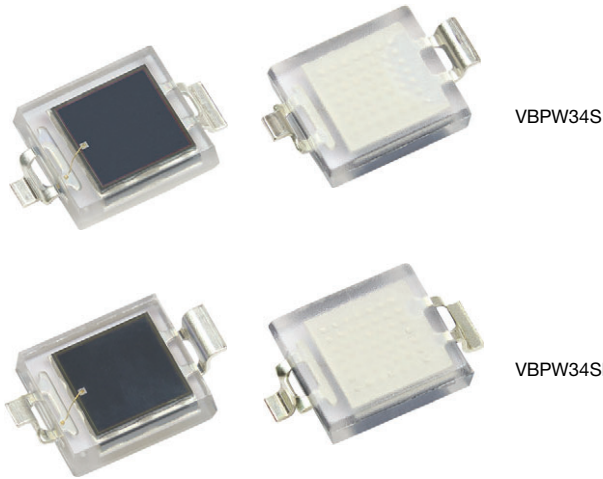




Silicon PIN Photodiode



FEATURES

- Package type: surface-mount
- Package form: GW, RGW
- Dimensions (L x W x H in mm): 6.4 x 3.9 x 1.2
- Radiant sensitive area (in mm²): 7.5
- High photo sensitivity
- High radiant sensitivity
- Suitable for visible and near infrared radiation
- Fast response times
- Angle of half sensitivity: $\phi = \pm 65^\circ$
- Floor life: 168 h, MSL 3, according to J-STD-020
- Lead (Pb)-free reflow soldering
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



DESCRIPTION

VBPW34S and VBPW34SR are high speed and high sensitive PIN photodiodes. It is a surface mount device (SMD) including the chip with a 7.5 mm² sensitive area detecting visible and near infrared radiation.

APPLICATIONS

- High speed photo detector

PRODUCT SUMMARY			
COMPONENT	I _{ra} (μA)	φ (°)	λ _{0.1} (nm)
VBPW34S	55	± 65	430 to 1100
VBPW34SR	55	± 65	430 to 1100

Note

- Test conditions see table “Basic Characteristics”

ORDERING INFORMATION			
ORDERING CODE	PACKAGING	REMARKS	PACKAGE FORM
VBPW34S	Tape and reel	MOQ: 1000 pcs, 1000 pcs/reel	Gullwing
VBPW34SR	Tape and reel	MOQ: 1000 pcs, 1000 pcs/reel	Reverse gullwing

Note

- MOQ: minimum order quantity

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V _R	60	V
Power dissipation	T _{amb} ≤ 25 °C	P _V	215	mW
Junction temperature		T _j	100	°C
Operating temperature range		T _{amb}	-40 to +100	°C
Storage temperature range		T _{stg}	-40 to +100	°C
Soldering temperature	According to reflow solder profile Fig. 8	T _{sd}	260	°C
Thermal resistance junction to ambient		R _{thJA}	350	K/W



BASIC CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 50 mA	V _F		1	1.3	V
Breakdown voltage	I _R = 100 μA, E = 0	V _(BR)	60	-	-	V
Reverse dark current	V _R = 10 V, E = 0	I _{ro}	-	2	30	nA
Diode capacitance	V _R = 0 V, f = 1 MHz, E = 0	C _D	-	70	-	pF
	V _R = 3 V, f = 1 MHz, E = 0	C _D	-	25	40	pF
Open circuit voltage	E _e = 1 mW/cm ² , λ = 950 nm	V _o	-	350	-	mV
Temperature coefficient of V _o	E _e = 1 mW/cm ² , λ = 950 nm	TK _{V_o}	-	-2.6	-	mV/K
Short circuit current	E _e = 1 mW/cm ² , λ = 950 nm	I _k	-	50	-	μA
Temperature coefficient of I _k	E _e = 1 mW/cm ² , λ = 950 nm	TK _{I_k}	-	0.1	-	%/K
Reverse light current	E _e = 1 mW/cm ² , λ = 950 nm, V _R = 5 V	I _{ra}	45	55	-	μA
Angle of half sensitivity		φ	-	± 65	-	°
Wavelength of peak sensitivity		λ _p	-	940	-	nm
Range of spectral bandwidth		λ _{0.1}	-	430 to 1100	-	nm
Noise equivalent power	V _R = 10 V, λ = 950 nm	NEP	-	4 × 10 ⁻¹⁴	-	W/√Hz
Rise time	V _R = 10 V, R _L = 1 kΩ, λ = 820 nm	t _r	-	100	-	ns
Fall time	V _R = 10 V, R _L = 1 kΩ, λ = 820 nm	t _f	-	100	-	ns

