

Si-PIN-Fotodiode mit Tageslichtsperrfilter; in SMT und als Reverse Gullwing Silicon PIN Photodiode with Daylight Filter; in SMT and as Reverse Gullwing Lead (Pb) Free Product - RoHS Compliant

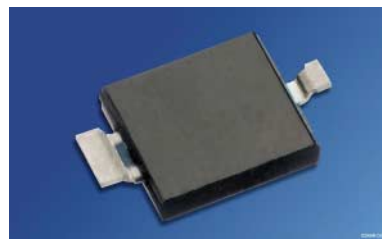
BPW 34 FA, BPW 34 FAS, BPW 34 FASR



BPW 34 FA



BPW 34 FAS



BPW 34 FASR

Wesentliche Merkmale

- Speziell geeignet für den Wellenlängenbereich von 730 nm bis 1100 nm
- Kurze Schaltzeit (typ. 20 ns)
- DIL-Plastikbauform mit hoher Packungsdichte
- BPW 34 FAS / FASR: geeignet für Reflow Löten

Anwendungen

- Automobil (z.B. Regensensor, Headset)
- IR-Fernsteuerung von Fernseh- und Rundfunkgeräten, Videorecordern, Gerätefernsteuerung
- Lichtschranken

Features

- Especially suitable for the wavelength range of 730 nm to 1100 nm
- Short switching time (typ. 20 ns)
- DIL plastic package with high packing density
- BPW 34 FAS / FASR: Suitable for reflow soldering

Applications

- Automotive (eg rain sensor, headset)
- IR-remote control of hi-fi and TV sets, video tape recorders, remote controls of various equipment
- Photointerrupters

Typ Type	Bestellnummer Ordering Code	Fotostrom, $E_e=1 \text{ mW/cm}^2$, $V_R = 5 \text{ V}$, $\lambda = 870 \text{ nm}$ Photocurrent $I_p (\mu\text{A})$
BPW 34 FA	Q62702P1129	50 (≥ 40)
BPW 34 FAS	Q65110A3121	50 (≥ 40)
BPW 34 FASR	Q65110A2699	50 (≥ 40)

Grenzwerte
Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Betriebs- und Lagertemperatur Operating and storage temperature range	$T_{op}; T_{stg}$	- 40 ... + 100	°C
Sperrspannung Reverse voltage	V_R $V_R (t < 2 \text{ min})$	16 32	V V
Verlustleistung, $T_A = 25 \text{ °C}$ Total power dissipation	P_{tot}	150	mW

Kennwerte ($T_A = 25 \text{ °C}$, $\lambda = 870 \text{ nm}$)
Characteristics

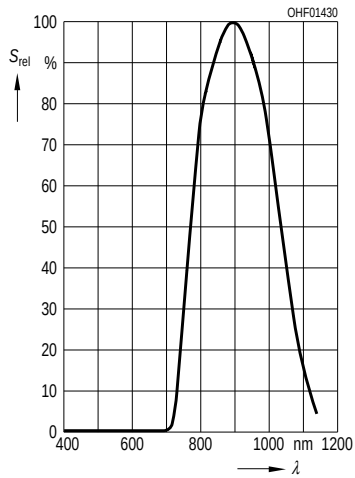
Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Fotostrom Photocurrent $V_R = 5 \text{ V}$, $E_e = 1 \text{ mW/cm}^2$	I_p	50 (≥ 40)	μA
Wellenlänge der max. Fotoempfindlichkeit Wavelength of max. sensitivity	$\lambda_{S \text{ max}}$	880	nm
Spektraler Bereich der Fotoempfindlichkeit $S = 10\%$ von S_{max} Spectral range of sensitivity $S = 10\%$ of S_{max}	λ	730 ... 1100	nm
Bestrahlungsempfindliche Fläche Radiant sensitive area	A	7.00	mm^2
Abmessung der bestrahlungsempfindlichen Fläche Dimensions of radiant sensitive area	$L \times B$ $L \times W$	2.65×2.65	mm × mm
Halbwinkel Half angle	φ	± 60	Grad deg.
Dunkelstrom, $V_R = 10 \text{ V}$ Dark current	I_R	2 (≤ 30)	nA
Spektrale Fotoempfindlichkeit Spectral sensitivity	S_λ	0.65	A/W
Quantenausbeute Quantum yield	η	0.93	<u>Electrons</u> Photon
Leerlaufspannung, $E_e = 0.5 \text{ mW/cm}^2$ Open-circuit voltage	V_O	320 (≥ 250)	mV

