Fujitsu Components America Inc (FCAI)
1230 East Arques MS 160
Sunnyvale CA 94085
408-745-4990

Issue Date Sep 29 2020
PCN Ref. No. **CTOS-200349**

FUJITSU COMPONENT LIMITED
Overseas Sales Group
Cross Technology company

From Charlie Stretch Senior Director of Sales - Americas
To: Authorized Distributors, Sales Representatives and CUSTOMERS

Subject: PCN Notice for Thermal Printers

See Effected Ordering PN list

☐ Request for change
● One way notification for change

Product Name	Thermal Printer		
Part Number	Please refer to the attcahed "PN list"		
Description of Change	Photo sensor is going to be changed to another vendor's.		
Reason for Change	The **current** photo sensor is going to be terminated EOL.		
Schedule	Samples	:	Available upon formal reqeust
	Implementation effective date	:	Starting October 1, 2020 and completed by March 2021.
Control of Change	Product revision is changed.		
Detailed Description	Please refer to the attcahed "Comparison Table".		
Impacts	Data sheet	:	Product revision is changed.
	Product spec	:	**NO** changes
	Product appearance	:	**NO** changes
	Product part number /Revision number	:	**Product revision is changed.**
	Price	:	**NO** changes
Attachment			
Request	☑ Please announce your customers of this change. For any questions or concerns, please contact us by Oct 30, 2020 ☐		
Others			

EFFECTED ORDERING Part Number
FTP-627MCL401
FTP-627MCL411
FTP-627USL402
FTP-627USL529
FTP-628MCL054#01
FTP-628MCL101#72
FTP-628MCL103#72
FTP-628MCL401#01
FTP-628MCL401#01-RA
FTP-628USL564
FTP-629MCL353
FTP-62DMCL504
FTP-637MCL411
FTP-637MCL583
FTP-637USL532#01
FTP-638MCL101
FTP-638MCL103
FTP-638MCL104
FTP-639MCL354#70
FTP-639MCL364#70
FTP-639MP0436
FTP-68EMCL161
FTP-622MCL001
FTP-622MCL002
FTP-622MCL002#51 FTP-622MCL101
FTP-624MCL001
FTP-632MP0403
FTP-642MCL001
FTP-642MCL002
FTP-642MCL302#02

Fujitsu Components PCN notice # CTOS-200349

Attachment 1

Change point

The **current** photo sensor
Vendor A

The **NEW** vendor
Vendor B

Comparison table

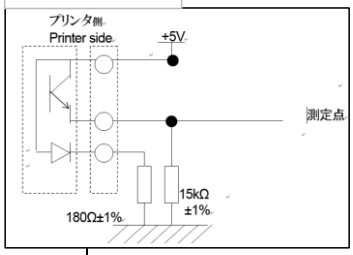
1.Electric Characteristic Comparison

					Current				After change				
													相違に対する当社見解
最大定格	入力	順電流	I_F	mA	50				50				同等性能
		逆耐圧	V_R	V	3				5				性能向上
		許容損失	P_D	mW	75				75				同等性能
	出力	コレクタ・エミッタ電圧	V_{CEO}	V	30				30				同等性能
		エミッタ・コレクタ電圧	V_{ECO}	V	5				3				印加されない条件のため影響無
		コレクタ電流	I_C	mA	20				20				同等性能
		コレクタ損失	P_C	mW	50				50				同等性能
電気的・光学的特性		項目	記号	単位	Min.	Typ.	Max	測定条件	Min.	Typ.	Max	測定条件	
	入力	順方向電圧	V_F	V	–	1.3	1.5	I_F=50mA	–	–	1.3	I_F=10mA	製品における検出電圧で評価
		逆方向電流	I_R	μA	–	0.01	10	V_R=3V	–	–	10	V_R=5V	性能向上
	出力	暗電流	I_D	nA	–	–	200	Vce=5V,I_F=10mA, RL=100Ω	–	–	200	Vce=10V	性能向上
	伝達	コレクタ電流	I_C	μA	260	–	600	Vce=5V,I_F=10mA,	180	–	440	V_{CE}=5V I_F=10mA	製品における検出電圧で評価
		応答時間(上昇)	Tr	μs	–	20	–	Vce=5V,Ic=0.1mA,	–	30	–	Vce=2V,Ic=0.1mA,	製品における検出電圧で評価
		応答時間(下降)	Tf	μs	–	20	–	R_L=100Ω	–	25	–	R_L=1KΩ	

