



Schaeffler MAT Label

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List of abbreviations and glossary

AIAG	“Automotive Industry Action Group”: North American organization for developing standards and guidelines throughout the supply chain
DUNS	Data Universal Numbering System
ECC	Error Correction Code
EDI	Electronic Data Interchange
ESD	Electrostatic Discharge
GALIA	“Groupement pour l'Amélioration des Liaisons dans l'Industrie Automobile”: French organization dedicated to improving communication and processes within the automotive supply chain
IEC	International Electro Technical Commission
IPC	Association Connecting Electronics Industries – formerly known as Institute for Interconnecting and Packaging Electronic Circuits
ISO	International Organization for Standardization
JEDEC	Solid State Technology Association - formerly known as Joint Electron Device Engineering Council
KLT	stands for "Kleinladungsträger," german for "Small Load Carrier"
LED	Light Emitting Diode
MS	Moisture Sensitivity
ODETTE	Organization for Data Exchange by Tele Transmission in Europe
PCB	Printed Circuit Board
RoHS	Restriction of the use of certain hazardous substances in electrical and electronic equipment
VDA	Verband der Automobilindustrie e.V. (German Association of the Automotive Industry)

1 Schaeffler MAT Label

The MAT-Label is common standard that shall be employed exclusively by plants mentioned in the Annex 1 until further notice. The implementation occurs plant specific.

1.1 References

VDA 4992 - MAT Label

1.2 Approval process

The request for implementation as well as the approval process is plant specific. Only upon specific request and agreement, the MAT-Label shall be used for the plant concerned.

If the MAT-Label of a supplier was approved by a plant within the list of relevant plants as a general release and the approval is based on the requirements that are listed in the following, then basically the approval is valid for all other plants listed in the Annex 1 which request this type of label.

An approval refers to the layout, code, data fields, data syntax, print quality and label material. The confirmed correctness of data and data formats in customer given fields refers to one purchase order, only.

The approval is not meant to imply that the customer given data and data formats are the same as other orders and plants. Customer given data (such as customer part number, index (material revision), vendor number (supplier-id), purchase order number) remain plant specific.

2 MAT-Label as single label for each smallest packaging unit

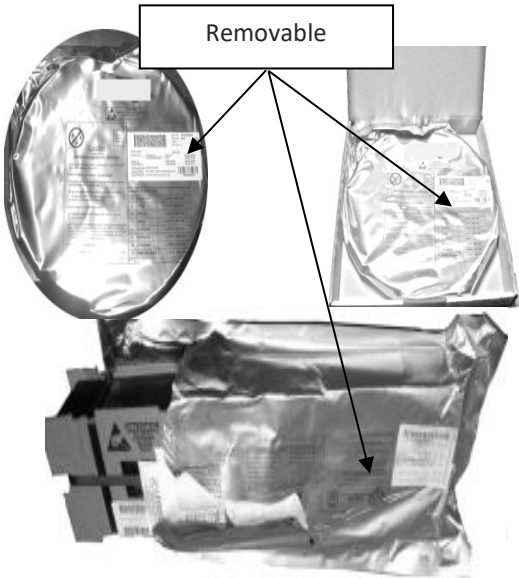


The MAT-Label is basically understood as a single label which must be attached to each smallest packaging unit in a way that the label and code is easily reachable. The smallest packing unit is usually the one which does not contain any sub-packaging.




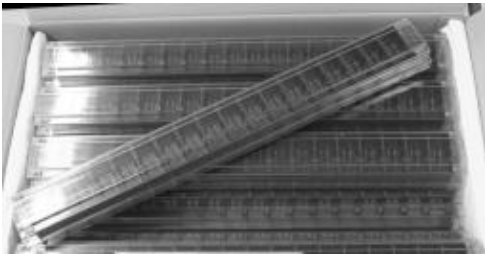

2.1 Definition of the smallest packaging unit.

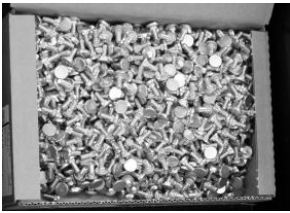

Regarding the marking of goods with MAT-Label, the smallest packaging unit is basically the one which covers the parts inside directly. It usually contains no further sub packaging.

In general, the following packaging units are defined as the smallest one for marking of goods with MAT-Label (samples):



 <p style="text-align: center;">Removable</p>	<p>In case of moisture sensitive parts, the protection bag is defined as smallest packaging unit with a single label.</p> <ul style="list-style-type: none"> • Not the packaging outside. • Not the reel or other package unit inside. • Not the so called "Pizza box" <p>The label must be removable (peel-off or sandwich label)</p> <p>It must be easy and intact removable from the protection bag.</p> <p>Only one sub-unit (e.g. reel) per protection bag is allowed.</p>
<p>Inside:</p> 	<p>Multiple sub packages inside returnable boxes need an individual single label, if the units are:</p> <ul style="list-style-type: none"> • Bundled or in single closed packaging and are prepared to take out separately. <p>Each sub package (multiple or not) inside expendable packaging needs an individual single label, if it is:</p> <ul style="list-style-type: none"> • Bundled or in single closed packaging and is prepared to take out separately. <p>PCB:</p> <p>Using expendable packaging:</p> <ul style="list-style-type: none"> • Single label per brick in general. <p>Using returnable packaging:</p> <ul style="list-style-type: none"> • Single label per brick in general and • MAT-Label in master version per pallet.
<p>Inside:</p> 	<p>Each jar with soldering paste needs an individual single label. That is independent of the outside packaging. The preferred place for the label is the lid on top of the jar.</p> <p>The layout of MAT-Label is reduced.</p> <p>Printed data fields are:</p> <ul style="list-style-type: none"> • Customer Part number and Quantity • Supplier-ID and Package-ID • Expiry Date and Batch Number (LOT) <p>The Batch-Number and the Expiry Date on the MAT-Label must be the same as on the supplier production label at the circumference of the jar.</p>