Kennwerte ($T_A = 25\text{ °C}$, $\lambda = 870\text{ nm}$)

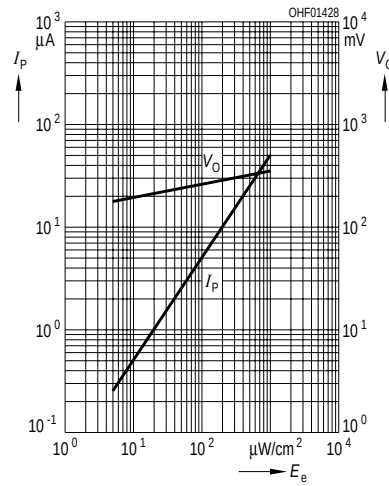
Characteristics (cont'd)

Bezeichnung Parameter	Symbol Symbol	Wert Value	Einheit Unit
Kurzschlussstrom, $E_e = 0.5\text{ mW/cm}^2$ Short-circuit current	I_{SC}	23	μA
Anstiegs- und Abfallzeit des Fotostroms Rise and fall time of the photocurrent $R_L = 50\text{ }\Omega$; $V_R = 5\text{ V}$; $\lambda = 850\text{ nm}$; $I_p = 800\text{ }\mu\text{A}$	t_r, t_f	20	ns
Durchlassspannung, $I_F = 100\text{ mA}$, $E = 0$ Forward voltage	V_F	1.3	V
Kapazität, $V_R = 0\text{ V}$, $f = 1\text{ MHz}$, $E = 0$ Capacitance	C_0	72	pF
Temperaturkoeffizient von V_O Temperature coefficient of V_O	TC_V	- 2.6	mV/K
Temperaturkoeffizient von I_{SC} Temperature coefficient of I_{SC}	TC_I	0.03	%/K
Rauschäquivalente Strahlungsleistung Noise equivalent power $V_R = 10\text{ V}$	NEP	3.9×10^{-14}	$\frac{\text{W}}{\sqrt{\text{Hz}}}$
Nachweisgrenze, $V_R = 10\text{ V}$, Detection limit	D^*	6.8×10^{12}	$\frac{\text{cm} \times \sqrt{\text{Hz}}}{\text{W}}$

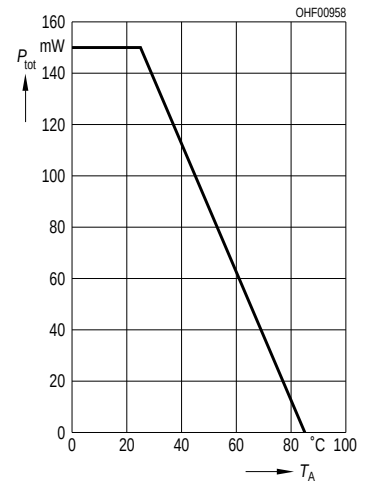
Relative Spectral Sensitivity
 $S_{rel} = f(\lambda)$



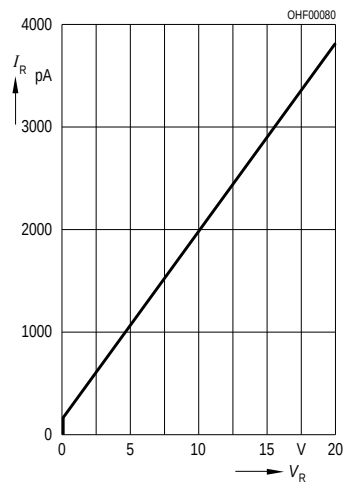
Photocurrent $I_P = f(E_e)$, $V_R = 5$ V
Open-Circuit Voltage $V_O = f(E_e)$



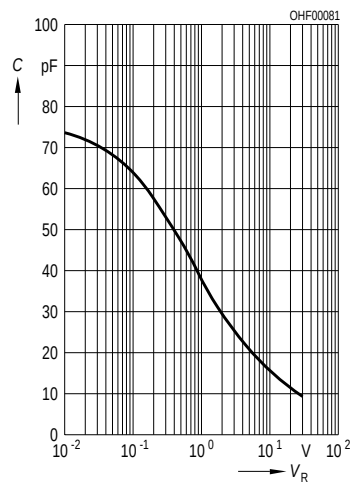
Total Power Dissipation
 $P_{tot} = f(T_A)$



