



PRODUCT SPECIFICATION

1.0 Applicable Connector: Applicable to DLK DP Series connector.

(适用于德力康公司 DP 系列连接器.)

Scope: This specification covers the requirements for product performance and test methods of DLK's DP Series Connectors of the part numbers specified as bellow.

(覆盖范围: 此规格书内容含盖德力康公司 DP 系列连接器产品性能及测试方法。)

2.0 Rating: (要求):

2.1 Contact Current Rating: 0.5Ampere.

(额定电流: 0.5A)

2.2 Contact Voltage Rating: 40Volt.

(额定电压: 40V)

2.3 Temperature Range: -55°C to +85°C

(温度范围: -55°C 至 +85°C)

3.0 Test Condition:

All tests shall be performed as bellow conditions unless otherwise specified.

(所有的测试都在下列条件下完成, 除非另有说明.)

3.1 Temperature range : 15°C~35°C

(温度: 15°C~35°C)

3.2 Humidity range: 20%~80%

(湿度: 20%~80%)

3.3 Atmospheric Pressure : 650 mm to 800 mm (866 to 1066mbar)

(大气压力: 650 mm 至 800 mm (866 to 1066 兆帕))

4.0 Test Methods and Requirements : (测试方法和要求):

4.1 Mechanical Performance: (机械性能):

Item (条目)	Test Description (测试内容)	Test Methods (测试方法)	Requirement (要求)
4.1.1	Visual Inspection (外观检查) Refer to: ANSI/EIA-364-18	Before the qualification test, all these components shall be examined the Features, Construction as per applicable specification and documents. (在测试之前, 对所有产品按照其规格和图面进行外观和尺寸检查。)	The inspection results should be compliant with the individual specification. (检验结果应符合规范。)

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: 2017 /01/ 12	DP TYPE CONN.	1 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andy an



PRODUCT SPECIFICATION

4.1.2	Insertion Force & Withdrawal Force (插入力/拔出力) Refer to: ANSI/EIA-364-13	The specimen are mounted to mounting fixtures by the normal mounting means. The peak force shall be recorded at the max. rate of 25±3mm per minute. (将公座或母座焊接在 PC 板上, 然后以每分钟 25±3mm 的速度沿轴向插拔 3 次后再测量其插入和拔出力)	Each specimen needs to be recorded three peak force of the mating & un mating movements. (每个样品需沿轴向插拔 3 次后再测量其插入和拔出力)	
			Insert force (插入力)	4.5Kgf max
			Withdrawal force (拔出力)	1.0~4.0Kgf
4.1.3	Durability (寿命测试) Refer to: ANSI/EIA-364-09	Measure contact and shell resistance after the following. Automatic cycling: 10,000 cycles at a rate of 100+/- 50cycles per hour. (将公座及母座焊接在 PCB 上, 然后以每小时 100±50 次的速度沿轴向插拔 10000 次)	Contact Resistance (接触阻抗)	Contact: Change from initial value: 30 mΩ maximum. (端子: 测试后不得大于 30 毫欧) Shell Part: Change from initial value: 50 mΩ maximum. (外壳: 测试后不得大于 50 毫欧)
4.1.4	Vibration: (振动测试) Refer to: ANSI/EIA-364-28Condition III	Amplitude:1.52mm P-P or 147m/s2 {15G}, (振幅: 1.52mm) Sweep time:50-2000-50Hz in20minutes. (频率: 20 分钟内变换 50-2000-50Hz) Duration:12 times in each X.Y.Z axes.{total of 36 times} (持续时间: 每个方向 12 小时, 共 36 小时) Electrical load: DC 100mA current must be conducted during the test. (负载: 施加 DC 100mA 电流测试)	Appearance (外观)	No damage (没有损坏)
			Contact Resistance (接触阻抗)	Contact: Change from initial value: 30 mΩ maximum. (端子: 测试后不得大于 30 毫欧) Shell Part: Change from initial value: 50 mΩ maximum. (外壳: 测试后不得大于 50 毫欧)
			Discontinuity (断讯)	1 μ sec max. (不能超过 1 微秒)
4.1.5	Latch Strength Refer to: ANSI/EIA-364-98	Mate connectors, apply axial pull-out force at a rate of 13mm / minute until the latch is disengaged or damaged.	Appearance (外观)	No damage on either part of connector (没有损坏)
			Pull force	5.0kgf min. (不得小于 5.0kgf)
4.1.6	Shock Refer to: (冲击测试) ANSI/EIA-364-27,Condition A	Pulse width:11msWaveform: half sine,490m/s2{50G},3 strokes in each X.Y.Z axes. (将对插后的连接器固定于冲击实验机上, 并施加下列测试条件: 冲击时间: 11 毫秒 波形: 半正弦波 加速度最大 50G, 沿 3 个互相垂直的方向)	Appearance (外观)	No damage (没有损坏)
			Contact Resistance (接触阻抗)	Contact: value: 80 milliohm max (端子: 测试后不得大于 80 毫欧)

