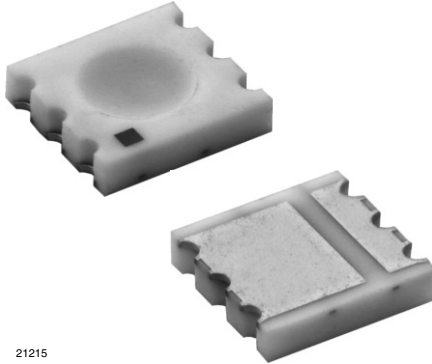


Power SMD LED CLCC-2 Flat



21215

DESCRIPTION

The VLMW80.. is one of the most robust and light efficient LEDs in the market. The small size and wide viewing angle make these LEDs a prime choice for backlighting applications and front panel indicators, especially where space is at a premium. Its ceramic package makes it the ideal light source in applications of high thermal considerations allowing the additional current drive for a maximum light output while maintaining a high service life of up to 50 kh. The reflector inside this package is filled with a mixture of silicone and TAG phosphor. The TAG phosphor converts the blue emission partially to yellow, which mixes with the remaining blue to white.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD CLCC-2 flat
- Product series: power
- Angle of half intensity: $\pm 60^\circ$

FEATURES

- Utilizing InGaN technology
- Very low thermal resistance, high optical power
- Optical efficiency 40 lm/W at 100 mA
- Luminous intensity and color grouping
- Luminous intensity ratio per package unit $I_{Vmax}/I_{Vmin.} \leq 1.6$
- ESD-withstand voltage: up to 1 kV according to JESD22-A114-B
- Compatible with IR reflow solder processes according to CECC 00802 and J-STD-020C
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Preconditioning: acc. to JEDEC level 4
- AEC-Q101qualified
- Very flat package (0.75 mm)


RoHS
COMPLIANT

APPLICATIONS

- Camera flash light
- Interior and exterior automotive lighting: brake lights, turn lights, backlighting, side markers
- Indicator lighting
- Signal and symbol luminaire
- Marker lights
- Dashboard illumination

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY (at $I_F = 140 \text{ mA}$)	LUMINOUS FLUX (TYP.)	TECHNOLOGY
VLMW80CADB-08	White, $I_V = (2800 \text{ to } 7100) \text{ mcd}$	14 000 mlm	InGaN/TAG
VLMW80CADB-18	White, $I_V = (2800 \text{ to } 7100) \text{ mcd}$	14 000 mlm	InGaN/TAG

ABSOLUTE MAXIMUM RATINGS ¹⁾ VLMW80..

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Forward current		I_F	350	mA
Power dissipation		P_{tot}	1750	mW
Junction temperature		T_j	+ 125	°C
Surge current $t < 10 \mu s, d = 0.1$		I_{FM}	1000	mA
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Thermal resistance junction/pin	Metal core pcb 960 mm ² per LED	R_{thJP}	25	K/W

Note:

Not designed for reverse operation

¹⁾ $T_{amb} = 25 \text{ °C}$, unless otherwise specified**OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLMW80.., WHITE**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	$I_F = 140 \text{ mA}$	VLMW80CADB	I_V	2800		7100	mcd
Luminous flux calculated	$I_F = 140 \text{ mA}$	VLMW80CADB	ϕ_V	8800		22 300	lm
Chromaticity coordinate x acc. to CIE 1931	$I_F = 140 \text{ mA}$		x		0.33		
Chromaticity coordinate y acc. to CIE 1931	$I_F = 140 \text{ mA}$		y		0.33		
Angle of half intensity	$I_F = 140 \text{ mA}$		φ		± 60		deg
Forward voltage	$I_F = 140 \text{ mA}$		V_F	2.8	3.5	4.3	V
Temperature coefficient of V_F	$I_F = 140 \text{ mA}$		TC_{VF}		- 3		mV/K
Temperature coefficient of I_V	$I_F = 140 \text{ mA}$		TC_{IV}		- 0.4		%/K

Note:

Not designed for reverse operation

¹⁾ $T_{amb} = 25 \text{ °C}$, unless otherwise specified**LUMINOUS INTENSITY/FLUX CLASSIFICATION WHITE**

GROUP	LUMINOUS INTENSITY I_V (mcd)	
STANDARD	MIN.	MAX.
CA	2800	3550
CB	3550	4500
DA	4500	5600
DB	5600	7100

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.

