TITLE :	
	USB CONNECTOR

1.0 SCOPE

This specification covers the USB series product.

2.0 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herewith. In the event of conflict between the requirements of the specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of the specification and the referenced documents, this specification shall take precedence.

MIL-STD-202 Test Mthods for Electronic and Electrical Component Parts
MIL-STD-1344 Test Methods for Electrical Connectors

3.0 MATERIAL SPECIFICATIONS

3.1 Design and Construction
Connector shall be of the design, construction and physical dimensions specified on the applicable sales drawing

3.2 Materials
a) Contacts : Refer To Respective Molex Sales & Engineering Drawings

b) Housing : Refer To Respective Molex Sales & Engineering Drawings

c)Metal Shell : Refer To Respective Molex Sales & Engineering Drawings

d)Plating : Refer To Respective Molex Sales & Engineering Drawings

4.0 RATINGS

4.1	Rated current	1.5 Amp
4.2	Rated voltage	30 VRMS Max.
4.3	Operating temperature range	0˚C to +50˚C
4.4	Storage temperature range	-20˚C to +60˚C

ELECTRICAL

5.0 Performance and Test Description

Connector shall be designed to meet the electrical, mechanical and environmental performance requirements specified in 5.1

5.1 Test Requirments and Procedures.

Item	**Requirement**	**Test methods**
Contact Resistance	**30** mΩ max	Maximum applied Voltage 20mV
(initial value)		at a current of 100mA per EIA 364-23

Dielectric	No Breakdown	Test between adjacent contacts
Withstanding		at 750 V AC (rms) and 60 seconds
Voltage		hold time, per Mil-Std-1344A
		Method 3001.1, Test Condition I.

Insulation	**1000** Mega Ω	Test between adjacent contacts
Resistance	min	at 500 V dc for 2 minutes,
		per Mil-Std-1344A Method 3003.1

Capacitance	**2** picofarad	Test between adjacent contacts
	max	to 1 Megahertz max per EIA 364-30

Current Rating	30 deg C temp. rise max	Apply the rated current to
1.5 Amp		connector for 96 hours per
(Temperature rise)		EIA 364-70-Method B

MECHANICAL

Item	Requirement	Test methods
Durability (Au flash	Contact Resistance	Mate this connector with its mating
Plating)	**30** mohm max	part. Other conditions follow
	after **1500** cycles.	per EIA364-09
Terminal	**0.8** Kg min	Apply a pull out force in the axial
Retention		direction of the contact per Mil-Std-
		1344A method 2007.1
Vibration	a. Contact Resistance	Subject mated connector to simple
	30 mohm max	harmonic motion with double
	b. No discontinuity	amplitude displacement of 0.03 inch
	greater than **1** μsec.	or 5.35 G's and frequency sweep of
		10 to 55 and return to 10 Hz in 2 hours
		in each direction. Total 5 cycles.
		per EIA 364-28
Mechanical	a. No Damage	Subject mated connector to
Shock	b. Contact Resistance	30 G half sine in 11 msec
	30 mohm max	according to EIA 364-27
	b. No discontinuity	
	greater than **1** μsec.	
Mating and Unmating	a. Mating = **3.57** Kg (35 N)	Mate the connector with its mating
Forces	max	part and measure force per
	b. Unmating = **1.02** Kg (10 N)	EIA 364-13
	min	
Cable pull out	4.08 Kg for one minute	Follow EIA 364-38 test condition A
Torque force with upper flange	2.50 Kg Min	

ENVIRONMENTAL

Item	Requirement	Test methods
Thermal Shock	Contact Resistance	Subject mated connector to
	30 mΩ max	10 cycles of exposure at
		- 55 deg C and 85 deg C
		per EIA 364-32

Steady State	Contact Resistance	Expose mated connector to
Humidity	**30** mΩ max	40 deg C and 90-95% RH for
		168 hours according to
		EIA 364-31

Temperature	Contact Resistance	Subject mated connector to
Life (Thermal	**30** mΩ max	ambient temperature of 125 deg C
aging)		for 250 hours per Mil-Std-1344A
		Method 1005.1 Condition B

Solderability	Solder tails shall pass 95% cover	PER EIA 364-52
	-age after one hour steam aging as	
	specified in Category 2	

Resistance to soldering	Appearance : No damage	Dip solder-tails into the molten
heat		solder as follows :
		Soldering time : 5+/-0.5 seconds
		Solder temperature: 260 +/-5 degree C