<p>Inside if possible:</p> 	<p>Chemical products in cartridges, syringes or jars need a single label on the smallest packaging unit wherever possible.</p> <p>Risk and safety phrases as well as symbols may not be covered. If it is not enough free space directly on the cartridge, then the next packaging unit with a small number of cartridges inside needs to be labeled.</p> <p>By jars, the preferred place for the label is the lid on top of the jar, see above.</p>
<p>Outside:</p> 	<p>In case of returnable boxes, the label can be attached outside on the box, if:</p> <ul style="list-style-type: none"> - Only one sub packaging exists, which fill-out the packaging completely and in case of no otherwise request.
<p>Outside:</p> 	<p>Multiple sub packaging units (e.g. trays) are basically labeled outside on the next packaging unit, if the units are:</p> <ul style="list-style-type: none"> • Not bundled or • Not separately closed • Not wrapped in protection packs • Not self-supporting <p>In this case the label outside (the next packaging unit) refers to the whole number of parts inside.</p>
<p>Outside:</p> 	<p>Independent of returnable or expendable boxes, small multiple tubes are basically labeled outside on the next packaging unit, if they are:</p> <ul style="list-style-type: none"> • Not bundled or • Not wrapped in protection packs <p>In this case, the label outside (the next packaging unit) refers to the whole number of parts inside.</p> <p>If tubes are bundled or wrapped, then the bundle or protection bag needs a single label.</p> <p>Each single tube needs its individual single label, if the tube dimension fits to a small MAT-Label.</p>
<p>Outside:</p> 	<p>Returnable boxes or expendable packaging units are defined basically as the smallest one, if the box or cardboard box contains no separate subunits, as described above.</p> <p>Returnable boxes or other smallest packaging defined units must be labeled with a single label in such a way that the label and code on label is easily reachable.</p>

<p>(Pallet with returnable boxes and single labels)</p>  <p>(cardboard box as smallest packaging unit)</p>	<p>It is not permitted to cover other labels or codes like box or container identification codes on returnable packaging units.</p>
<p>Outside:</p> 	<p>Fix volume containers or pallets (loading units) must be marked with a single label, only if:</p> <ul style="list-style-type: none"> • This unit is defined as the smallest packaging unit. • This regulation (loading unit marked with single label) is part and plant specific.

3 MAT-Label Requirements

This chapter describes the universally valid aspects of the MAT-Label:

- Label size and layout (recommendation for the print-out style sheet)
- Samples of MAT label
- Master label
- Additional requirements
- Data syntax

3.1 Size and layout of MAT-Label

The dimension of MAT-Label depends on the size of the smallest packaging unit which needs to be marked with MAT-Label.

It is in the supplier's responsibility to choose the best label material which fits to the dimension and condition on the packaging unit.

In case of different packaging dimensions and/or packaging types, it might be necessary to use MAT-Labels in various sizes. It is in the supplier's responsibility to consider this.

In case of MAT-Label for KLT (single label on small load carrier) the label must fit to the dimension of the label holder (label pocket) on KLT. In Europe, such label holders are prepared for a label with dimension of 210 x 74 mm (width x height).

For MAT-Label in master version (per pallet or other loading unit, see chapter 4.17.3), a size of 210 x 148 mm (6 x4 inch, width x height) is preferred.

3.2 Preferred layouts

As mentioned, the size of label depends on the dimension and condition on the packaging unit. Nevertheless, the layout shall be organized based on the following references.

The borderline around is not requested. On below sample the lines are for illustration, only.

	Part Number: A2C53025522	Index:
	Quantity: 2000	MS-Level: 2
Ordering Code: LSYT67B-S2T2-1-0+T1U2-35-0-30-R18-Z		
Add. Info: 20100U10500		
1. Batch: 1006376150		
2. Batch:		
Supplier: Sample & Co		
Multi LED		
Date Code: 20140411	Expiry Date: 20160324	
Supplier-ID: 8301596	Package-ID: S414318255401	
Purchase Order: 5500003734	Shipping N.: 56183183	
Man. Part-No.: Q65110A0272		
Man. Location: MYS-PENANG	RoHS	
Supplier-Data: Pack: R18 T DEMY 016 B_P029		

All data fields shall be printed, except the following three fields:

Label Versionshall not be printed,

Manufacturer Number.....shall not be printed,

Batch-Countercan be printed (must not).

3.2.1 Samples of MAT-Label without all printed data fields, valid for small packaging units only

	Part No.: 00196808A0	Index:
	Quantity: 1200	
1. Batch: 126A006C		
2. Batch:		
Supplier-ID: 310734		
Package-ID: S000001069425		
Expiry Date: 20150522 RoHS		

	Part No.: 00196508A0	Index:
	Quantity: 1200	
1. Batch: 126A006C		
2. Batch:		
Supplier-ID: 310734		

The code contains always all data fields and is independent of the amount on printed data. On small labels the code might be smaller, but the scan ability must be ensured. Smaller codes request higher quality and accuracy in the print process.