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

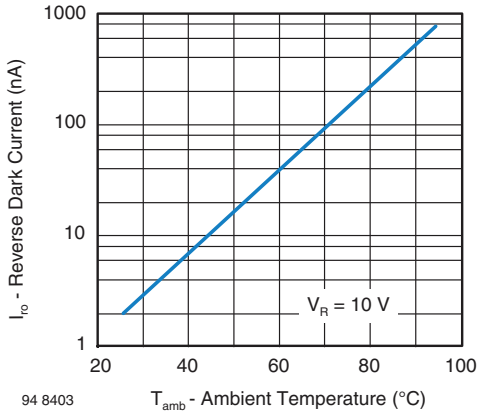


Fig. 1 - Reverse Dark Current vs. Ambient Temperature

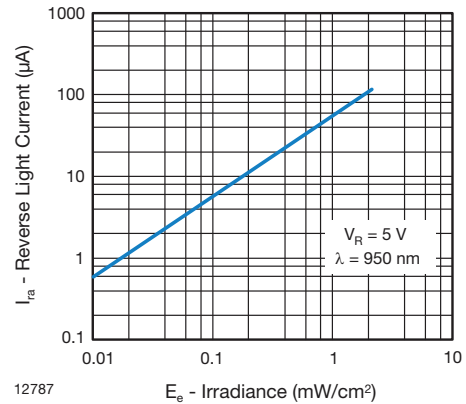


Fig. 3 - Reverse Light Current vs. Irradiance

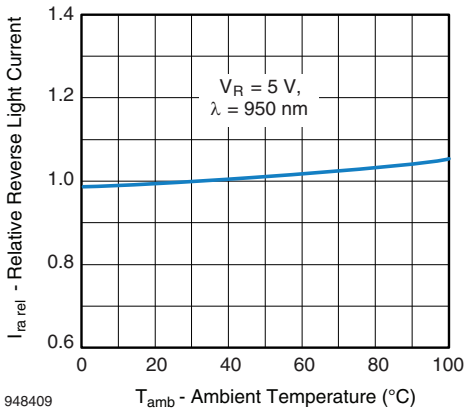


Fig. 2 - Relative Reverse Light Current vs. Ambient Temperature