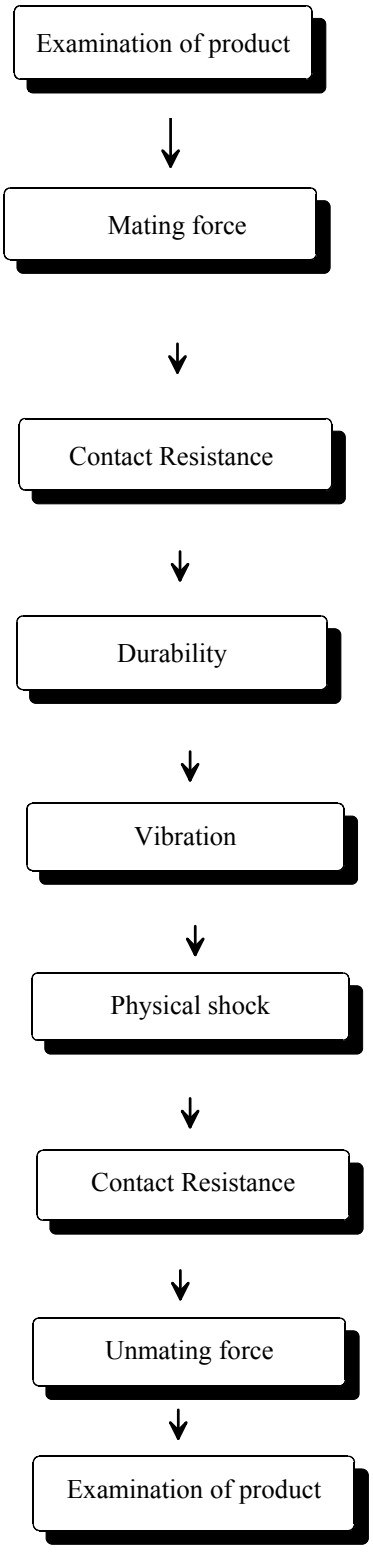
5.2 Test Groups and Test Sequences :

The tests are categorized into 3 major groups. The test sequences are defined as follow .

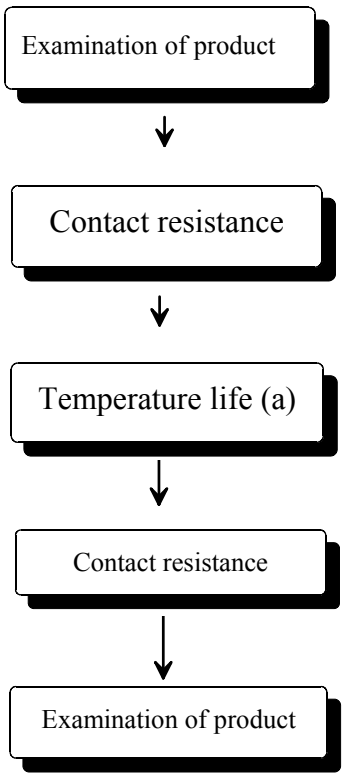
***The tests for Solderability, Terminal Retention are performed independently.**

Sample selection: All test groups shall consist a minimum of eight connectors.A minimum of 30 contacts shall be selected and identified.

GROUP I

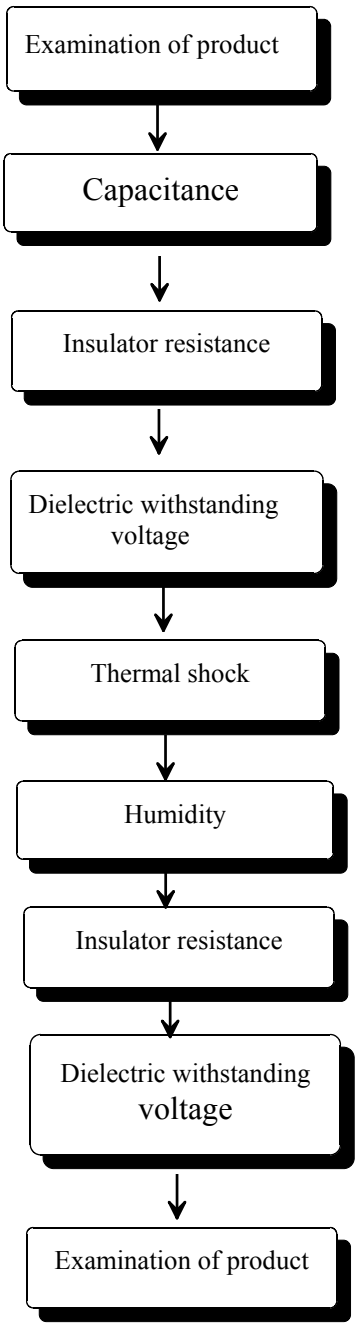

Examination of product
Mating force
Contact Resistance
Durability
Vibration
Physical shock
Contact Resistance
Unmating force
Examination of product

GROUP II



(a): Pre-mating and unmating 10 cycles

GROUP III


Examination of product
Capacitance
Insulator resistance
Dielectric withstanding voltage
Thermal shock
Humidity
Insulator resistance
Dielectric withstanding voltage
Examination of product