The field "expiry date" is not mandatory on small MAT-Label, if the expiration date on supplier's own label is visible. Of course, the expiry date on supplier's own label must be the same day as encoded on MAT-Label.


If it is surely excluded, that a second batch will exist, then the field "2. Batch" can be deleted on layouts for small MAT-Labels.

3.2.2 Layout KLT-Label (single label for small load carrier) with size of 210 x 74 mm

Conditions on the packaging unit must always be considered. Label holders, brackets or other fixing tools may impair printed information or codes on top, down, left or right. Basically, a covered code is not readable.

(1) Receiver Hungary KFT. 1106 Budapest	(2) Dock / Gate	(3) Shipping Note (16K): 50329943 Purchase Order Number (K): 56038700
	(8) Part Number (P): 2858923501100	Add.Info (20P): Expiry Date (14D): 20150520 MS-Level (Z): N
	(9) Quantity (Q): 6000	(10) Part Name: CONTACT MINIMAB
(12) Packaging Unit - Reference: Supplier-ID (V): 340549 Package-ID (3S): S414014425701 Single Label	(11) Man. Part No.: (1P): 33401005X Ordering Code (31P): 33401005X Man. Loc.: (10V): CHN-SHENZHEN	(13) Date Code (6D): 20140520 (14) Index (2P):
(15) Supplier: Supplier Sample & Co. Supplier-Data (1Z):	(16) Batch Number: 1. Batch (1T): 866000045 2. Batch (2T):	(Special mark) RoHS

3.2.3 Layout Master Label (size 210 x 148 mm, 6 x 4 inch)

Receiver: 1106 Budapest	Dock / Gate / Point of Usage Master Label		
Shipping Note (16K): 50329943 Purchase Order Nr.: (K): 56038700	Supplier: Supplier Sample & Co.		
	Net WT (KG): 5	Gross WT (KG): 7	No of boxes: 004
Part Number (P): 2858923501100 Index (2P): Add.Info (20P): MS-Level (Z): N			
Quantity (Q): 24000	Part Name: CONTACT MINIMAB		
Supplier-ID (V): 340549 Package-ID (3S): M414014410001	Man. Part No.: (1P): 33401005X Ordering Code (31P): 33401005X Man. Loc.: (10V): CHN-SHENZHEN	Date Code (6D): 20140520 Expiry Date (14D): 20150520	
Supplier-Data (1Z): Supplier Name: Supplier Sample & Co.	1. Batch (1T): 866000045 2. Batch (2T):		RoHS

3.3 Using Master Label

A master label is intended for the marking of a loading unit (such as pallet or container). A master label alone (without single labels) is not permitted. A master label on the loading unit must always be completed with MAT-Label in single version per defined smallest packaging unit on or within the loading unit.

3.3.1 Master Label on expendable packaging

In case of expendable packaging, the standard type of master label is according to automotive standard specifications, like VDA, ODETTE, AIAG or GALIA.

The master label refers to the whole number of parts in the loading unit.

The loading unit with standard Automotive Master Label contains multiple subunits which are marked with a MAT-Label in single version.

RECEIVER Hungary Kft. Budapest		DOCK / GATE 1	
RECEIVER PART NO. 87654321 		SUPPLIER INFO Supplier Sample & Co.	
PART NO. 2840536503100 		NET WT (KG) 320	GROSS WT (KG) 650
QTY QUANTITY 3000 		DESCRIPTION DCDC NV SCHIENE 1 DROSSEL	
TO SUPPLIER 300206 		SUPPLIER PART NO. CONUA40536500	
SERIAL NO. 873654102 		PROD. DATE 01-12-12	EXP. DATE
		HAZARD CODE	
		DRS. S.I.D. NO.	REL. LOT NO. 12345678

3.3.2 Master Label on returnable packaging

A MAT-Label in master version is necessary per loading unit in case of using returnable boxes (bin) or other returnable packaging units (e.g. trays).

The loading unit with MAT-Label in master version contains multiple subunits which are marked with a MAT-Label in single version.

Package-ID on master label starts with M.

Receiver: 1106 Budapest		Dock / Gate / Port of Usage Master Label	
Shipping Note (16K): 50329943		Supplier: Supplier Sample & Co.	
Purchase Order Nr.: (K): 56038700		Net WT (KG): 5	Gross WT (KG): 7
		No. of boxes: 004	
Part Number (P): 2858923501100			
Index (ZP):			
Add.info (Z0P):			
MS-Level (Z): N			
Quantity (Q): 24000		Part Name: CONTACT MINIMAB	
Packaging Unit - Reference: Supplier-ID (V): 340549		Mat. Part No. (1P): 33401005X	
Package-ID (3S): M414014410001		Ordering Code (3PF): 33401005X	
		Mat. Loc. (1V): CHN-SHENZHEN	
		Data Code (8S): 20140520	
		Expiry Date (14D): 20150520	
Supplier Data (1Z): Supplier Name: Supplier Sample & Co.		1. Batch (1T): 866000045	
		2. Batch (2T):	
MAT-Label as Masterlabel		RoHS	

3.3.3 Master Label Location

The standard location for Master Label (standard VDA or ODETTE, as well as MAT-Label in master version) is the short side of the loading unit.