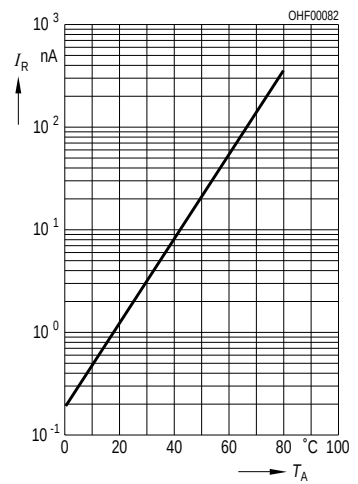
Dark Current
 $I_R = f(V_R)$, $E = 0$



Capacitance
 $C = f(V_R)$, $f = 1$ MHz, $E = 0$

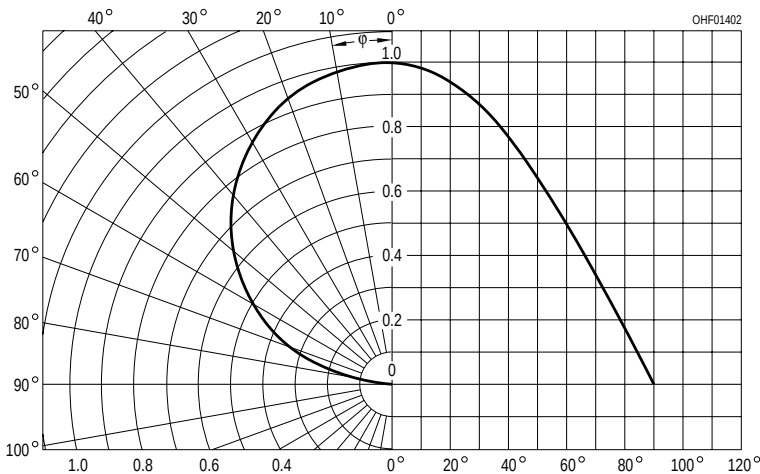