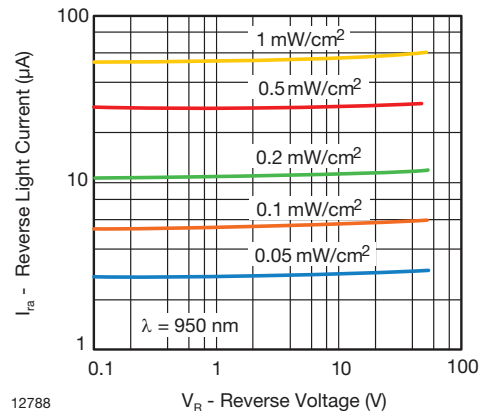


Fig. 4 - Reverse Light Current vs. Reverse Voltage

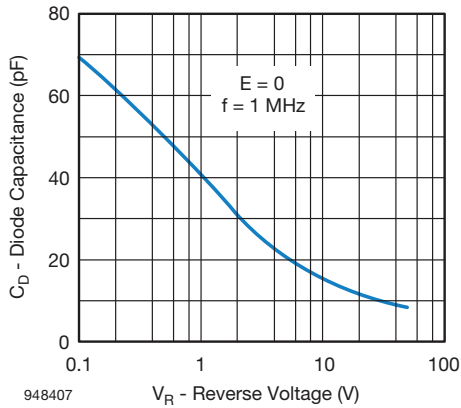


Fig. 5 - Diode Capacitance vs. Reverse Voltage

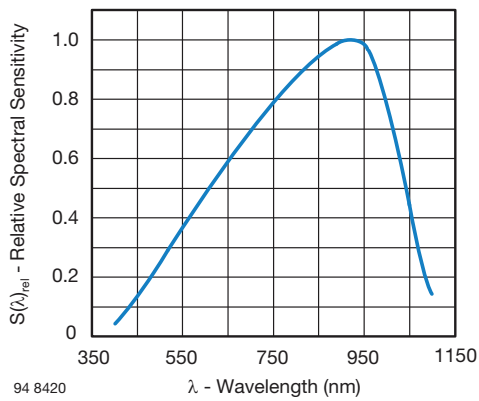


Fig. 6 - Relative Spectral Sensitivity vs. Wavelength

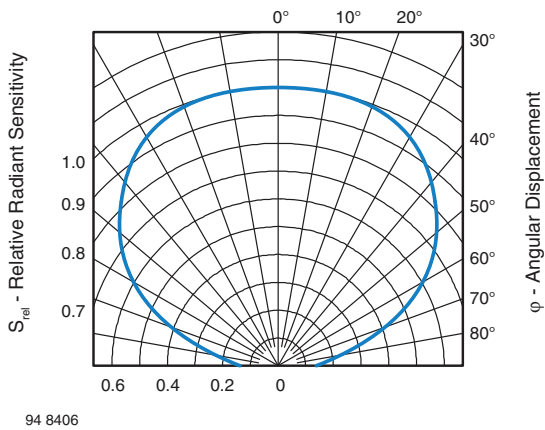
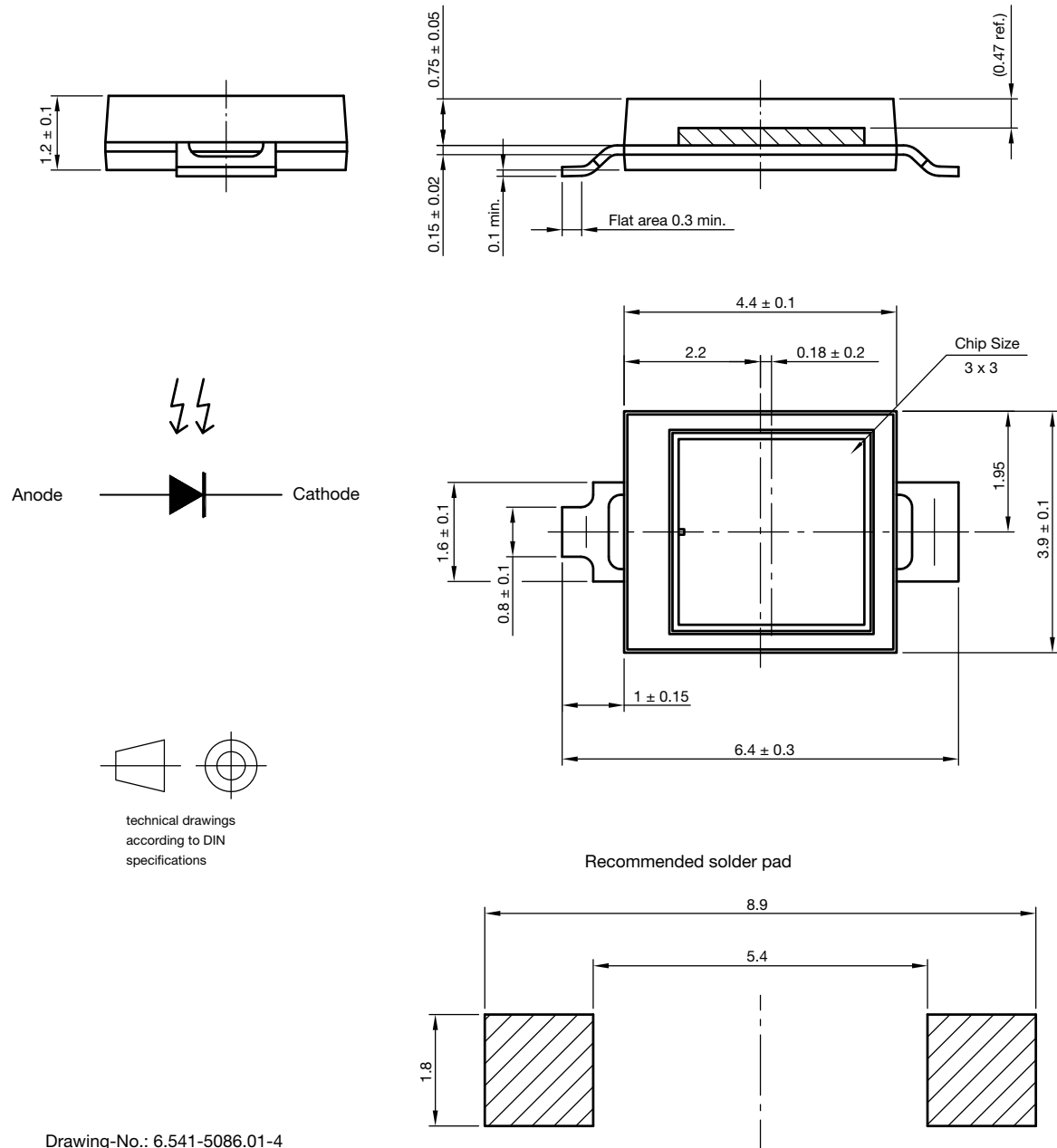