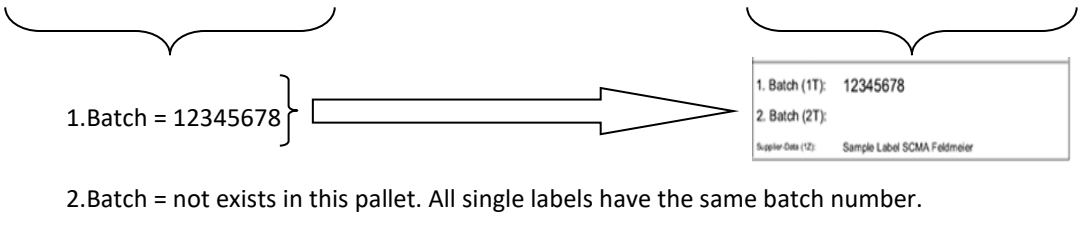
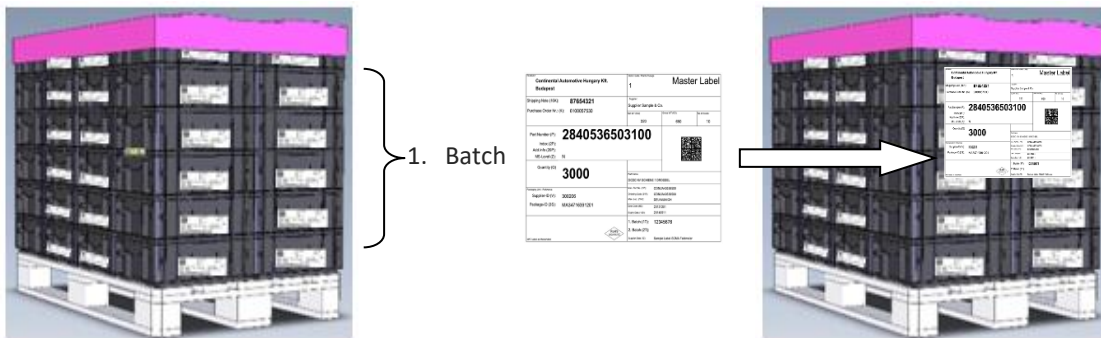
3.3.4 Batch mapping on MAT-Label as master label

Maximal two batches can be considered per loading unit (pallet or container) marked with a MAT-Label in master version.

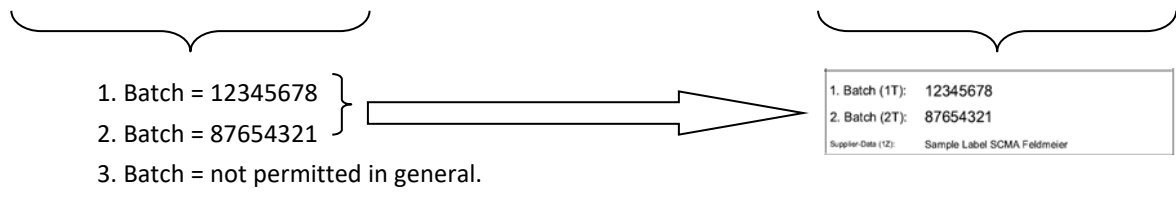
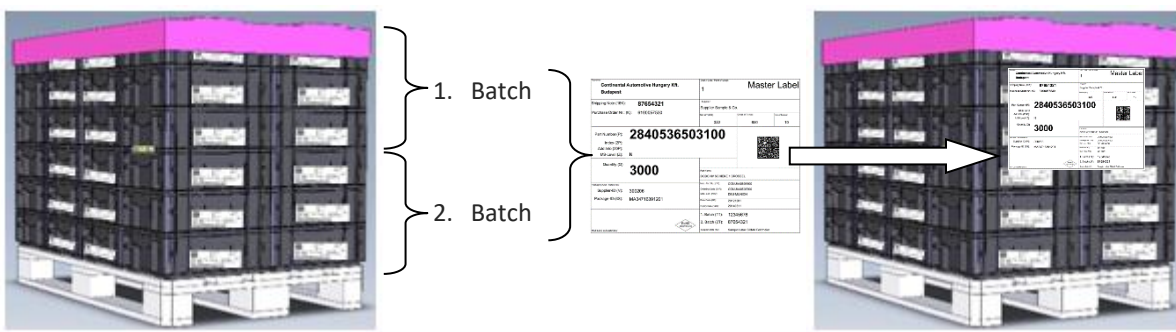
The master label consolidates the data on each single label on or in the with master label marked loading unit. Therefore, it is not permitted that a batch number on single label exist, which is not stated on the master label.

Sample:

All single labels on pallet refer to one batch:



Single labels on pallet refer to different batches:



3.3.5 Master Label on loading unit (pallet, container) which shall be understood as single unit

This is basically not a “master unit”. It might be a large single unit. Therefore, the definition “Master Label” is not correct and the packaging unit has to be marked with a MAT-Label in single version. Package-ID on this single label starts with “S”.

3.3.6 MAT-Label as mixed label

A MAT-Label in mixed version (different part numbers in one loading unit) is undefined. A MAT-Label refers to one specific packaging unit and part number, therefore a MAT-Label in mixed version is not provided.

In case of using a mixed load (if permitted by goods receiver) a “Mixed Load Label” can be used, according to VDA, ODETTE, AIAG or GALIA specification.