The above type Numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each reel (there will be no mixing of two groups on each reel).

In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, each single wavelength group is packed in a single reel.

In order to ensure availability, single wavelength groups can not be ordered.

FORWARD VOLTAGE CLASSIFICATION

GROUP	FORWARD VOLTAGE (V)	
	MIN.	MAX.
3	2.9	3.5
4	3.5	4.3

Note:

Forward voltages are tested at a current pulse duration of 25 ms and a tolerance of ± 0.1 V.

In order to ensure availability, a single forward voltage group can not be ordered.

CHROMATICITY COORDINATED GROUPS FOR WHITE SMD LED

	X	Y		X	Y
5	0.272	0.302	7	0.330	0.370
	0.303	0.329		0.349	0.385
	0.313	0.284		0.343	0.330
	0.296	0.259		0.330	0.310
6	0.300	0.345	8	0.349	0.385
	0.330	0.370		0.367	0.401
	0.330	0.310		0.360	0.357
	0.313	0.284		0.343	0.330

Note:

Chromaticity coordinate groups are tested at a current pulse duration of 25 ms and a tolerance of ± 0.01 .

TYPICAL CHARACTERISTICS

$T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified

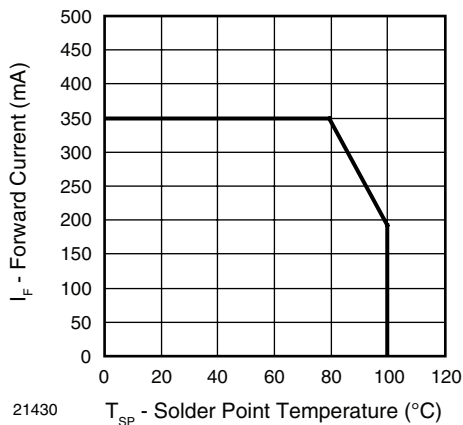


Figure 1. Permissible Forward Current vs. Solder Point Temperature

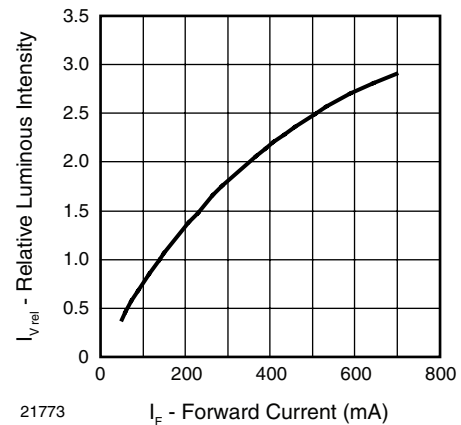


Figure 3. Relative Luminous Intensity vs. Forward Current

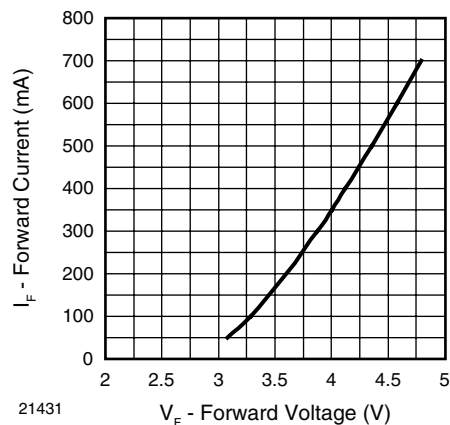


Figure 2. Forward Current vs. Forward Voltage

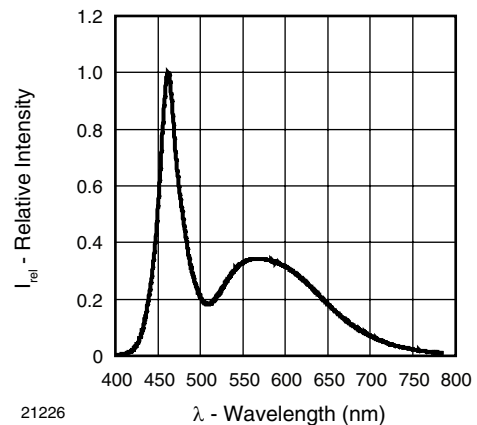


Figure 4. Relative Intensity vs. Wavelength

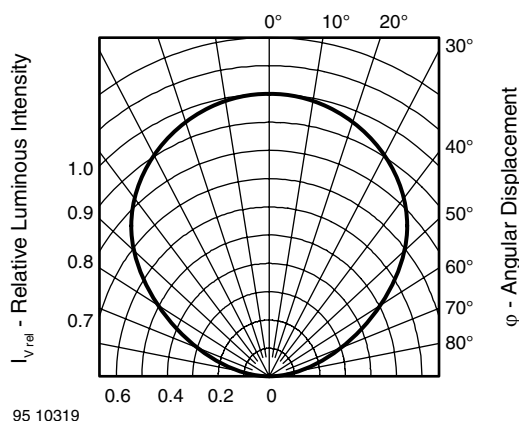


Figure 5. Relative Luminous Intensity vs. Angular Displacement