Fig. 7 - Relative Radiant Sensitivity vs. Angular Displacement



PACKAGE DIMENSIONS FOR VBPW34S in millimeters



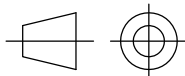
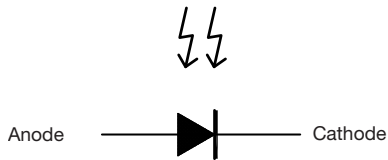
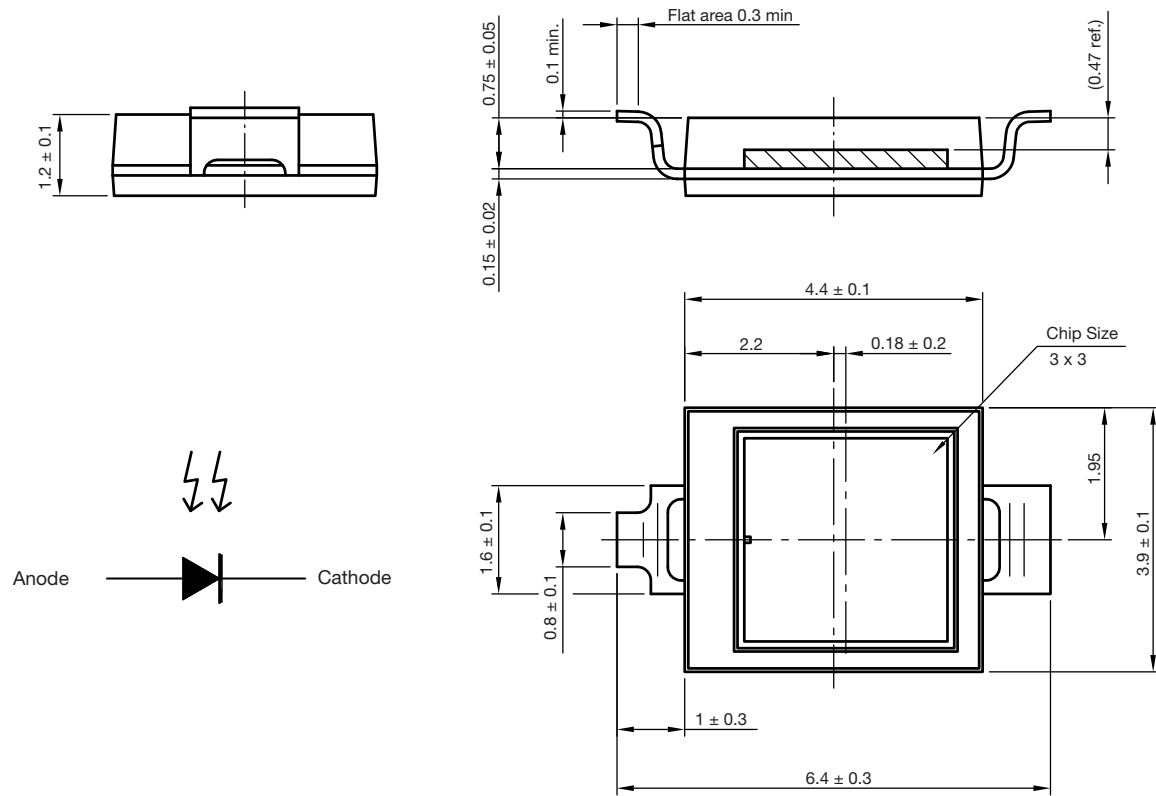
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Issue: 1; 15.04.10

