



MICROCHIP

QUALIFICATION REPORT
RELIABILITY LABORATORY

PCN #: JAON-13JEGV932

Date
April 21, 2016

**Qualification of palladium coated copper with gold flash
(CuPdAu) bond wire in selected products of the 120K, 150K,
160K and 200K wafer technologies available in 14L TSSOP
package at MMT assembly site.**

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PACKAGE QUALIFICATION REPORT

Purpose Qualification of palladium coated copper with gold flash (CuPdAu) bond wire in selected products of the 120K, 150K, 160K and 200K wafer technologies available in 14L TSSOP package at MMT assembly site.

CN BC160038
QUAL ID Q16037
MP CODE LEBP24D4XB04
Part No. PIC16F1825-E/ST
Bonding No. BDM-000985 Rev. A
CCB No. 1836

Package

Type 14L TSSOP
Package size 4.4 mm
Die thickness 11 mils
Die size 88.9 x 87.7 mils

Lead Frame

Paddle size 118 x 153 mils
Material C7025
Surface Bare Cu
Process Stamped
Lead Lock No
Part Number 10101406
Treatment BOT

Die attach material

Epoxy 2200D
Wire CuPdAu wire
Mold Compound G600V
Plating Composition Matte Tin



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Manufacturing Information

Assembly Lot No.	Wafer Lot No.	Date Code
MMT-164300511.000	GRSM416232457.400	1603QSB
MMT-164300868.000	GRSM416232457.400	1603UE9
MMT-164300869.000	GRSM416232457.400	1603UM6

Result

☒ Pass ☐ Fail ☐ _____

14L TSSOP (4.4mm) assembled by MMT (ALPH) pass reliability test per QCI-39000. This package was qualified the Moisture/Reflow Sensitivity Classification Level 1 at 260°C reflow temperature per IPC/JEDEC J-STD-020D standard.

Prepared By: Thinnapol Date: April 21, 2016 (Sr. Reliability Engineer)

(Mr. Thinnapol Nakkasun)

Approved By: Somnuek Date: April 21, 2016 (Reliability Manager)

(Mr. Somnuek Thongprasert)

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS	Result	Remarks
Moisture/Reflow Sensitivity Classification Test (At MSL Level 1)	85 °C/ 85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH 3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243 (IPC/JEDEC J-STD-020D)	IPC/JEDEC C J-STD- 020D	135	0/135	Pass	

<u>Precondition Prior Perform Reliability Tests (At MSL Level 1)</u>	Electrical Test :+25°C,125°C and -40°C System: J750	JESD22- A113	693(0)	693		Good Devices
	Bake 150°C, 24 hrs System: CHINEE			693		
	85°C/85%RH Moisture Soak 168 hrs. System: TABAI ESPEC Model PR-3SPH			693		
	3x Convection-Reflow 265°C max System: Vitronics Soltec MR1243			693		
	Electrical Test :+25°C and 125°C System: J750			0/693	Pass	

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
Temp Cycle	Stress Condition: (Standard) 65°C to +150°C, 500 Cycles System : TABAI ESPEC TSA-70H Electrical Test: + 125°C System: J750 Bond Strength: Wire Pull (> 2.5 grams) Bond Shear (>15.00 grams)	JESD22-A104		231		Parts had been pre-conditioned at 260°C
			231(0)	0/231	Pass	77 units / lot
			15 (0)	0/15	Pass	
			15 (0)	0/15	Pass	
UNBIASED-HAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. System: HAST 6000X Electrical Test: +25°C System: J750	JESD22-A118		231		Parts had been pre-conditioned at 260°C
			231(0)	0/231	Pass	77 units / lot
HAST	Stress Condition: (Standard) +130°C/85%RH, 96 hrs. Bias Volt: 5.5 Volts System: HAST 6000X Electrical Test: +25°C and 125°C System: J750	JESD22-A118		231		Parts had been pre-conditioned at 260°C
			231(0)	0/231	Pass	77 units / lot