Dark Current
 $I_R = f(T_A)$, $V_R = 10$ V, $E = 0$

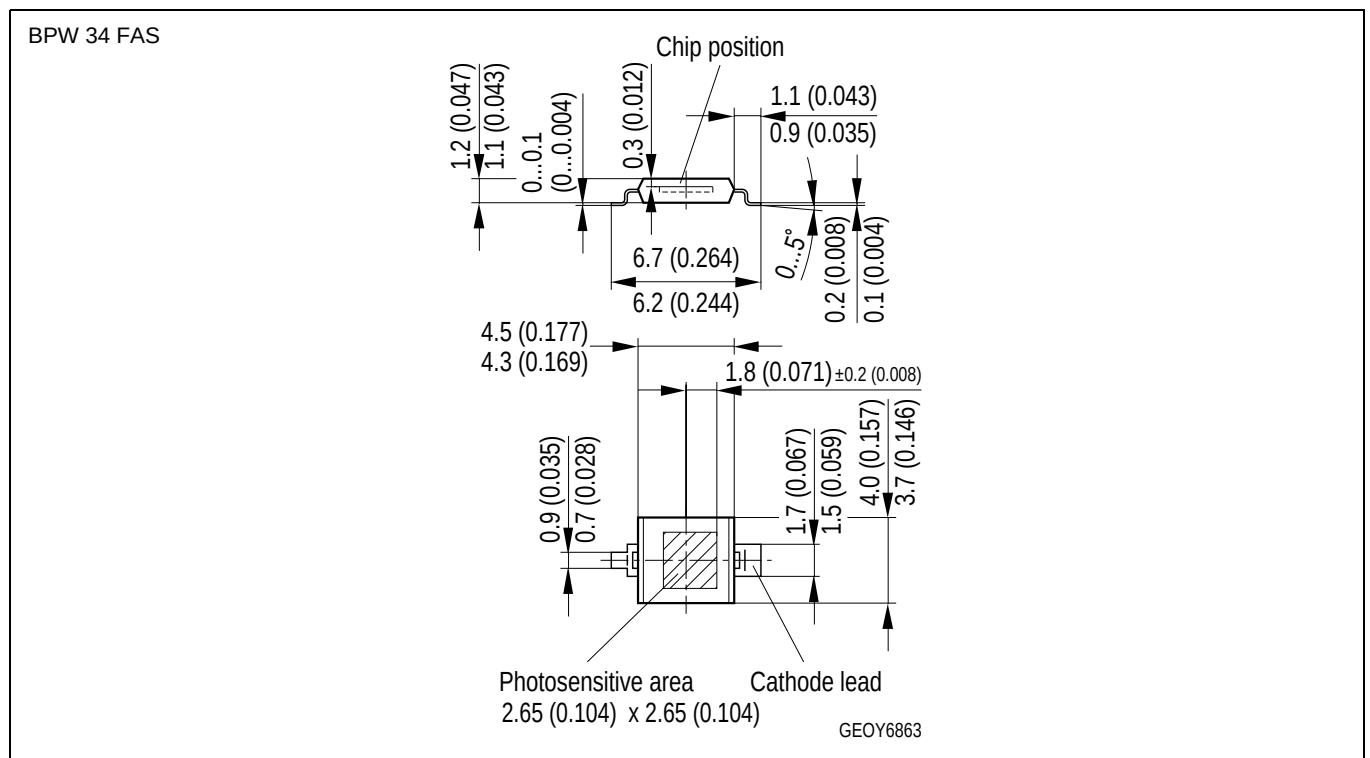
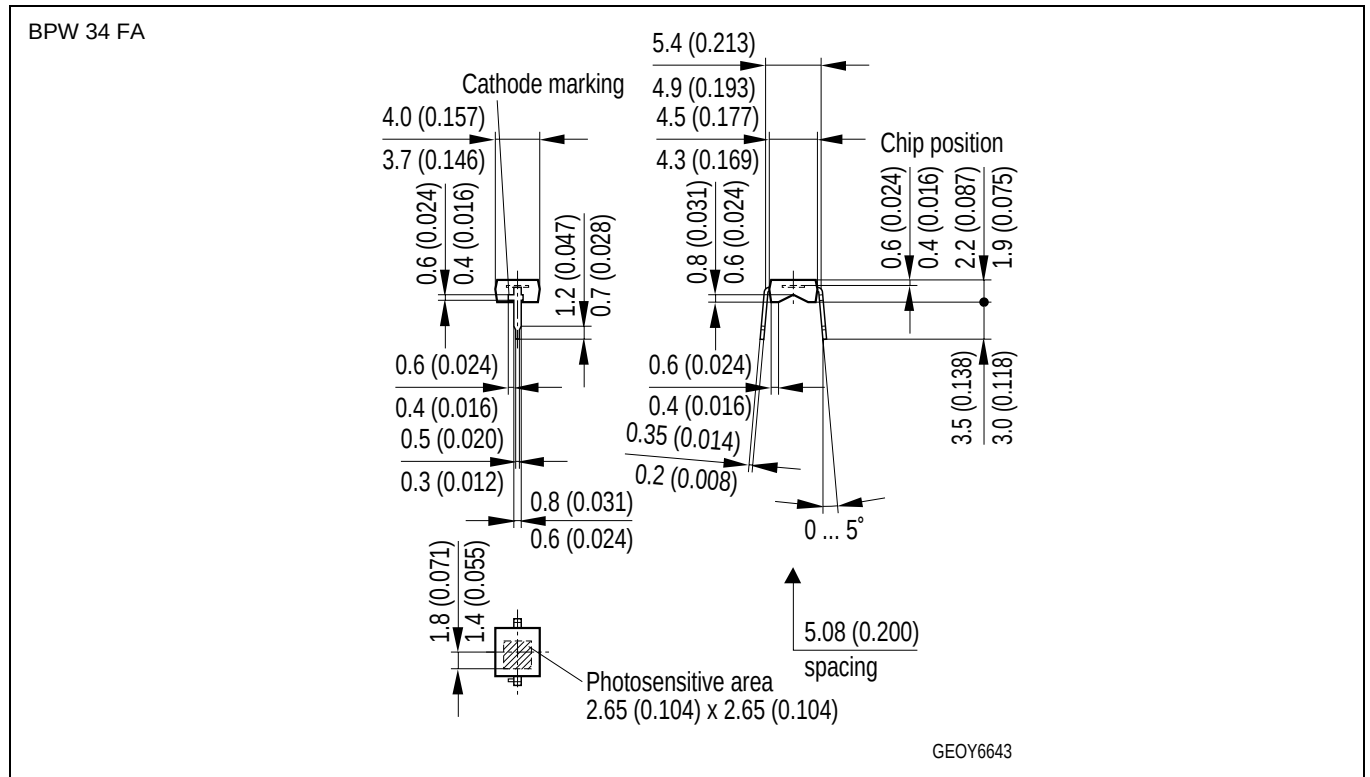