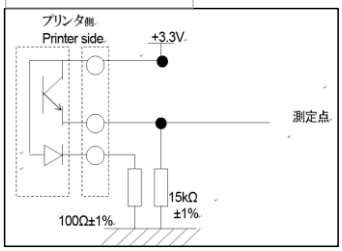
2.Paper/Mark Detection & Voltage Test

＜Test Condition＞
Logic power supply 5V / 3.3V
Temperaure -5℃／25℃／55℃
Collector Current of the device Min / Max
Mark Specs Reflection Rate 7% Length4mm/6mm (spec 5±1mm)
Printing Speed 200mm/s

5V condition



3.3V condition



＜Criteria＞
Mark and paper can be detected at logic power supply 5V & thershold 1.5V
Mark and paper can be detected at logic power supply 3.3V & thershold 2.0V

5V

	Current: Paper detection	Current: No paper detection	Current: Mark detection	After change: Paper detection	After change: No paper detection	After change: Mark detection
-5℃	≧1.5V	≦1.5V	≦1.5V	≧1.5V	≦1.5V	≦1.5V
25℃	≧1.5V	≦1.5V	≦1.5V	≧1.5V	≦1.5V	≦1.5V
55℃	≧1.5V	≦1.5V	≦1.5V	≧1.5V	≦1.5V	≦1.5V

PASS：Everything was detected at the threshold specified in specs.

3.3V

	Current: Paper detection	Current: No paper detection	Current: Mark deteion	After change: Paper detection	After change: No paper detection	After change: Mark detction
-5℃	≧2V	≦2V	≦2V	≧2V	≦2V	≦2V
25℃	≧2V	≦2V	≦2V	≧2V	≦2V	≦2V
55℃	≧2V	≦2V	≦2V	≧2V	≦2V	≦2V

PASS：Everything was detected at the threshold specified in specs.

3.Conclusion

・Even though there is a subttle difference interms of spec, the **NEW** photo sensor operates **equilivant or better** than the current one.
・Paper/Sensor detection works fine at the threshold specified in specs (at 5V：1.5V, at 3,3V：2V)
Thus, replacement doesn't have any effect on the end device's circuit or control.

Effect on margin by photo sensor replacement

The comparison table in the PCN, NO/GO results are listed based on the threshold.
This sheet explains difference of margin between the two.
According to the test results below, there should be no problem even when the customers use the products at the value we don't recommend.

■Test items and results

Item	Contents
1	Margin of detected voltage There's little difference of the detected voltage, and the margin stays the same. As for mark detection, margin was increased by 0.1V.

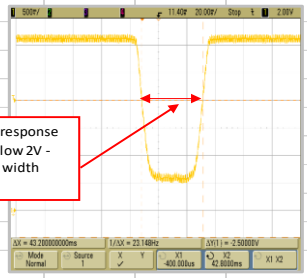
Voltage : 3.3V	Condition	<Old>	<New>	Margin Valuation
Collector current (Upper limit)	Paper detection	3.24V	3.27V	+0.03 (→)
	No paper detection	0.26V	0.33V	+0.07 (→)
Mark detection	(Reflection rate 7%)	1.36V	1.22V	**-0.14 (↗)**
		<Old>	<New>	Margin Valuation
Collector current (Bottom limit)	Paper detection	3.18V	3.18V	0 (→)
	No paper detection	0.16V	0.15V	-0.01 (→)
Mark detection	(Reflection rate 7%)	0.82V	0.65V	**-0.17 (↗)**