PACKAGE QUALIFICATION REPORT

Test Number (Reference)	Test Condition	Standard/ Method	Qty. (Acc.)	Def/SS.	Result	Remarks
High Temperature Storage Life	Stress Condition: Bake 175°C, 504 hrs System: SHEL LAB	JESD22- A103		45		45 units
	Electrical Test :+25°C and 125°C System: J750		45(0)	0/45	Pass	
Wire sweep	Wire sweep Inspection 15 Wires / lot	-	45(0) Wires	0/45		
Bond Strength Data Assembly	Wire Pull (> 2.5 grams)	M2011	30 (0) Wires	0/30	Pass	
	Bond Shear (>15.00 grams)	JESD22- B116	30 (0) bonds	0/30	Pass	

JAON-13JEGV932 - CCB 1836 Final Notice: Qualification of CuPdAu bond wire in selected products of the 120K, 150K, 160K and 200K wafer technologies available in 14L TSSOP package at MMT assembly site.

Affected Catalog Part Numbers (CPN)

PCN_JAON-13JEGV932
CATALOG_PART_NBR
24AA512T-I/ST14
24FC512-I/ST14
24FC512T-I/ST14
24LC512-E/ST14
24LC512-I/ST14
24LC512T-E/ST14
24LC512T-I/ST14
HA1020-I/ST
HA1020T-I/ST
HCS370/ST
HCS370-I/ST
HCS370T/ST
HCS370T-I/ST
MCP2030A-I/ST
MCP2030AT-I/ST
MCP2030-I/ST
MCP2030T-I/ST
MCP2035-I/ST
MCP2035T-I/ST
MCP2221A-I/ST
MCP2221AT-I/ST
MCP2221-I/ST
MCP2221T-I/ST
MCP3004-I/ST
MCP3004T-I/ST
MCP3204-BAI/ST
MCP3204-CI/ST
MCP3204T-BAI/ST
MCP3204T-CI/ST
MCP3302-BI/ST
MCP3302-CI/ST
MCP3302T-BI/ST
MCP3302T-CI/ST
MCP42010-E/ST
MCP42010-I/ST
MCP42010T-E/ST
MCP42010T-I/ST
MCP42050-E/ST
MCP42050-I/ST
MCP42050T-E/ST
MCP42050T-I/ST
MCP42100-E/ST
MCP42100-I/ST
MCP42100T-E/ST

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Affected Catalog Part Numbers (CPN)

PCN_JAON-13JEGV932
CATALOG_PART_NBR
MCP42100T-I/ST
MCP4231-103E/ST
MCP4231-104E/ST
MCP4231-502E/ST
MCP4231-503E/ST
MCP4231T-103E/ST
MCP4231T-104E/ST
MCP4231T-502E/ST
MCP4231T-503E/ST
MCP4241-103E/ST
MCP4241-104E/ST
MCP4241-502E/ST
MCP4241-503E/ST
MCP4241T-103E/ST
MCP4241T-104E/ST
MCP4241T-502E/ST
MCP4241T-503E/ST
MCP4251-103E/ST
MCP4251-104E/ST
MCP4251-502E/ST
MCP4251-503E/ST
MCP4251T-103E/ST
MCP4251T-104E/ST
MCP4251T-502E/ST
MCP4251T-503E/ST
MCP4261-103E/ST
MCP4261-104E/ST
MCP4261-502E/ST
MCP4261-503E/ST
MCP4261T-103E/ST
MCP4261T-104E/ST
MCP4261T-502E/ST
MCP4261T-503E/ST
MCP4332-103E/ST
MCP4332-104E/ST
MCP4332-502E/ST
MCP4332-503E/ST
MCP4332T-103E/ST
MCP4332T-104E/ST
MCP4332T-502E/ST
MCP4332T-503E/ST
MCP4342-103E/ST
MCP4342-104E/ST
MCP4342-502E/ST