Directional Characteristics

$$S_{rel} = f(\varphi)$$

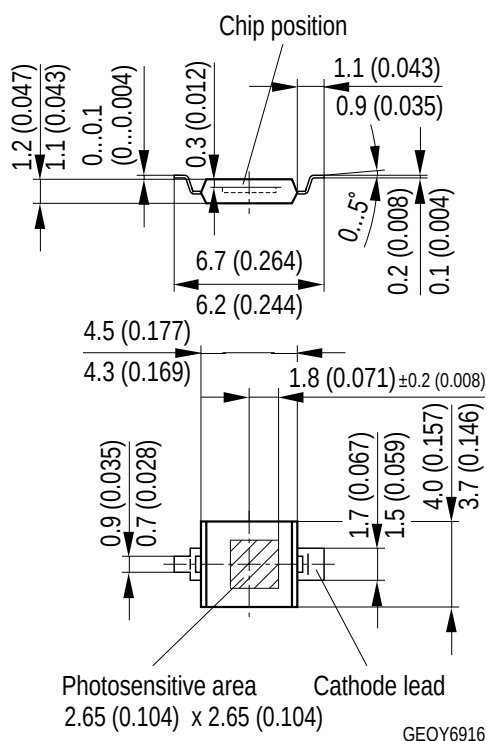


Maßzeichnung
Package Outlines



Maße in mm (inch) / Dimensions in mm (inch).

BPW 34 FASR



Maße in mm (inch) / Dimensions in mm (inch).