22105

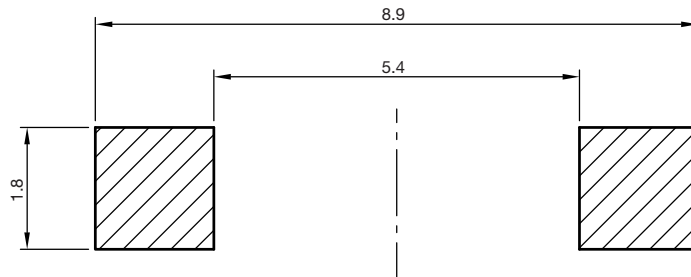


PACKAGE DIMENSIONS FOR VBPW34SR in millimeters



technical drawings according to DIN specifications

Recommended solder pad



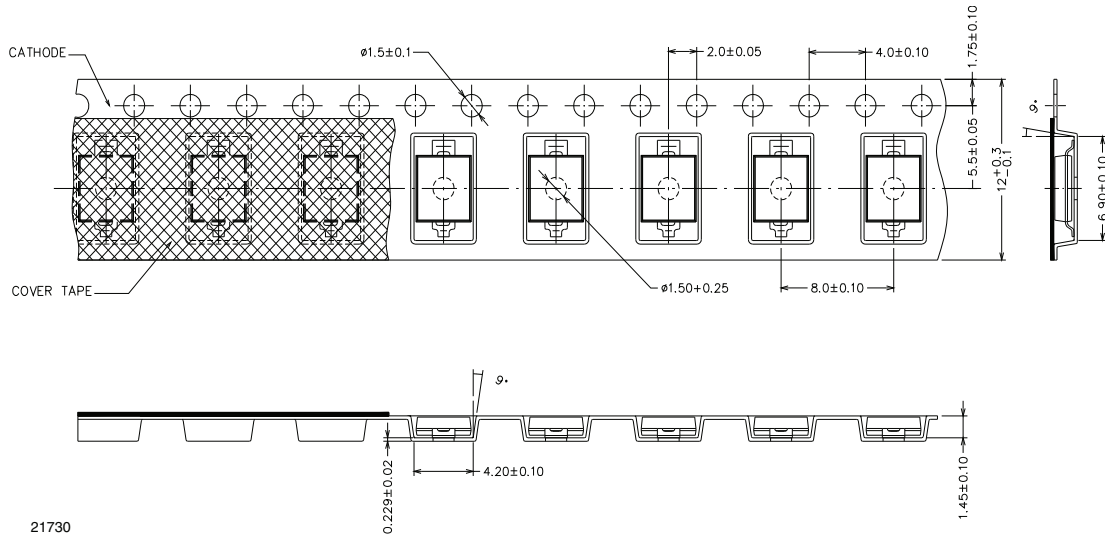
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Issue: 1; 15.04.10