3.4 Marking of Dry Pack Packaging

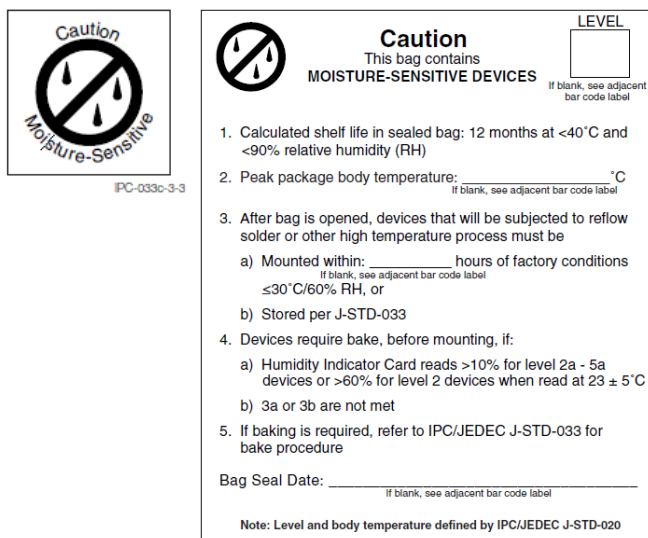
Moisture sensitive components (in “Dry Pack”) must be marked with appropriate stickers based on industrial standard IPC/JEDEC J-STD-020 resp. IPC/JEDEC J-STD-033 in addition.

See sample on right (moisture sensitive identification label):

In case of Dry Pack, the MAT-Label itself must be undestroyed removable from the protection bag.

Peel able label material such as so called “sandwich labels” are requested for MAT-Label.

Only one packaging unit inside (e.g. reel) is allowed per Dry Pack Package.



3.5 Additional Requirements

The following marking can also become necessary according to circumstances in addition to the above requirements.

3.5.1 Special marking for time critical goods

This type of marking must be coordinated with the receiving plant before delivery, or it is generally regulated in the additional plant specific requirements.

3.5.2 Special marking based on specific request

Pre-defined markings shall be supported, after mutual agreement.

3.5.3 Marking of packaging for electronic parts and components

Each ESD protection unit must be marked with the appropriate ESD-Symbol based on IEC 61340-5-3.



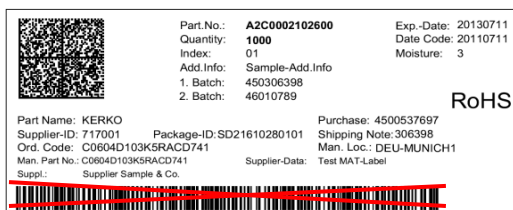
3.6 Code symbology for MAT-Label

The DATA MATRIX symbology (according to ISO/IEC 16022) with ECC 200 is requested as the standard code for MAT-Label.

3.7 Additional Barcode (Code 128)

An additional barcode (Code 128) might be requested by other companies but is not required here.

New and updated layouts should be developed without additional barcodes. Only the data matrix code is requested and used.



(Sample of a prior requested label with code 128)

3.8 Returned shipments

To avoid receiving returns with same Package-ID (as used at first shipment), returned shipments must be relabeled at supplier with new Package-ID. Other fields on MAT-Label may need an update, too (e.g., new batch number, new shipping note number, new quantity).

3.9 MAT-Label and other supplier own labels

Supplier own labels are permitted and shall not be removed. The MAT-Label shall not cover other labels or markings. Also, supplier labels shall not cover MAT-Label.

3.10 Labels or other markings on returnable packaging units

Permanent adhesive labels (also MAT-Labels) on a returnable packaging unit are prohibited.

3.11 MAT-Label and hazardous components

Covering R/S phrases as well as warning symbols with MAT-Label is prohibited (also partially). All security information and warning symbols remain untouched and must be unrestricted readable resp. visible.

4 Information Content

The following table lists the data fields which the supplier has to provide on the MAT- Label. It defines the format, length and the data identifier. The data fields are explained in detail afterwards.

The Data Matrix Code on the MAT-Label has to contain all data fields including its data identifier in the order represented by the column number.

It is strictly distinguished between the manufacturer who actually produces the part and the supplier, who delivers the part to the customer.

Please note that the data content of respective fields e.g. customer part number can be different from plant to plant.

Nr.	Data Field	Definition / Description	Data Identifier	Length	Format ³	Examples	Machine-readable Code Data Matrix Code ECC200	Printed Text on the label
Label Information								
1.	Label Version	The revision level is a fixed entry and serves the recognition of the label or its version.	12S	4	N ("0002")	0002 (fixed data)	yes	no
Part Information								
2.	Customer Part Number ⁴	Part number of the customer.	P	Max. 18	A/N	718.187-04 A2C5321641900	yes	yes (highlighted)
3.	Manufacturer Part Number	Internal manufacturer part number.	1P	Max. 35	A/N	SL105C103MAA-S	yes	yes
4.	Ordering Code ⁴	Code for the part which non-ambiguously can be used for ordering it. Compared to the "Manufacturer Part Number", the Ordering Code may contain more information, e.g. Software Version in case of Microcontrollers or package form.	31P	Max. 35	A/N	SC441427CFNR2 A2C53216419/02	yes	yes
5.	Part Description (Part Name)	Clear-text description of the part (or part name), so that persons who are not familiar with the manufacturer's naming convention can understand what kind of component this is	-	Max. 30	A/N	10 nF / 50 V / Ker W204KLA	no	yes
6.	Manufacturer Number	Explicit identification for the manufacturer, e.g. DUNS-Nr. or mutual agreed manufacturer number.	12V	Max. 13	A/N	123456789	yes	no
7.	Manufacturer Location	Naming the manufacturing location / locations	10V	Max. 20	A/N	DEU-BERLIN CHN-BEIJING	yes	yes