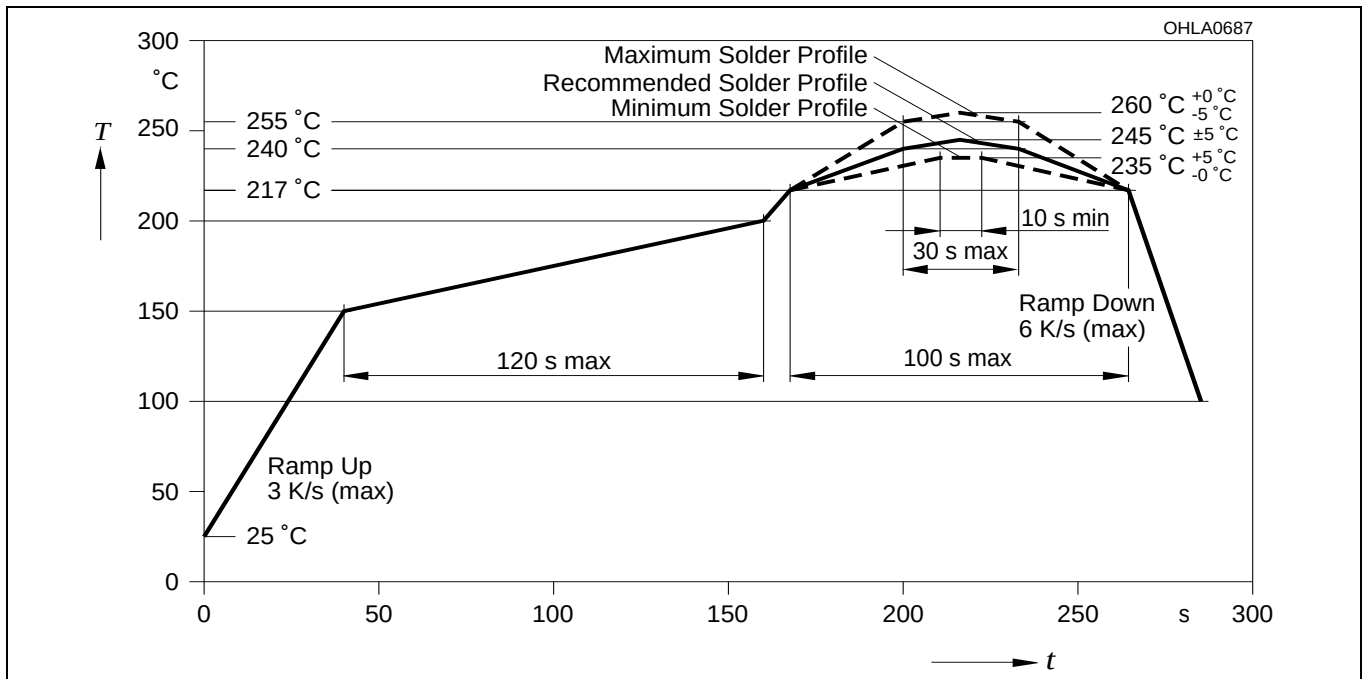
Lötbedingungen Soldering Conditions

BPW 34 FAS
BPW 34 FASR

Vorbehandlung nach JEDEC Level 4
Preconditioning acc. to JEDEC Level 4

Reflow Lötprofil für bleifreies Löten Reflow Soldering Profile for lead free soldering

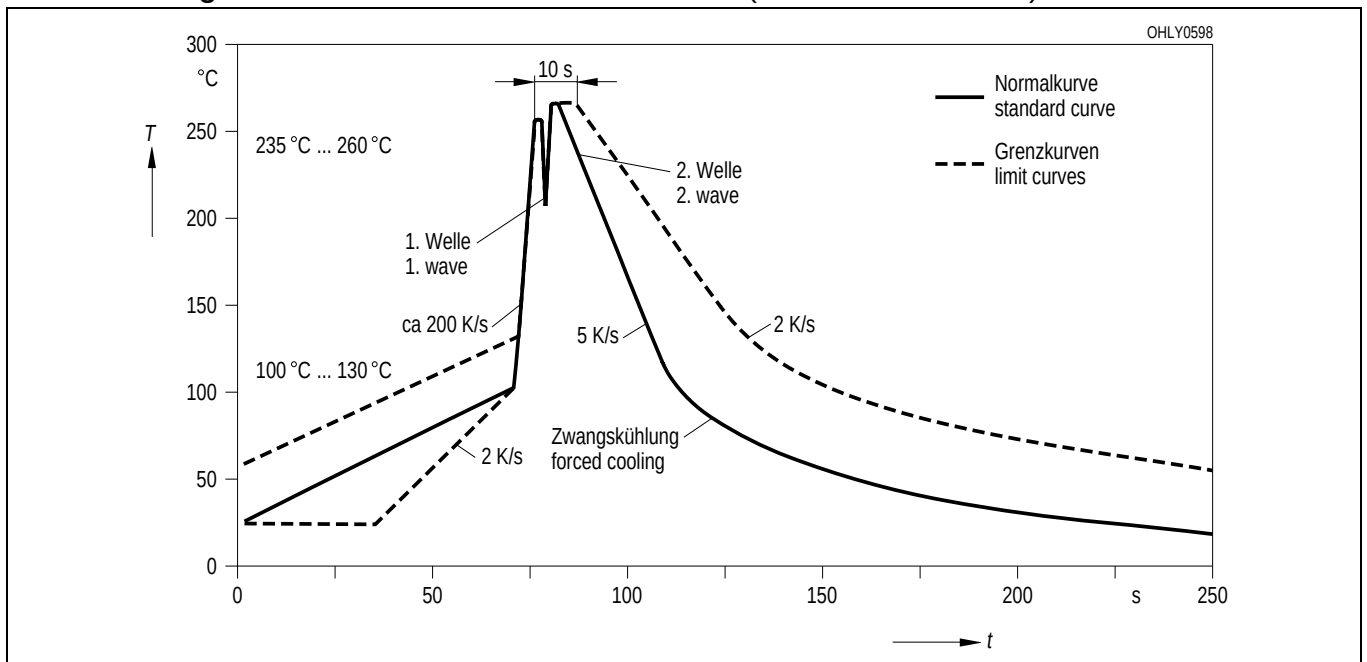
(nach J-STD-020C)
(acc. to J-STD-020C)



Wellenlöten (TTW) TTW Soldering

BPW 34 FA

(nach CECC 00802)
(acc. to CECC 00802)



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² Life support devices or systems are intended (a) to be implanted in the human body, or (b) to support and/or maintain and sustain human life. If they fail, it is reasonable to assume that the health of the user may be endangered.