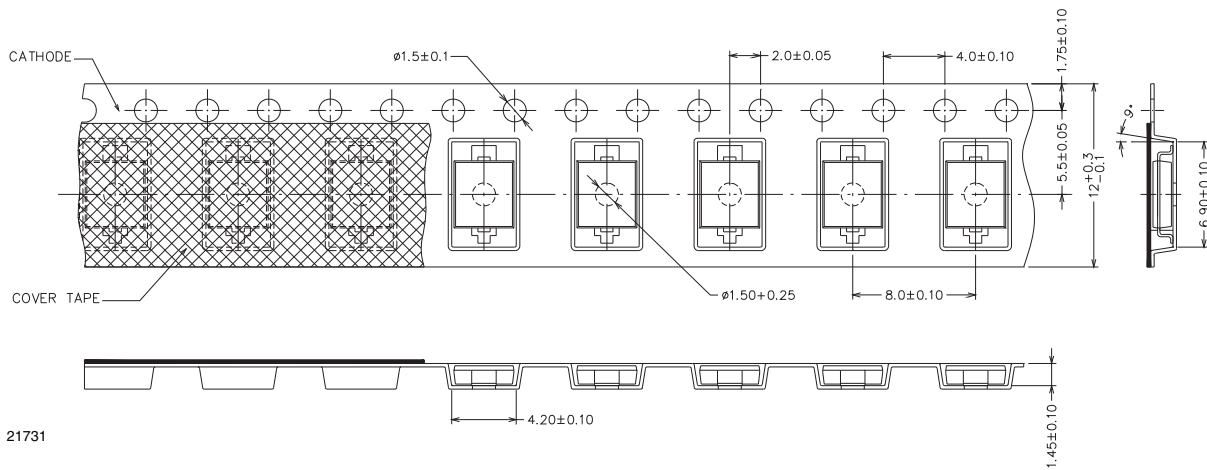
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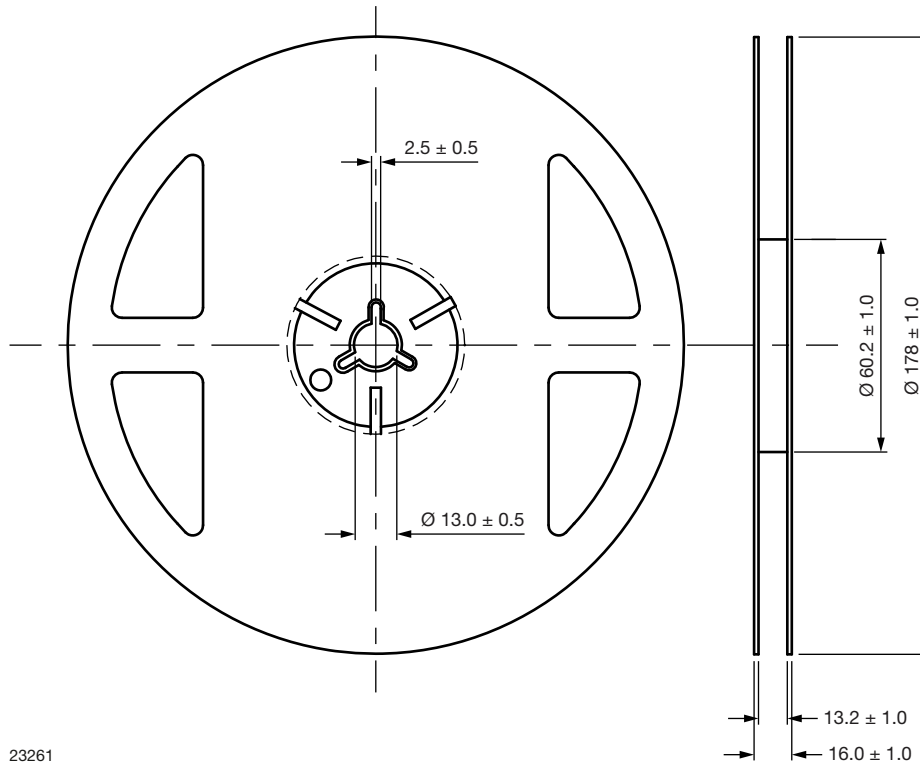
TAPING DIMENSIONS FOR VBPW34S in millimeters



TAPING DIMENSIONS FOR VBPW34SR in millimeters



REEL DIMENSIONS FOR VBPW34S AND VBPW34SR in millimeters



SOLDER PROFILE

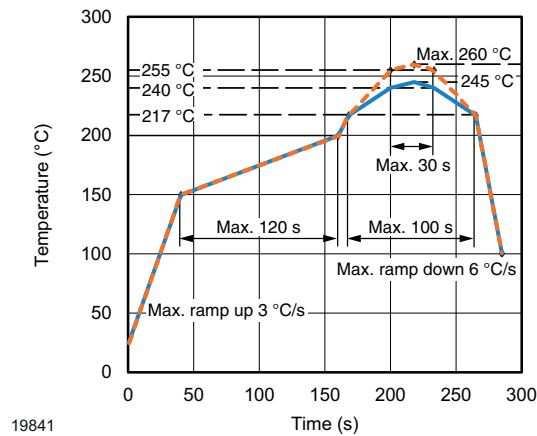


Fig. 8 - Lead (Pb)-free Reflow Solder Profile According to J-STD-020

DRYPACK

Devices are packed in moisture barrier bags (MBB) to prevent the products from moisture absorption during transportation and storage. Each bag contains a desiccant.

FLOOR LIFE

Time between soldering and removing from MBB must not exceed the time indicated in J-STD-020:

Moisture sensitivity: level 3

Floor life: 168 h

Conditions: $T_{amb} < 30\text{ °C}$, $RH < 60\%$

DRYING

In case of moisture absorption devices should be baked before soldering. Conditions see J-STD-020 or recommended conditions:

192 h at $40\text{ °C} (+ 5\text{ °C})$, $RH < 5\%$

or

96 h at $60\text{ °C} (+ 5\text{ °C})$, $RH < 5\%$



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