063	79.2	0.940	-5.8	0.062	82.1	0.037	27.7
1.1	0.020	43.5	0.072	80.4	0.937	-6.3	0.073	78.2	0.967	-13.6	0.068	80.3	0.937	-6.4	0.067	82.8	0.037	27.0
1.2	0.020	52.8	0.078	80.0	0.935	-6.8	0.079	77.5	0.963	-14.8	0.075	78.7	0.936	-6.8	0.073	82.0	0.039	28.8
1.3	0.020	62.3	0.084	79.2	0.934	-7.4	0.086	77.6	0.962	-16.2	0.081	80.4	0.933	-7.3	0.078	81.8	0.038	26.2
1.4	0.020	68.4	0.091	78.7	0.931	-8.0	0.091	76.7	0.957	-17.3	0.085	78.9	0.932	-7.8	0.085	81.1	0.041	28.2
1.5	0.021	72.6	0.097	78.2	0.929	-8.5	0.099	76.6	0.955	-18.8	0.093	79.1	0.930	-8.4	0.092	81.3	0.040	24.7
1.6	0.022	77.5	0.102	77.5	0.927	-8.9	0.103	76.0	0.950	-19.9	0.097	79.3	0.929	-9.0	0.096	81.3	0.043	25.0
1.7	0.024	82.5	0.109	77.2	0.925	-9.5	0.112	75.7	0.949	-21.3	0.106	78.6	0.927	-9.4	0.102	80.3	0.043	22.0
1.8	0.025	86.2	0.114	76.6	0.923	-10.1	0.115	75.4	0.944	-22.4	0.109	78.7	0.924	-10.1	0.108	79.8	0.045	22.2
1.9	0.027	88.3	0.121	76.2	0.921	-10.6	0.124	74.8	0.942	-23.6	0.116	78.1	0.924	-10.5	0.115	79.9	0.047	19.7
2.0	0.028	90.0	0.125	75.5	0.919	-11.1	0.125	74.8	0.939	-24.8	0.118	78.5	0.920	-11.2	0.117	79.8	0.049	19.3
2.1	0.031	89.4	0.131	74.5	0.916	-11.7	0.134	72.5	0.936	-25.9	0.128	76.7	0.919	-11.8	0.125	78.6	0.053	17.9
2.2	0.034	89.5	0.136	74.1	0.915	-12.4	0.139	73.5	0.934	-27.0	0.133	78.3	0.915	-12.3	0.130	78.5	0.055	19.2
2.3	0.037	87.7	0.142	74.0	0.913	-12.8	0.145	72.8	0.931	-27.9	0.138	76.1	0.913	-12.8	0.136	77.8	0.060	18.7
2.4	0.040	85.9	0.145	73.7	0.910	-13.4	0.150	72.9	0.929	-29.0	0.145	77.0	0.910	-13.4	0.141	78.5	0.063	20.2
2.5	0.045	82.8	0.152	73.8	0.907	-14.0	0.153	73.3	0.925	-29.8	0.145	77.9	0.909	-13.9	0.144	78.6	0.071	19.0
2.6	0.050	81.1	0.155	72.7	0.904	-14.6	0.157	70.3	0.923	-30.8	0.153	74.7	0.905	-14.6	0.151	76.9	0.075	22.4
2.7	0.055	78.6	0.163	72.7	0.902	-15.1	0.169	72.2	0.922	-31.4	0.163	77.7	0.904	-15.1	0.159	78.2	0.082	22.4
2.8	0.061	75.0	0.165	72.2	0.901	-15.8	0.164	71.0	0.919	-32.2	0.157	74.9	0.899	-15.8	0.158	76.9	0.090	25.0
2.9	0.070	71.8	0.171	71.8	0.896	-16.4	0.179	70.8	0.917	-32.9	0.174	76.7	0.897	-16.4	0.165	77.7	0.098	25.5
3.0	0.079	69.0	0.174	72.5	0.891	-17.2	0.173	72.3	0.914	-33.6	0.166	77.6	0.891	-17.0	0.167	77.6	0.106	27.3

*The characteristic contains evaluation system loss.