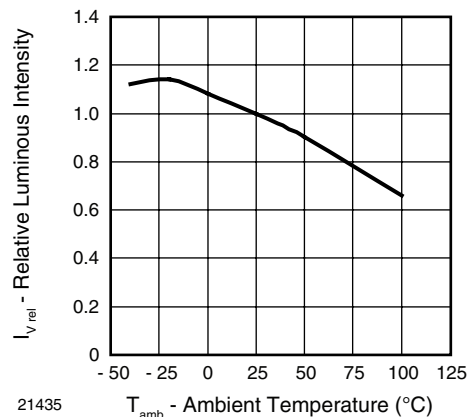


Figure 8. Relative Luminous Intensity vs. Ambient Temperature

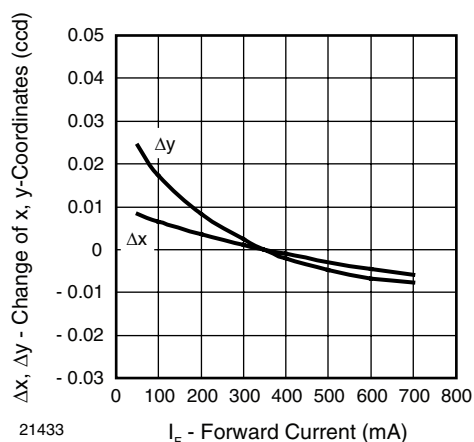


Figure 6. Change of x, y-Coordinates vs. Forward Current

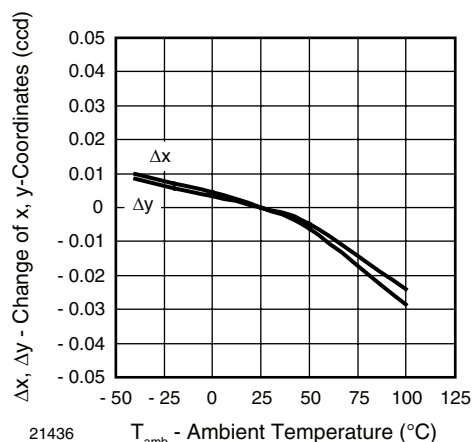


Figure 9. Change of x-Coordinates vs. Ambient Temperature

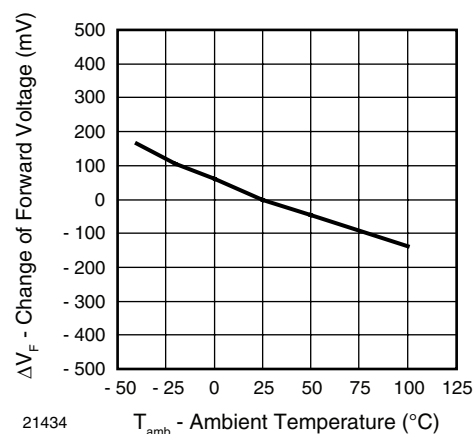


Figure 7. Change of Forward Voltage vs. Ambient Temperature

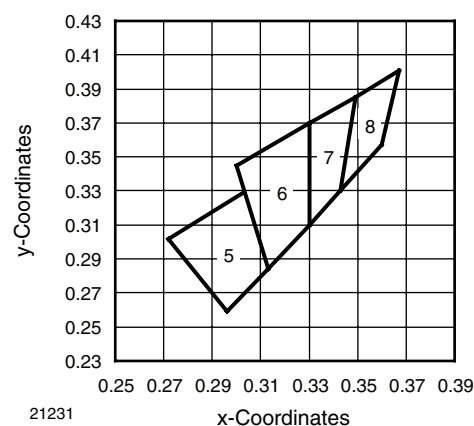
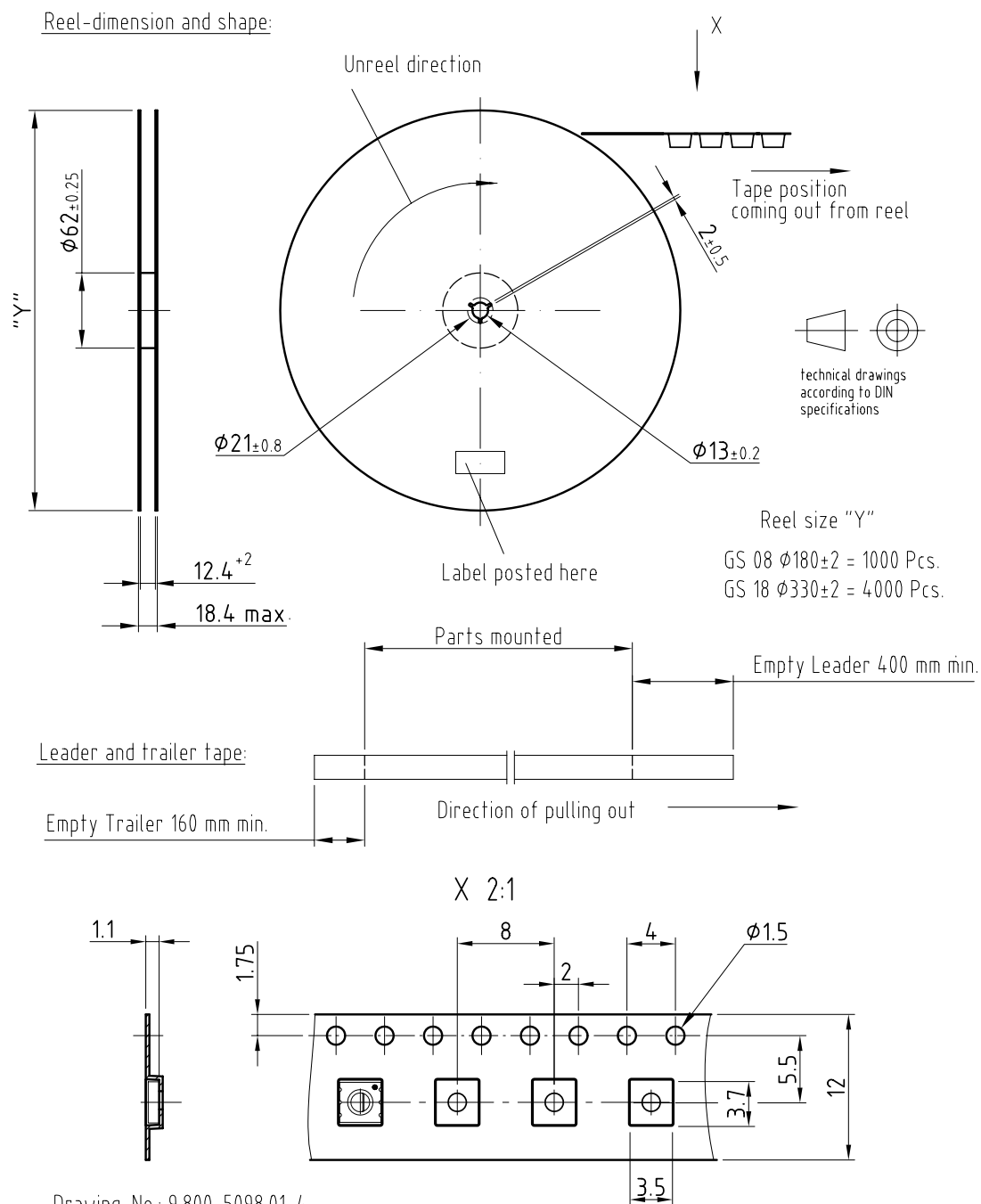
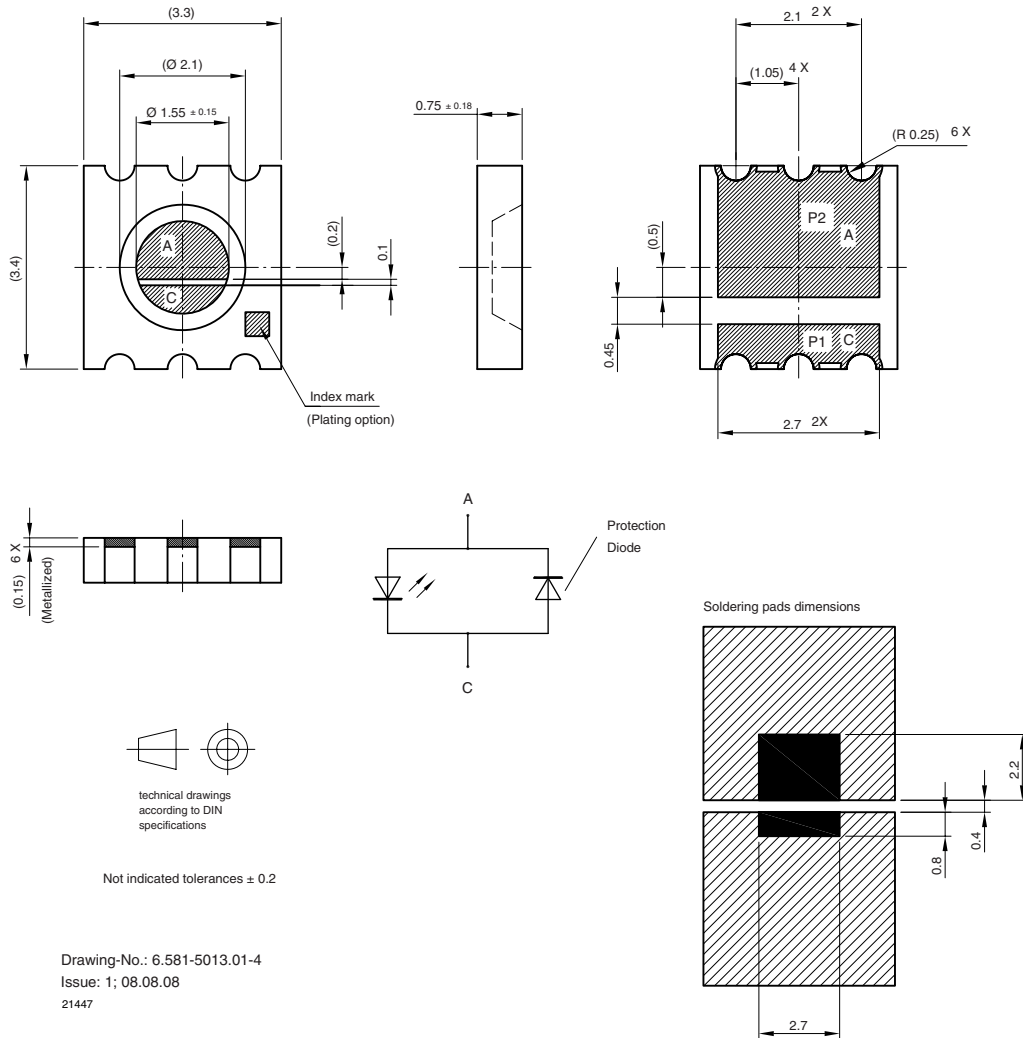