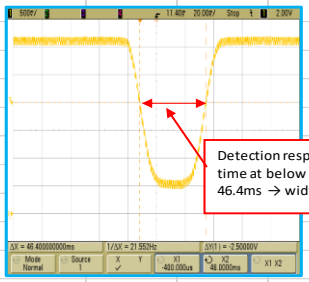
2

Margin of detection width
Margin has been increased to detect the actual width of the mark.
Condition : Power Supply 3.3V Mark width 5mm Mark reflection rate 7%

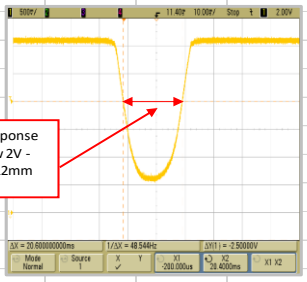
<Old> <New>

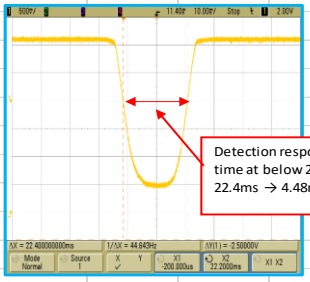
100mm/s





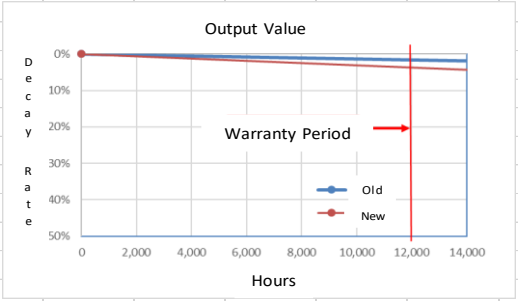
200mm/s

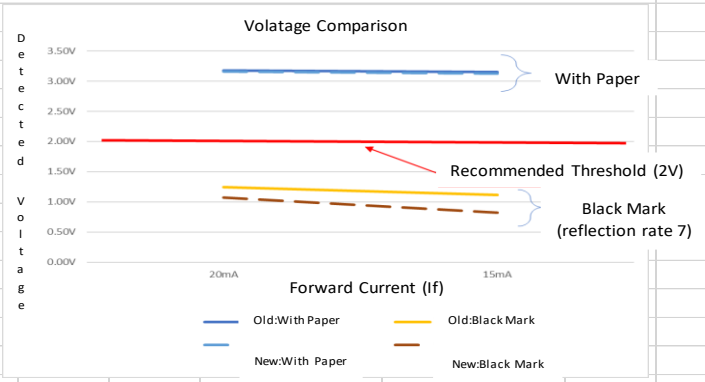
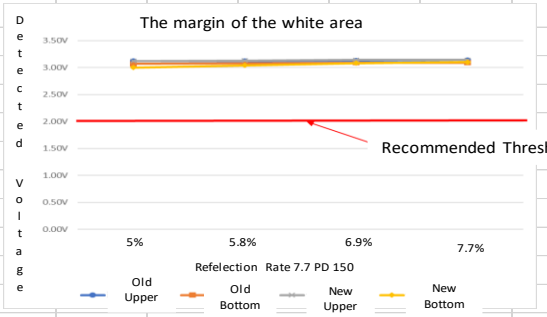




3

Aging
Output values stay almost the same at 1.2 x 10^4 hours of the product lifetime.



4	Detection distnace and output characteristics Both old and new sensors have 70% ~100% detection range for paper/black mark. There's no difference between the two.
5	Margin of forward current Solid lines show the margin at If= 20mA and dotted lines show at If= 15mA. Even when it is dropped to 15mA, there is no difference of the margin. 
6	The margin of white area of the paper The margin of white area of the paper is shown below. There's no difference of the margin even when the reflection rate is lower than the recommended reflection rate. 
7	The margin of the mark reflection rate The margin of the mark reflection rate is shown below. There is little difference of the margin at the reflection rate we don't recommend.