IN-OUT2 ON

(CTL1=0V, CTL2=3V, 0dBm)

Frequency (GHz)	IN-IN		IN-OUT2		IN-OUT1		OUT2-IN		OUT2-OUT2		OUT2-OUT1		OUT1-IN		OUT1-OUT2		OUT1-OUT1	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
0.5	0.034	13.4	0.951	-3.1	0.032	88.1	0.952	-3.0	0.037	19.7	0.030	89.5	0.032	88.7	0.031	90.3	0.987	-6.3
0.6	0.033	20.1	0.949	-3.6	0.039	87.5	0.950	-3.5	0.039	20.9	0.037	88.8	0.038	87.3	0.037	88.7	0.985	-7.5
0.7	0.030	20.4	0.948	-4.2	0.045	86.5	0.948	-4.1	0.039	23.1	0.043	88.2	0.045	86.7	0.044	87.9	0.981	-8.7
0.8	0.031	26.4	0.947	-4.7	0.052	85.4	0.947	-4.6	0.040	25.4	0.049	87.2	0.050	86.3	0.049	87.8	0.978	-9.8
0.9	0.027	30.7	0.944	-5.3	0.058	85.4	0.945	-5.2	0.040	25.5	0.055	87.4	0.057	83.7	0.056	85.8	0.975	-11.1
1.0	0.029	34.1	0.943	-5.9	0.064	83.3	0.943	-5.7	0.042	27.2	0.061	85.6	0.064	84.4	0.061	86.7	0.972	-12.3
1.1	0.026	43.0	0.941	-6.4	0.071	83.9	0.941	-6.2	0.041	26.0	0.067	86.3	0.069	83.4	0.067	85.3	0.969	-13.6
1.2	0.027	43.4	0.939	-7.0	0.076	82.2	0.939	-6.8	0.043	29.1	0.072	84.6	0.076	83.4	0.074	85.4	0.965	-14.7
1.3	0.026	53.3	0.937	-7.5	0.084	81.8	0.937	-7.3	0.042	26.7	0.079	84.7	0.081	81.8	0.078	84.7	0.962	-15.9
1.4	0.025	54.7	0.935	-8.0	0.087	81.4	0.936	-7.8	0.045	29.9	0.083	84.2	0.089	80.4	0.085	83.4	0.958	-17.2
1.5	0.027	58.2	0.933	-8.6	0.095	80.1	0.934	-8.3	0.043	26.4	0.091	83.0	0.094	81.8	0.091	84.2	0.957	-18.4
1.6	0.026	64.2	0.931	-9.1	0.100	80.4	0.931	-8.9	0.046	28.2	0.095	83.8	0.098	79.3	0.096	82.3	0.955	-19.5
1.7	0.028	64.6	0.929	-9.7	0.107	78.8	0.930	-9.4	0.045	25.4	0.102	82.1	0.107	80.0	0.104	83.2	0.954	-20.7
1.8	0.028	72.0	0.926	-10.2	0.112	79.1	0.927	-10.0	0.049	26.2	0.108	82.5	0.110	78.0	0.106	81.5	0.950	-21.9
1.9	0.030	68.5	0.924	-10.8	0.117	77.9	0.925	-10.5	0.048	24.5	0.111	81.5	0.122	78.5	0.118	81.6	0.951	-23.0
2.0	0.032	77.3	0.923	-11.3	0.123	77.3	0.922	-11.1	0.051	24.4	0.117	81.0	0.120	78.3	0.116	81.5	0.947	-24.2
2.1	0.032	72.1	0.919	-11.8	0.128	76.6	0.922	-11.6	0.054	24.0	0.123	80.9	0.129	75.3	0.126	79.4	0.946	-25.2
2.2	0.037	75.9	0.917	-12.4	0.134	75.8	0.918	-12.1	0.056	24.3	0.129	79.9	0.132	76.3	0.128	80.5	0.944	-26.3
2.3	0.038	74.0	0.916	-12.9	0.140	76.1	0.917	-12.7	0.061	24.2	0.134	79.8	0.140	75.5	0.135	79.0	0.943	-27.2
2.4	0.044	72.6	0.913	-13.5	0.143	74.9	0.914	-13.2	0.063	25.1	0.138	79.0	0.143	77.1	0.139	80.5	0.941	-28.1
2.5	0.046	73.4	0.909	-14.2	0.149	75.2	0.910	-13.9	0.069	24.6	0.144	80.3	0.147	75.8	0.145	80.8	0.939	-28.9
2.6	0.052	68.7	0.909	-14.6	0.152	73.9	0.910	-14.5	0.073	26.7	0.147	78.8	0.152	73.6	0.148	78.8	0.937	-29.7
2.7	0.057	69.2	0.904	-15.1	0.161	74.5	0.906	-14.8	0.080	26.6	0.156	79.5	0.163	74.4	0.158	79.1	0.936	-30.4
2.8	0.064	65.6	0.906	-16.0	0.161	74.1	0.904	-15.7	0.085	28.6	0.154	78.6	0.159	73.9	0.154	77.9	0.933	-31.2
2.9	0.072	64.6	0.899	-16.3	0.170	73.3	0.901	-16.0	0.093	29.0	0.163	78.7	0.169	73.7	0.165	78.7	0.934	-31.7
3.0	0.079	62.4	0.896	-17.4	0.171	73.7	0.896	-17.0	0.099	30.7	0.165	79.8	0.169	74.3	0.164	80.6	0.930	-32.3

*The characteristic contains evaluation system loss.

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