5.1 Electrical Performance: (电气性能) :

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: 2017 /01/ 12	DP TYPE CONN.	2 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andy



PRODUCT SPECIFICATION

Item	Test Description	Test Methods	Requirement
5.1.1	Low Level Contact Resistance Refer to: (接触阻抗) ANSI/EIA-364-23	Mated connectors, Contact: measured by dry circuit, 20m Volts max., and 10mA. (端子: 将公母头对插后, 在回路施加直 流最大 20mV 10mA 的电流)	Contact: Change from initial value = 30 mΩ maximum (端子: 接触阻抗最大不能超过 30 毫欧) Shell: Change from initial value = 50 mΩ maximum (外壳: 接触阻抗最大不能超过 50 毫欧)
		Shell: measured by open circuit, 5 Voltsmax., 100mA. (外壳: 将公母头对 插后, 在回路施加直流最大 5V 100mA 的电流, 再测量相对应端子或铁壳的电阻 值)	
5.1.2	Insulation Resistance Refer to: (绝缘阻抗) ANSI/EIA 364-21, Method302	Unmated connectors, apply 500 Volts DC between adjacent terminal and ground. (未对插的连接器, 在相邻的端 子间施加 DC 500V 1mA 的电流 1 分 钟;)	Unmated: 100 MΩ minimum (未对插: 最小为 100 兆欧)
		Mated connectors, apply 150 Volts DC between adjacent terminal and ground. (对插的连接器在相邻的端子间施加 DC 150V 1mA 的电流 1 分钟;)	Mated: 10 MΩ minimum (对插: 最小为 10 兆欧)
5.1.3	Dielectric Strength Voltage Refer to: (耐电压) ANSI/EIA 364-20, Method301	Unmated connectors, apply 500 Volts AC (RMS.) between adjacent terminal and ground. (未对插的连接器, 在相邻 的端子间施加 AC 500V 1mA 的电流 1 分 钟;) Mated connector, apply 300 Volts AC (RMS.) between adjacent terminal and ground. (对插的连接器在相邻的端子间施加 AC 300V 1mA 的电流 1 分钟;)	No Breakdown (没有损坏)
5.1.4	Contact Current Rating: (额定电流) Refer to: ANSI/EIA- 364-70, TP-70	55°C max. ambient 85°C max. temperature change (给端子一个负载, 当温度分别达到 55°C 和 85°C 稳定状态下, 量测当时的电 流)	0.5 A min. (最小 0.5 A)
5.1.5	Applied Voltage Rating (额定电压)	40 Volts RMS continuous max. on any signal pin with respect to the shield. (连续对所有端子施加最大 AC 40V 电 压)	No Breakdown (没有损坏)

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: 2017 /01/ 12	DP TYPE CONN.	3 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andyan



