

N° LFPCN220919

Date: September 19th, 2022

<u>Subject</u>: PCN for Y1 Power Modules Inhouse Assembly Location Transfer

MCC/MCD/MDD/MCMA/MDMA/MDNA types only (Refer to the list

of affected parts in page 4)

Dear Valued Customer,

Littelfuse would like to notify you about the transfer of the backend manufacturing of some of our Y1 package parts to our inhouse assembly factory in Lipa, Philippines.

This new Littelfuse facility combines the very best operational excellence and semiconductor expertise to deliver a highly automated, world class facility designed, to meet IATF16949 & VDA6.3 requirements. Our clear focus being to bring high levels of service to our customers and quality products to support future growth of the power semiconductor business.

Please find enclosed all details related to this PCN.

Important information for your attention and according to JEDEC STANDARD "JESD46":

- Please acknowledge receipt of this PCN. In your acknowledgement, you can grant approval or request additional information.
- Littelfuse will assume the change is acceptable if no acknowledgement is received within 30 days from the date of this PCN. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of change.

Your prompt reply will help Littelfuse to assure a smooth and well executed transition. Your attention and response to this matter is greatly appreciated.

Thank you very much. Best Regards,

Pascal Ducluzeau
Product Marketing Manager
Medium Power Modules
pducluzeau@littelfuse.com

| Contact Information: | Contact your local Littelfuse Sales Partner or Pascal Ducluzeau. | | |
|----------------------|------------------------------------------------------------------|--|--|
| | | | |



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| DESCRIPTION OF CHANGE: | ACTUAL SITE | TRANSFERRED SITE – LIPA, Phil. |
|------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| REASON OF CHANGE: | State-of-the-art power semiconductor assembly capabilities to dramatically improve service levels to customers. Our target is to set this factory as a world class facility with automated, error proof processes to meet the highest quality standards. | |
| PRODUCTS AFFECTED: | See page 4 | |
| SUBJECT OF CHANGE: | Y1 Bipolar Power Modules Inhouse Backend Assembly Location Transfer | |

Marking (on parts)

| | Marking (on parts) | | | | |
|---|----------------------------|---------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|--|--|
| • | Company Logo | Ixys Logo | Littelfuse IXYS Logo | | |
| | | G IXYS | IXYS A Littelfuse Technology | | |
| • | UL Logo | YES - NO CHANGE | | | |
| • | Electrical Draw. + pin out | YES - NO CHANGE | | | |
| • | Date code + Site Assy code | YYWWG | YYWWM | | |
| • | Catalog Part Number | YES - NC | CHANGE | | |
| • | Lot Number | 6 digit = xxxxxx | 8 digit = YYMDDxxx | | |
| | | Lot sequential number | YY= 2 last digit of the year, | | |
| | | (000001 – 999999) | M = Month (A=Jan, L=Dec), | | |
| | | | DD = Day, | | |
| | | | xxx = Lot sequential (001-999) | | |
| | | | reset to 001 every day | | |
| • | 2D Matrix | 36 characters | 49 characters | | |
| | | 1st to 19th digit Official product part number | 1st to 25th digit Official product part number | | |
| | | 20th to 23rd digit Date Code (YYWW) | 26th to 31st digit Date code (YYWW) | | |
| | | 24th to 25th digit | 32nt to 33rd digit Assembly Line 34th to 43rd digit Lot Number | | |
| | | 26th to 31st digit Lot number | 44th digit Extra digit for future reference | | |
| | | 32nd digit Split lot / extra digit for future reference 33rd to 36th digit Individual module number within one lot | 45th to 49th digit Individual Module number within one lot | | |
| 1 | | and to sold digit marriadar module number within one lot | | | |

Labelling (on packing)

| | Labelling (on packing) | | | |
|---|----------------------------|-------------------------------------------------------------------------------------------|------------------------------------|--|
| • | Inner Box | Type: MCC56-18101B Prod Code 444640 Prod Code 444640 Prod Code 444640 Prod Code 1921X | IXYS Chr. 36 | |
| • | 2D Sequence | Product Code - Type - Date Code - | Type – Date Code – Lot No. – Qty – | |
| | | Lot No Qty – Label | Label | |
| • | Master/Outer Box | NO CHANGE | | |
| | Bill of material | NO CHANGE | | |
| | Electrical characteristics | Electrical characteristics of qualification site matched to current | | |
| | | production site | | |
| | Mechanical characteristics | Mechanical characteristics of qualification site matched to current | | |
| | | production site | | |