Figure 10. Coordinates of Colorgroups

TAPING DIMENSIONS in millimeters


Drawing-No.: 9.800-5098.01-4
 Issue: 1; 17.09.07
 20869

PACKAGE DIMENSIONS in millimeters



SOLDERING PROFILE

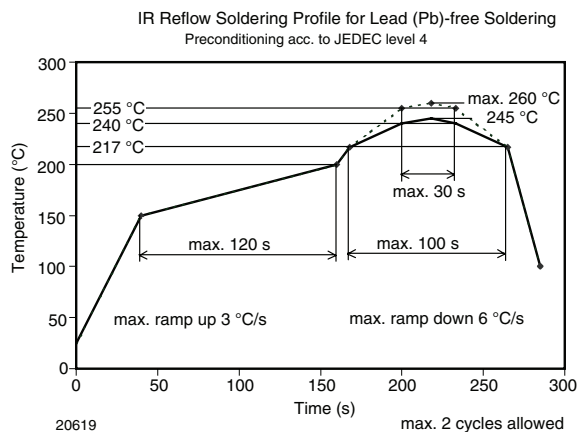
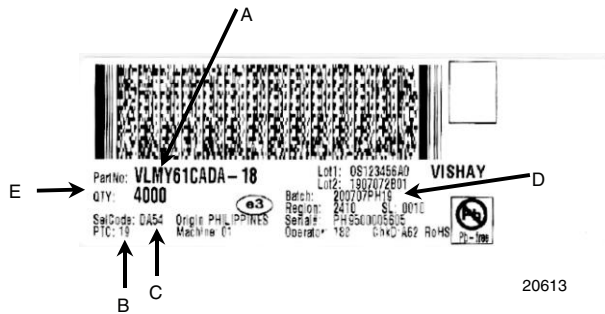


Figure 11. Vishay Lead (Pb)-free Reflow Soldering Profile
 (acc. to J-STD-020)

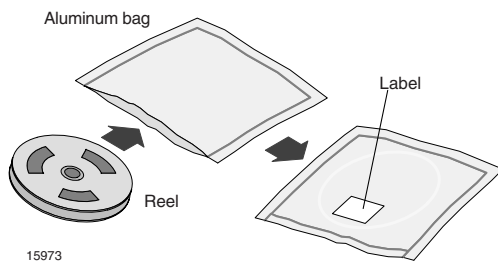
BAR CODE PRODUCT LABEL EXAMPLE:



- A) Type of component
B) Manufacturing plant
C) SEL - selection code (bin):
e.g.: DA = code for luminous intensity group
5 = code for color group
4 = code for forward voltage
D) Batch:
200707 = year 2007, week 07
PH19 = plant code
E) Total quantity

DRY PACKING

The reel is packed in an anti-humidity bag to protect the devices from absorbing moisture during transportation and storage.



FINAL PACKING

The sealed reel is packed into a cardboard box. A secondary cardboard box is used for shipping purposes.

RECOMMENDED METHOD OF STORAGE

Dry box storage is recommended as soon as the aluminum bag has been opened to prevent moisture absorption. The following conditions should be observed, if dry boxes are not available:

- Storage temperature 10 °C to 30 °C
- Storage humidity ≤ 60 % RH max.

After more than 72 h under these conditions moisture content will be too high for reflow soldering.

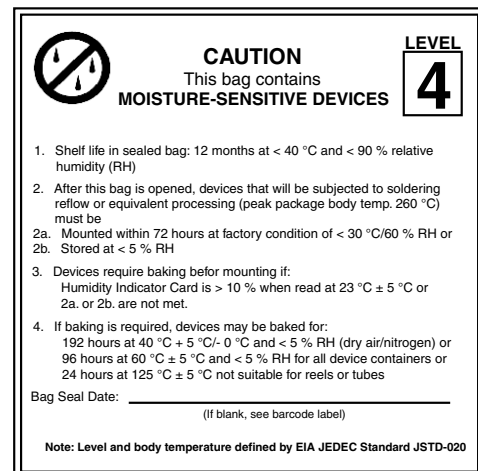
In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

192 h at 40 °C + 5 °C/- 0 °C and < 5 % RH (dry air/nitrogen) or

96 h at 60 °C + 5 °C and < 5 % RH for all device containers or

24 h at 100 °C + 5 °C not suitable for reel or tubes.

An EIA JEDEC standard JESD22-A112 level 4 label is included on all aluminum dry bags.



Example of JESD22-A112 level 4 label

ESD PRECAUTION

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the antistatic shielding bag. Electro-static sensitive devices warning labels are on the packaging.

VISHAY SEMICONDUCTORS STANDARD BAR CODE LABELS

The Vishay Semiconductors standard bar code labels are printed at final packing areas. The labels are on each packing unit and contain Vishay Semiconductors specific data.



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