8.	Revision Level / Index ⁴	Revision status of the part.	2P	Max. 14	A/N	AA 01	yes	yes
9.	Additional Part Information	Used differently by each plant, flexible filled, e.g. brightness of the LEDs.	20P	Max. 30	A/N		yes	yes
More Part Information								
10.	Date of Manufacturing	Date of manufacturing is related to the last manufacturing process	6D	8	YYYYMMDD	20080330	yes	yes
11.	Expiration Date	The Expiration Date of the part (defined by the manufacturer (depending on production date).	14D	8	YYYYMMDD	20081031	yes	yes
12.	RoHS	Indicator for RoHS compliance N: no RoHS Y: RoHS O: not applicable	30P	1	A/N (upper case)	Y	yes	Logo
13	MS-Level	Moisture Sensitivity Level according to IPC/JEDEC J-STD-020.	Z	Max. 2	A/N, "N" if not applicable	5	yes	yes
More Part Information								
14	Purchase Order Number ⁴	Order number assigned by customer to identify a purchasing transaction.	K	Max. 18	A/N	753013	yes	yes
15	Shipping Note Number	Shipping Note Number of the shipping note and MAT- Label must be the same.	16K	Max. 12	A/N	54003333	yes	yes
16	Supplier Name (no real data field!)	The Supplier Name.	-	Max. 30			no	yes
17	Supplier-ID (vendor number) ⁴	The vendor number (of the customer) for the supplier. It has to be taken over from the order.	V	Max. 10	A/N	884566	yes	yes
18	Package-ID	The explicit, unique number per single package. It has to be unique per supplier-id (vendor number) and package. It is always related to the smallest package unit. If possible, chronologically related to the production process (e.g. reel-ID).	3S	13	A/N Capital letter only	S123456789012 (first Byte reserved for specifying single or master)	yes	yes
19	Quantity	Quantity of the smallest package unit.	Q	Max.18	12ISO3 to be aligned to the right,	1000NAR000 (printed: 1000) 10KGM020 (printed: 10,02)	yes	yes (highlighted)
20	Batch Counter	Batch Counter identifies the number of batches (1 or max. 2 batches per reel possible).	20T	1	N	2	yes	no
21	Batch-No. #1	With this number the supplier has to be able to retroactively provide information about the	1T	Max. 17	A/N	750160429	Yes	yes

		batch (e.g. volume, production, delivery) A batch identification should be based on same manufacturing conditions. If a manufacturing condition changes, the batch number should be changed, too.						
22	Batch-No. #2	Batch number for the second batch - if applicable.	2T	Max. 17	A/N	750160430	Yes	Yes
More Part Information								
23	Supplier Data	Supplier own information that may be used by the supplier.	1Z	Max. 30	A/N		yes	No

³ N = numerical, A/N = alphanumeric, D = day, M = month, Y = year

⁴ Capital letter formatted analogue to the order

4.1 Label Version

The label version is a fixed entry and serves as the recognition of the label and its version. The current label version described in this specification is 2 and the fixed entry of this data field is "0002".

4.2 Customer Part Number

Part number of the customer; the format and design of the customer part number has to be analog to the order.

The customer part number and the quantity have to be highlighted in bold font.

4.3 Manufacturer Part Number

Parts number under which the manufacturer identifies the part, and which is used for the release of the part by the customer.

4.4 Ordering Code

General procedure

If the supplier has a specific Ordering Code besides its own part number for the accounted part/component, then this Ordering Code shall be stated in this field. If the supplier has no separate Ordering Code, then the manufacturer's part number shall be repeated in the field Ordering Code.

Plant and part specific requirements

Plant and part specific request are possible and shall be supported after mutual agreement.

4.5 Part Description

Description of the ordered part (or part name) using plain text.

4.6 Manufacturer Number

Explicit identification of the manufacturer by DUNS-No or mutually agreed between customer and supplier. It is described in customer appended papers.

4.7 Manufacturing Location

Identification of the manufacturing location (preferred the location of the final test of the component) as mutually defined between supplier and respective customer.

Example: DEU-BERLIN (in case of only one location in town)

DEU-BERLIN1

DEU-BERLIN2

}

(in case of two locations in town)

The field with a maximum of 20 digits consists of 3 Characters Country-Code analogue ISO3166-1 ALPHA-3 [3 digits] + „-„ [1 digit] + Plant-Location [required digits] + Plant- Number [0 or 1 digit (if more than 1 plant)]

4.8 Revision Level / Index

Revision level (material revision) of the part, if requested by customer.

4.9 Additional Part Information

This field can be flexibly used for additional information about the part, e.g. for the brightness (binning class) of LEDs. The content of this field has to be mutually agreed between manufacturer (supplier) and the receiving customer plant.

4.10 Date of manufacturing

The date of manufacturing (also called ‘Date Code’) as defined by the last manufacturing process.