PRODUCT SPECIFICATION

5.1.6	Electrostatic Discharge Refer to: (静电放电) IEC61000-4-2	Test unmated connectors from 1 kVolt to 8 kVolts in 1 kVolt steps using 8mm ball probe.	No evidence of discharge to contacts at 8kVolts
5.1.7	T.M.D.S. Signals time Domain Impedance : Refer to: ANSI/EIA-364-108 Draft proposal	Rise time: 200ps(10%~90%) signal to ground pin ratio per DP designation. Differential measurement specimen environment impedance :100 Ohms differential Soure-side receptacle connector mounted on a controlled impedance PCB fixture.	Connector area:100+/-15% ohm
5.1.8	T.M.D.S. Signals time Domain Cross talk FEXT: Refer to: ANSI/EIA-364-90 Draft proposal	Risetime:200ps(10%~90%) signal to ground pin ratio per DP designation. Differential measurement specimen environment impedance :100 Ohms differential Soure-side receptacle connector mounted on a controlled impedance PCB fixture. Driven pair and victim pair.	10% Max

5.2 Environmental Performance:(环境性能) :

Item	Test Description	Test Methods	Requirement	
5.2.1	Solder ability Refer to: (焊锡性) MIL-STD-202F-208F	Immersed the contact of connector into the molten-Tin oven as below condition, Temp of Tin Oven: 245°C Speed: 25.4mm/sec Time: 5 seconds (将端子脚浸入助焊剂中 5 秒, 然后将端子脚以 25.4 mm/秒的速度浸入 245°C 的锡炉中)	90% of immersed area must show no voids. Pin holes. (锡附着面积应超过浸入表面积 的 90%以上)	
5.2.2	Humidity Refer to: (恒温恒湿) ANSI/EIA-364-31	A) Mate connectors together and perform the test as follows. Temperature: +25°C~+85°C Relative Humidity: 80%~95% Duration: 4 cycles(96hours) Upon completion of the test, specimens must be conditioned at ambient room conditions for 24 hours, after which the specified measurements must be performed. (将公母座配对后, 放入下列环境中测试: 温度: +25°C~+85°C 湿度: 80-95% 时间: 4 天 (96 小时) 测试后产品应置于标准大气条件中 24 小时后再进行测量;)	Appearance (外观)	No damage (没有损坏)
		B) Unmate connectors and perform the test as follows: Temperature : +25 to	Contact Resistance (接触阻抗)	Contact: Change from initial value: 30 mΩ maximum. (端子: 测试后不得大于 30 毫欧) Shell Part: Change from initial value: 50 mΩ maximum.
			Appearance (外观)	No damage (没有损坏)

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: 2017 /01/ 12	DP TYPE CONN.	4 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andy