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
MCP4342-503E/ST
MCP4342T-103E/ST
MCP4342T-104E/ST
MCP4342T-502E/ST
MCP4342T-503E/ST
MCP4352-103E/ST
MCP4352-104E/ST
MCP4352-502E/ST
MCP4352-503E/ST
MCP4352T-103E/ST
MCP4352T-104E/ST
MCP4352T-502E/ST
MCP4352T-503E/ST
MCP4362-103E/ST
MCP4362-104E/ST
MCP4362-502E/ST
MCP4362-503E/ST
MCP4362T-103E/ST
MCP4362T-104E/ST
MCP4362T-502E/ST
MCP4362T-503E/ST
MCP4631-103E/ST
MCP4631-104E/ST
MCP4631-502E/ST
MCP4631-503E/ST
MCP4631T-103E/ST
MCP4631T-104E/ST
MCP4631T-502E/ST
MCP4631T-503E/ST
MCP4641-103E/ST
MCP4641-104E/ST
MCP4641-502E/ST
MCP4641-503E/ST
MCP4641T-103E/ST
MCP4641T-104E/ST
MCP4641T-502E/ST
MCP4641T-503E/ST
MCP4651-103E/ST
MCP4651-104E/ST
MCP4651-502E/ST
MCP4651-503E/ST
MCP4651T-103E/ST
MCP4651T-104E/ST
MCP4651T-502E/ST

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
MCP4651T-503E/ST
MCP4661-103E/ST
MCP4661-103PE/ST
MCP4661-104E/ST
MCP4661-502E/ST
MCP4661-503E/ST
MCP4661T-103E/ST
MCP4661T-104E/ST
MCP4661T-502E/ST
MCP4661T-503E/ST
MCP4902-E/ST
MCP4902T-E/ST
MCP4912-E/ST
MCP4912T-E/ST
MCP4922-E/ST
MCP4922T-E/ST
MCP6004-E/ST
MCP6004-I/ST
MCP6004-I/STAAA
MCP6004T-E/ST
MCP6004T-I/ST
MCP6004T-I/STAAA
MCP6024-E/ST
MCP6024-I/ST
MCP6024T-E/ST
MCP6024T-I/ST
MCP6034-E/ST
MCP6034T-E/ST
MCP6044-E/ST
MCP6044-I/ST
MCP6044T-E/ST
MCP6044T-I/ST
MCP604-E/ST
MCP604-I/ST
MCP604-I/STAAA
MCP604T-E/ST
MCP604T-I/ST
MCP604T-I/STAAA
MCP6054-E/ST
MCP6054T-E/ST
MCP6064-E/ST
MCP6064T-E/ST
MCP6074-E/ST
MCP6074T-E/ST

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
MCP609-I/ST
MCP609T-I/ST
MCP6234-E/ST
MCP6234T-E/ST
MCP6244-E/ST
MCP6244T-E/ST
MCP6274-E/ST
MCP6274T-E/ST
MCP6284-E/ST
MCP6284T-E/ST
MCP6294-E/ST
MCP6294T-E/ST
MCP6404-E/ST
MCP6404T-E/ST
MCP6444-E/ST
MCP6444T-E/ST
MCP6544-E/ST
MCP6544-I/ST
MCP6544T-E/ST
MCP6544T-I/ST
MCP6549-E/ST
MCP6549-I/ST
MCP6549T-E/ST
MCP6549T-I/ST
MCP6549T-I/STBAA
MCP6549T-I/STX
MCP6L04T-E/ST
MCP6L4T-E/ST
MCP6L74T-E/ST
MCP6L94T-E/ST
MCP6V84-E/ST
MCP6V84T-E/ST
MCP6V94-E/ST
MCP6V94T-E/ST
MTCH105-I/ST
MTCH105T-I/ST
PIC16F1454-E/ST
PIC16F1454-I/ST
PIC16F1454T-E/ST
PIC16F1454T-I/ST
PIC16F1455-E/ST
PIC16F1455-I/ST
PIC16F1455T-I/ST
PIC16F1503-E/ST