Definition / Date Format:

YYYYMMDD

Example: 20140312 Dots (separators) are not allowed as code content.

4.11 Expiration Date

The Expiration Date of the part is defined by the manufacturer (depending on the production date).

This is the date until this part has to be processed by the customer (stored under the specified conditions).

Definition / Date Format:

YYYYMMDD

Example: 20151231 Dots (separators) are not allowed as code content.

4.12 RoHS

In the 2D-Code, a “Y” means compliance to the current RoHS directives and an “N” means non-compliance.

If RoHS is not applicable, the field entry is "0" (zero).

In case the parts are RoHS compliant, the RoHS symbol has to be printed onto the MAT- Label. If this is not possible, the print of “RoHS” in letters (without symbol or logo) is allowed.

4.13 MS-Level

It is the moisture sensitivity level for parts according to industrial standard IPC/JEDEC J- STD-020. If the part is moisture-sensitive, then the MS-Level has to be entered according to the listed levels in the industrial standard IPC/JEDEC J-STD-020.

Moisture Sensitive Level according to JEDEC-J-STD standard:

Moisture Sensitivity Level	Floor Life (out of bag) at factory ambient ≤30 °C/60% RH or as stated
1	Unlimited at ≤30 °C/85% RH
2	1 year
2a	4 weeks
3	168 hours
4	72 hours
5	48 hours
5a	24 hours
6	Mandatory bake before use. After bake, must be reflowed within the time limit specified on the label.
N	Not moisture-sensitive according JEDEC-J-STD standard

4.14 Purchase Order Number

The purchase order number is assigned by the customer to identify a purchasing transaction. It has to be identical to the one on the Shipping Note.

4.15 Shipping Note Number (Delivery Note Number)

Shipping Note Number identifies the shipping. It has to be identical to the one on the Shipping Note. Other names for a Shipping Note are delivery note, packing list, pack list, dispatch note, etc.

4.16 Supplier Name

The supplier’s name will only be printed as plain text and is not part of the 2D-Code.

4.17 Supplier-ID

The Supplier-ID is the individual vendor number assigned by the respective plant.

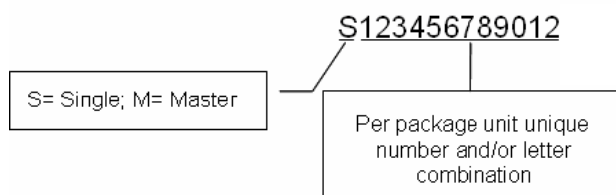
The Supplier-ID may be variable per plant and between plants. The Supplier-ID on MAT-Label shall reflect the vendor number used in the respective order (schedule agreement or single order).

4.18 Package-ID

The Package-ID is the unique number per smallest package unit of each supplier characterized by Supplier-ID. The Package-ID has to be defined by the supplier and has to be unique world-wide per Supplier-ID. The Package-ID will be used for customer purposes only to distinguish the package units.

The MAT-Label applies for the smallest package unit (single label) according to definition. Therefore, the first Character has to be an “S”.

If the MAT-Label is required by customer as master label, the first character has to be an “M”.



Example for a Package-ID:

The concatenated data fields Supplier-ID and Package-ID represent the unique trace code at customer for the smallest package unit.

Examples in defined sequence:

^G_SV884566^G_S3SS123456789012^G_S

@V884566@3SS123456789012@

4.19 Quantity

The quantity is the number of parts or the amount contained in the package unit.

The format in the 2D-Code is 12ISO3, i.e. maximum 12 significant places and exactly 3 decimal places.

For the significant digits do not use leading zeros. For the decimal places, use always exactly 3 decimal places and fill up with zeros for the case that there are less than 3 decimal places given in the amount.

ISO denotes the identifier for the measuring unit (e.g. pieces, liters, etc.) according to the recommendation No. 20 of WP.4 of the UN/ECE which is generally accepted for the use in Electronic Data Interchange (EDI) and supported e.g. by SAP.

The format used for the printed plain text should be 12,3 and given in the plain text measuring unit instead of the ISO Code. Separators (periods) can be added to make it easier to recognize thousands of places.

Separators (dots, periods) are not permitted in the encoded quantity (quantity in code).

If different formats for 2D-Code and printed information is technically not possible, then the quantity has to be printed in the same way as it is contained in the 2D-Code.

Excerpt from the UN/ECE Recommendation 20:

Measured Quantity	Measuring Unit	ISO Code
Number of Articles	Pieces	NAR
Mass	Kg	KGM
Mass	Metric Ton	TNE
Mass	Grams	GRM
Volume	Liters	LTR
Volume	Cubic meters	MTQ
Length	Meters	MTR
Length	Km	KMT

4.20 Batch-Counter

The Batch-Counter is the total number of batches in the smallest packaging unit. Maximum two different batches are allowed in one smallest package unit.

Examples:

Package unit includes only one Batch (e.g. Batch-Number: 0105086).

Field name: Data (content):

Batch-Counter: 1

1. Batch-No.: 0105086

2. Batch-No.: (empty)

Package units include two Batches (e.g. Batch-Number 0105086 and 0105087).

Field name: Data (content):

Batch-Counter: 2

1. Batch-No.: 0105086

2. Batch-No.: 0105087

4.21 Batch-No. #1

The data field Batch-No. #1 contains an identification code for the production batch of the part (batch number, lot number, trace code, date code ...).