PRODUCT SPECIFICATION

		<p>+85°C Relative Humidity : 80 to 95% Duration : Four cycles (96 hours) Upon completion of the test, specimens must be conditioned at ambient room conditions for 24 hours, after which the specified measurements must be performed. (将单个连接器, 放入下列环境中测试: 温度: +25°C-+85°C 湿度: 80-95% 时间: 4 天 (96 小时) 测试后产品应置于标准大气条件中 24 小时后再进行测量;)</p>	Dielectric Withstanding Voltage and Insulation Resistance (耐电压和绝缘阻抗)	Conform to item of Dielectric Withstanding Voltage and Insulation Resistance (符合耐电压和绝缘阻抗测试要求)
5.2.3	<p>Salt Spray Refer to: (盐水喷雾) 1.EIA-364-26B2.MIL-STD-202F101D3.MIL-STD-1344A1001.1</p>	<p>The connector specimen are testing with the 5% Salt Water (NaCl), 6.5 – 7.2 PH, at 35°C normal temperature, spray pressure 1Kg for 48 hours consecutive time and rinse the sample with water and recondition the room temperature for 1 hour. (盐水浓度: 5%, 6.5 – 7.2 PH, 温度: 35°C, 连续喷雾 48 小时, 测试过后用水冲洗, 室温 1 小时冷却)</p>	<p>Appearance (外观)</p> <p>After the Salt Spray test , The connectors no evidence of damage and shall meet the requirements of contact resistance: Contact Resistance:contact:value:30 mΩ.max.(Product only) (外观无损坏且需满足端子接触阻抗不得大于 30 毫欧)</p>	No damage (没有损坏)
5.2.4	<p>Thermal Shock Refer to: (冷热冲击) ANSI/EIA-364-32 Condition I</p>	<p>10 cycles of: a)-55°C for 30 minutes b)+85°C for 30 minutes performed. (将连接器焊在 PCB 上后将其暴露在下列环境条件中循环 10 次: 置于-55°C ± 3°C 温度中 30 分钟, 再转换标准温度条件 10-15 分钟, 再转换至 +85°C ± 2°C 下 30 分钟, 再转换至标准温度条件 10-15 分钟;)</p>	<p>Appearance (外观)</p> <p>Contact Resistance (接触阻抗)</p>	<p>No damage (没有损坏)</p> <p>Contact: Change from initial value: 30 mΩ maximum. (端子: 测试后不得大于 30 毫欧) Shell Part:Change from initial value: 50 mΩ maximum. (外壳: 测试后不得大于 50 毫欧)</p>
5.2.5	<p>Thermal Aging(Temperature Life) Refer to: (热老化测试) ANSI/EIA-364-17Condition 4 Method A</p>	<p>Mate connectors and expose to 105+/-2°C for 250 hours. Upon completion of the exposure period, the test specimens must be conditioned at ambient room conditions for 1 to 2 hours ,after which the specified measurements must be performed. (将连接器放在+ 105°C ± 2°C 的环境中 250 小时, 然后再移至标准温度条件下 1-2 小时, 再进行测量;)</p>	<p>Appearance (外观)</p> <p>Contact Resistance (接触阻抗)</p>	<p>No damage (没有损坏)</p> <p>Contact: Change from initial value: 30 mΩ maximum. (端子: 测试后不得大于 30 毫欧) Shell Part: Change from initial value: 50 mΩ maximum. (外壳: 测试后不得大于 50 毫欧)</p>

6.0 Test Sequence:

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	<p>EC No:</p> <p>DATE: 2017 /01/ 12</p>	DP TYPE CONN.	5 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andy an



PRODUCT SPECIFICATION

Test of Examination	Test Group										
	A	B	C	D	E	F	G	H	I	J	K
	Test Sequence										
Visual Inspection	1,13	1,7	1,7	1,4	1,3	1,5	1	1	1	1,3	1,4
Insertion & Withdrawal Force	3,5										
Durability	4										
Vibration		3									
Latch Strength										2	
Shock		5									
Low Level Contact Resistance	2,6,8, 10,12	2,4, 6				2,4					
Insulation Resistance			4,6	3							
Dielectric Withstanding Voltage			2	2							
Contact Current Rating							2				
Applied Voltage Rating									2		2
Electrostatic Discharge											3
T.M.D.S. Signals time Domain Impedance								2			
T.M.D.S. Signals time Domain Cross talk FEXT								3			
Solderability					2						
Humidity	11		5								
Salt Spray						3					
Thermal Shock	7		3								
Thermal Aging (Temperature Life)	9										
Number of samples	5	5	5	5	5	5	5	5	5	5	5

REVISION:	ECR/ECN INFORMATION:	TITLE:	SHEET No.
A	EC No: DATE: 2017 /01/ 12	DP TYPE CONN.	6 of 6
DOCUMENT NUMBER:	CREATED / REVISED BY:	CHECKED BY:	APPROVED BY:
SP-DPTXX-00-00	DQ	~	Andy