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16F1503-I/ST
PIC16F1503-I/STC01
PIC16F1503T-E/ST
PIC16F1503T-I/ST
PIC16F1503T-I/STC01
PIC16F1574-E/ST
PIC16F1574-I/ST
PIC16F1574T-I/ST
PIC16F1575-E/ST
PIC16F1575-I/ST
PIC16F1575T-E/ST
PIC16F1575T-I/ST
PIC16F1614-E/ST
PIC16F1614-I/ST
PIC16F1614T-I/ST
PIC16F1615-E/ST
PIC16F1615-I/ST
PIC16F1615T-I/ST
PIC16F1704-E/ST
PIC16F1704-I/ST
PIC16F1704T-E/ST
PIC16F1704T-I/ST
PIC16F1705-E/ST
PIC16F1705-I/ST
PIC16F1705T-E/ST
PIC16F1705T-I/ST
PIC16F1764-E/ST
PIC16F1764-I/ST
PIC16F1764T-I/ST
PIC16F1765-E/ST
PIC16F1765-I/ST
PIC16F1765T-I/ST
PIC16F1823-E/ST
PIC16F1823-E/STC07
PIC16F1823-H/ST
PIC16F1823-I/ST
PIC16F1823-I/STC06
PIC16F1823-I/STC08
PIC16F1823T-E/ST
PIC16F1823T-E/STC07
PIC16F1823T-H/ST
PIC16F1823T-I/ST
PIC16F1823T-I/ST036
PIC16F1823T-I/STC06

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16F1823T-I/STC08
PIC16F1824-E/ST
PIC16F1824-I/ST
PIC16F1824-I/STRA5
PIC16F1824T-E/ST
PIC16F1824T-E/ST037
PIC16F1824T-E/ST038
PIC16F1824T-E/ST040
PIC16F1824T-E/ST041
PIC16F1824T-I/ST
PIC16F1824T-I/STRA5
PIC16F1825-E/ST
PIC16F1825-H/ST
PIC16F1825-I/ST
PIC16F1825-I/ST027
PIC16F1825-I/ST036
PIC16F1825-I/STC01
PIC16F1825-I/STC02
PIC16F1825T-E/ST
PIC16F1825T-H/ST
PIC16F1825T-I/ST
PIC16F1825T-I/ST026
PIC16F1825T-I/ST027
PIC16F1825T-I/ST036
PIC16F1825T-I/STC01
PIC16F1825T-I/STC02
PIC16F505-E/ST
PIC16F505-I/ST
PIC16F505T-E/ST
PIC16F505T-I/ST
PIC16F506-E/ST
PIC16F506-I/ST
PIC16F506T-I/ST
PIC16F526-E/ST
PIC16F526-I/ST
PIC16F526T-I/ST
PIC16F526T-I/ST059
PIC16F610-E/ST
PIC16F610-I/ST
PIC16F610T-E/ST
PIC16F610T-I/ST
PIC16F610T-I/ST023
PIC16F610T-I/ST024
PIC16F610T-I/ST025

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16F610T-I/ST026
PIC16F610T-I/ST027
PIC16F610T-I/ST028
PIC16F610T-I/ST029
PIC16F610T-I/ST032
PIC16F610T-I/ST038
PIC16F610T-I/ST040
PIC16F610T-I/ST041
PIC16F610T-I/ST042
PIC16F610T-I/ST043
PIC16F616-E/ST
PIC16F616-H/ST
PIC16F616-I/ST
PIC16F616-I/ST036
PIC16F616T-E/ST
PIC16F616T-I/ST
PIC16F616T-I/ST026
PIC16F616T-I/ST027
PIC16F616T-I/ST037
PIC16F616T-I/ST039
PIC16F616T-I/ST043
PIC16F616T-I/ST044
PIC16F616T-I/ST045
PIC16F616T-I/ST051
PIC16F616T-I/ST058
PIC16F616T-I/ST059
PIC16F616T-I/ST065
PIC16F616T-I/ST076
PIC16F616T-I/ST088
PIC16F616T-I/ST090
PIC16F630-E/ST
PIC16F630-I/ST
PIC16F630T-E/ST
PIC16F630T-I/ST
PIC16F630T-I/ST052
PIC16F630T-I/STC04
PIC16F636-E/ST
PIC16F636-I/ST
PIC16F636-I/ST054
PIC16F636T-E/ST
PIC16F636T-I/ST
PIC16F636T-I/ST047
PIC16F676-E/ST
PIC16F676-I/ST