With this number the supplier has to be able to retroactively provide all traceability information about the production batch (e.g. volume, production, delivery, half-finished goods used in the production, production machine(s), operator ...).

Batch identification should be based on same manufacturing conditions. If the conditions (machine, half-finished goods, operator ...) change, the batch number should also change. Collective batches are not allowed.

4.22 Batch-No. #2

The data field Batch-No. #2 contains an identification code for the second production batch of the part (batch number, lot number ...) if it exists in packaging unit.

In case of two batches inside the packaging unit, the value in field Batch-No. #2 must not equal the value in field Batch-No. #1.

If a second batch exists in packaging unit, as results the value in field Batch-Counter = 2

4.23 Supplier Data

This data field may freely be used by the supplier.

5 Data syntax

- ISO conform syntax according to ISO/IEC 15434

Is preferred the original data syntax according to ISO/IEC 15434 including its hidden character RS, GS and EOT (Hex: 1E, 1D and 04) in the message header, format envelope, data element separator and message trailer.

Regarding the data syntax, newly developed or separate MAT-Labels should strictly follow ISO/IEC 15434..

- Alternative syntax based on ISO/IEC15434 but using @-character as data element separator.

In case of other companies already approved MAT-Labels by using alternative character (@ instead of any RS, GS and EOT) this syntax is also acceptable too.

However, the acceptance of using the alternative @ character in the syntax may be withdrawn at any time. In such cases, any previously approved MAT-Labels with the alternative syntax must be adjusted to the original ISO/IEC 15434 syntax structure at the supplier's expense.

Independent of the data field and ISO conform syntax as well as alternative syntax, a @-character as data content (character in data field itself) is prohibited.

A hyperlink in syntax is prohibited (e.g. in field Supplier Data) if not expressly requested (e.g. in field Additional Part Information).

5.1 Syntax with ^R_S, ^G_S and ^E_O_T:

Message and Format-Header, Data Element Separator, Format- and Message-Trailer is in yellow.

Data Identifiers are in green.

Data fields are white.

Data is in bold font.

The syntax looks like:

(string is in one line, below existing line feeds only for illustration in this document)

```

]>>RS06GS12SLabel-VersionGSPCustomer-Part-NumberGS1PManufacturer-Partnumber
GS31POrdering-CodeGS12VManufacturer-NumberGS10VManufacturer-Location
GS2PIndexGS20PAdd.InfoGS6DDate-of-manufacturingGS14DExpiry-Date
GS30PRoHSGSZMS-LevelGSKPurchase-Order-NumberGS16KShipping-Note-Number
GSVSupplier-IDGS3SPackage-IDGSQQuantityGS20TBatch-IDGS1T1.BatchGS2T2.Batch
GS1ZSupplier-DataRSEOT
    
```

5.2 Syntax with @ instead of ^R_S, ^G_S and ^E_O_T

```

]>>@06@12SLabel-Version@P Customer-Part-Number@1PManufacturer-Partnumber
@31POrdering-Code@12VManufacturer-Number@10VManufacturer-Location
@2PIndex@20PAdd.Info@6DDate-of-manufacturing@14DExpiry-Date
@30PRoHS@ZMS-Level@KPurchase-Order-Number@16KShipping-Note-Number
@VSupplier-ID@3SPackage-ID@QQuantity@20TBatch-ID@1T1.Batch@2T2.Batch
@1ZSupplier-Data@@
    
```

6 Annex

6.1 List of relevant plants

The MAT label is valid for the following plants:

Bebra	Robert-Bunsen-Str. 12, D-36179 Bebra, Germany
Boussens	28 Route des Pyrénées, 31360 Boussens, France
Brasov	Hermann Oberth Street, no. 23, 507075, Ghimbav, Brasov, Romania
Changchun	Wuhan Avenue 1981, Changchun, Jilin Province, 130033, P.R. China
Cuautla	Av. Ignacio Allende Lote 20, Parque Industrial Cuautla, Ayala, Morelos, Mexico
Debrecen	Jedlik Ányos utca 4, 4002 Debrecen, Hungary
Dortmund	Arminiusstraße 59, D-44149 Dortmund, Germany
Foix	Route Nationale 20 - ZI de Permilhac, 09000 Foix, France
Frenstat	Kopanská 1713, 744 01 Frenštát pod Radhoštěm, Czech Republic
Icheon	45-29, Saeum-ro, Icheon-si, Gyeonggi-do, 467-080, Republic of Korea
Santa Teresa	2400 Executive Hills Blvd., Auburn Hills, MI 48326, USA
Limbach	Ostring 7, D-09212 Limbach-Oberfrohna, Germany
Nürnberg	Otto-Kraus-Str. 15, 90411 Nürnberg, Germany
Ostrava	Bohumínská 710/198, 711 00 Slezská Ostrava, Czech Republic
Seguin	a) 3740 N. Austin St., Seguin, Texas 78155, USA
Shanghai	No. 1099 Yuangong Road, Anting Town, Jiading Shanghai, P.R. China
Tianjin	No. 2, Bohai Road, TEDA, Tianjin, 300457, P.R. China
Trutnov DS	Volanovská 518, 541 01 Trutnov, Czech Republic
Trutnov AM	174 Obchodni ul. 541 01 Trutnov, Czech Republic
Wuhu	27, Yinhu Road (N), Wuhu Economy and Technology Development Zone, Anhui, PR China