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RELIABILITY DATA SUMMARY:

- Qualification done on module part structurally representative to the whole Y1 Bipolar modules package family excluding MCO/MDO and MCMA650MT1x00NKD types.
- The acceptance defining criteria for type tests of this product family are detailed in: IEC 60747-6 Edition 3.0, clause 7.5.5, table 10

| Results: | Test | Description | Conditions | Standard Use | # Lots | Qty/Lot | Result |
|----------|--------------|----------------------------------|---------------------------|--------------|-----------|---------|--------|
| MCC31 | MCC312-16io1 | | | | | | |
| 1 | HTRB | High Temp. Rev. Bias | 1000hr., 125°C, 1120 V AC | IEC 60749-23 | 1 | 30 | Passed |
| 2 | Humidity | High Temp. High Humidity Bias | 1000hr., 85% rH., 85°C | IEC 60749-42 | 1 | 30 | Passed |
| 3 | P/C | Power Cycling | 20 000 cycles, dT=80K | IEC 60749-34 | 1 | 30 | Passed |
| 4 | ITSM | Surge Current | Datasheet | | 1 | 30 | Passed |

TIME SCHEDULE:

| Parts availability: | Week of October 03 rd , 2022 (Week 40/2022) |
|----------------------|---------------------------------------------------------------------|
| ■ Production ramp-up | October 20 th , 2022 (Week 42/2022) |
| Last Shipment: | Till week 50/2022 from the actual back-end site |
| Last time buy: | N/A - Any new orders will be processed through the new backend site |



ASSESSMENT:

- No influence in terms fit, form and function.
- No part number change.
- Data sheets remain unchanged.
- LF Qualification report available by Sept 30th

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LIST OF AFFECTED Y1 BIPOLAR MODULES (See Note below):

| 1 | MCC224-20IO1 | 26 | MCD312-12IO1 |
|----|--------------|----|------------------|
| 2 | MCC224-22IO1 | 27 | MCD312-14IO1 |
| 3 | MCC224-24IO1 | 28 | MCD312-16IO1 |
| 4 | MCC225-12IO1 | 29 | MCD312-16IO1-PCM |
| 5 | MCC225-14IO1 | 30 | MCD312-18IO1 |
| 6 | MCC225-16IO1 | 31 | MCMA265P1600KA |
| 7 | MCC225-18IO1 | 32 | MCMA265PD1600KB |
| 8 | MCC255-12IO1 | 33 | MDD175-28N1 |
| 9 | MCC255-14IO1 | 34 | MDD175-34N1 |
| 10 | MCC255-16IO1 | 35 | MDD255-12N1 |
| 11 | MCC255-18IO1 | 36 | MDD255-14N1 |
| 12 | MCC312-12IO1 | 37 | MDD255-16N1 |
| 13 | MCC312-14IO1 | 38 | MDD255-18N1 |
| 14 | MCC312-16IO1 | 39 | MDD255-20N1 |
| 15 | MCC312-18IO1 | 40 | MDD255-22N1 |
| 16 | MCD224-20IO1 | 41 | MDD312-12N1 |
| 17 | MCD224-22IO1 | 42 | MDD312-14N1 |
| 18 | MCD225-12IO1 | 43 | MDD312-16N1 |
| 19 | MCD225-14IO1 | 44 | MDD312-18N1 |
| 20 | MCD225-16IO1 | 45 | MDD312-20N1 |
| 21 | MCD225-18IO1 | 46 | MDD312-22N1 |
| 22 | MCD255-12IO1 | 47 | MDD312-22N1-PCM |
| 23 | MCD255-14IO1 | 48 | MDMA380P1600KC |
| 24 | MCD255-16IO1 | 49 | MDNA380P2200KC |
| 25 | MCD255-18IO1 | | • |
| | | | |

NOTE: MCO, MDO and MCMA650 type modules are not part of this PCN. Another PCN file will be edited in a second step when associated products family qualification will be completed.

Customer information:

Forward-looking statements are intended to provide information about our expected future operations. These statements are not promises or guarantees, particularly with respect to any timelines provided in the schedule. All terms of delivery and rights to technical changes are subject to alteration by Littelfuse.