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16F676-I/STAU
PIC16F676-I/STC15
PIC16F676T-E/ST
PIC16F676T-I/ST
PIC16F676T-I/ST053
PIC16F676T-I/ST061
PIC16F676T-I/ST062
PIC16F676T-I/STAU
PIC16F676T-I/STC15
PIC16F684-E/ST
PIC16F684-E/STC13
PIC16F684-I/ST
PIC16F684-I/ST041
PIC16F684-I/ST102
PIC16F684-I/ST113
PIC16F684-I/ST114
PIC16F684-I/STAU
PIC16F684-I/STC15
PIC16F684T-E/ST
PIC16F684T-I/ST
PIC16F684T-I/ST034
PIC16F684T-I/ST050
PIC16F684T-I/ST068
PIC16F684T-I/ST069
PIC16F684T-I/ST096
PIC16F684T-I/ST102
PIC16F684T-I/ST110
PIC16F684T-I/ST113
PIC16F684T-I/ST114
PIC16F684T-I/STAU
PIC16F684T-I/STC15
PIC16F688-E/ST
PIC16F688-I/ST
PIC16F688-I/ST029
PIC16F688-I/ST049
PIC16F688-I/ST050
PIC16F688T-E/ST
PIC16F688T-I/ST
PIC16F688T-I/ST029
PIC16F688T-I/ST036
PIC16F688T-I/ST044
PIC16F688T-I/ST049
PIC16F688T-I/ST050
PIC16F688T-I/ST054

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PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16F688T-I/ST056
PIC16F688T-I/ST061
PIC16F688T-I/ST062
PIC16HV616-E/ST
PIC16HV616-I/ST
PIC16HV616T-E/ST
PIC16HV616T-I/ST
PIC16LC505-04/ST
PIC16LC505-04I/ST
PIC16LF1454-E/ST
PIC16LF1454-I/ST
PIC16LF1454T-I/ST
PIC16LF1503-E/ST
PIC16LF1503-I/ST
PIC16LF1503-I/STC03
PIC16LF1503T-I/ST
PIC16LF1503T-I/ST025
PIC16LF1503T-I/STC03
PIC16LF1554-E/ST
PIC16LF1554-I/ST
PIC16LF1554T-I/ST
PIC16LF1574-E/ST
PIC16LF1574-I/ST
PIC16LF1574T-I/ST
PIC16LF1575-E/ST
PIC16LF1575-I/ST
PIC16LF1575T-I/ST
PIC16LF1614-E/ST
PIC16LF1614-I/ST
PIC16LF1614T-I/ST
PIC16LF1615-E/ST
PIC16LF1615-I/ST
PIC16LF1615T-I/ST
PIC16LF1764-E/ST
PIC16LF1764-I/ST
PIC16LF1764T-I/ST
PIC16LF1765-E/ST
PIC16LF1765-I/ST
PIC16LF1765T-I/ST
PIC16LF1823-E/ST
PIC16LF1823-I/ST
PIC16LF1823-I/STC05
PIC16LF1823T-I/ST
PIC16LF1823T-I/STC05

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Affected Catalog Part Numbers (CPN)

PCN_JAON-13JEGV932
CATALOG_PART_NBR
PIC16LF1824-E/ST
PIC16LF1824-I/ST
PIC16LF1824T-E/ST
PIC16LF1824T-I/ST
PIC16LF1824T-I/ST024
PIC16LF1825-E/ST
PIC16LF1825-I/ST
PIC16LF1825-I/STC01
PIC16LF1825T-I/ST
PIC16LF1825T-I/STC01
PIC24F04KA200-I/ST
PIC24F04KA200T-I/ST