

2N2484, 2N2484UA, 2N2484UB

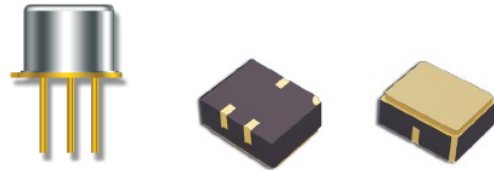


NPN Low Power Silicon Transistor

Rev. V1

Features

- JANS Qualified to MIL-PRF-19500/376
- JEDEC registered 2N2484
- Lightweight & Low Power
- Military & other High Reliability Applications
- TO-18 (TO-206AA), TO-46 (TO-206AB) Surface Mount UA, UB Package Styles



Electrical Characteristics

Parameter	Test Conditions	Symbol	Units	Min.	Max.
Off Characteristics					
Collector - Emitter Breakdown Voltage	$I_C = 10 \text{ mA}$	$V_{(BR)CEO}$	Vdc	60	—
Collector - Emitter Cutoff Current	$V_{CE} = 45 \text{ Vdc}$	I_{CES}	nAdc	—	5
Collector - Base Cutoff Current	$V_{CB} = 45 \text{ Vdc}$ $V_{CB} = 60 \text{ Vdc}$	I_{CBO}	nAdc μAdc	—	5 10
Collector - Emitter Cutoff Current	$V_{CE} = 5 \text{ Vdc}$	I_{EBO}	nAdc	—	2
On Characteristics¹					
Forward Current Transfer Ratio	$I_C = 1 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 10 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 100 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 500 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 1 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}$ $I_C = 10 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}$	H_{FE}	-	45 200 225 250 250 225	— 500 675 800 800 800
Collector - Emitter Saturation Voltage	$I_C = 1 \text{ mAdc}, I_B = 100 \mu\text{Adc}$	$V_{CE(SAT)}$	Vdc	—	0.3
Base - Emitter Saturation Voltage	$I_C = 5 \text{ mAdc}, I_B = 100 \mu\text{Adc}$	$V_{BE(SAT)}$	Vdc	0.5	0.7
Dynamic Characteristics					
Forward Current Transfer Ratio	$I_C = 50 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}, 5 \text{ MHz}$ $I_C = 500 \mu\text{Adc}, V_{CE} = 5 \text{ Vdc}, 30 \text{ MHz}$	$ h_{FE} $	-	3.0 2.0	— 0.7
Open Circuit Output Admittance	$I_C = 10 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1 \text{ kHz}$	h_{OE}	μmhos	—	40
Open Circuit Reverse Voltage Transfer Ratio	$I_C = 10 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1 \text{ kHz}$	h_{RE}	-	—	8×10^{-4}
Input Impedance	$I_C = 10 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1 \text{ kHz}$	h_{iE}	k Ω	3.5	24.0
Small-Signal Short-Circuit Forward Current Transfer Ratio	$I_C = 10 \text{ mAdc}, V_{CE} = 5 \text{ Vdc}, f = 1 \text{ kHz}$	h_{FE}	-	250	900
Output Capacitance	$V_{CB} = 5 \text{ V}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{OBO}	pF	—	5
Input Capacitance	$V_{EB} = 5 \text{ V}, I_E = 0, 100 \text{ kHz} \leq f \leq 1 \text{ MHz}$	C_{IBO}	pF	—	6

1. Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2\%$.

1

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
<https://www.macom.com/support>

DC-0015128

Absolute Maximum Ratings

Ratings	Symbol	Value
Collector - Emitter Voltage	V_{CEO}	60 Vdc
Collector - Base Voltage	V_{CBO}	60 Vdc
Emitter - Base Voltage	V_{EBO}	6 Vdc
Collector Current	I_C	50 mAdc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$	P_T	360 W
Operating & Storage Temperature Range	T_{OP}, T_{STG}	-65°C to $+200^\circ\text{C}$

Thermal Characteristics

Characteristics	Symbol	Max. Value
Thermal Resistance, Junction to Ambient 2N2484 2N2484UA 2N2484UB, UBC	$R_{\theta JA}$	325°C/W 275°C/W 350°C/W

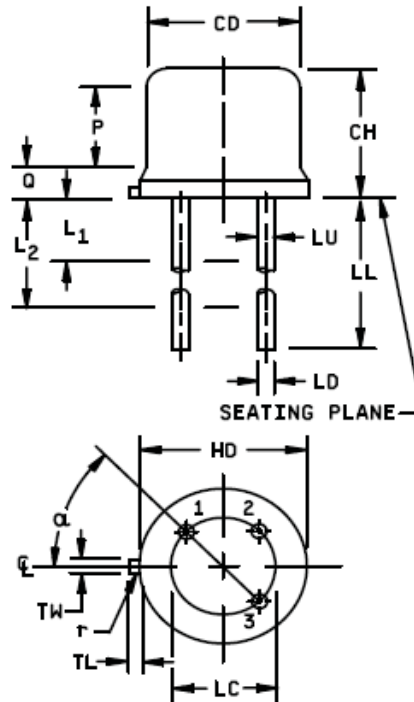
2N2484, 2N2484UA, 2N2484UB



NPN Low Power Silicon Transistor

Rev. V1

Outline Drawing (TO-18)



NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Beyond r (radius) maximum, TL shall be held for a minimum length of .011 inch (0.28 mm).
4. Dimension TL measured from maximum HD.
5. Body contour optional within zone defined by HD, CD, and Q.
6. Leads at gauge plane $.054 +.001 -0.000$ inch ($1.37 +0.03 -0.00$ mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at maximum material condition (MMC) relative to tab at MMC.
7. Dimension LU applies between L_1 and L_2 . Dimension LD applies between L_2 and LL minimum. Diameter is uncontrolled in L_1 and beyond LL minimum.
8. All three leads.
9. The collector shall be internally connected to the case.
10. Dimension r (radius) applies to both inside corners of tab.
11. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.
12. Lead 1 = emitter, lead 2 = base, lead 3 = collector.
13. For L suffix devices, dimension LL = 1.5 inches (38.10 mm) min. and 1.75 inches (44.45 mm) max.

Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.178	.195	4.52	4.95	
CH	.170	.210	4.32	5.33	
HD	.209	.230	5.31	5.84	
LC	.100 TP		2.54 TP		6
LD	.016	.021	0.41	0.53	7,8
LL	.500	.750	12.70	19.05	7,8,13
LU	.016	.019	0.41	0.48	7,8
L_1		.050		1.27	7,8
L_2	.250		6.35		7,8
P	.100		2.54		
Q		.030		0.76	5
TL	.028	.048	0.71	1.22	3,4
TW	.036	.046	0.91	1.17	3
r		.010		0.25	10
α	45° TP		45° TP		6
1, 2, 9, 11, 12, 13					

3

MACOM Technology Solutions Inc. (MACOM) and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice. Visit www.macom.com for additional data sheets and product information.

For further information and support please visit:
<https://www.macom.com/support>

DC-0015128

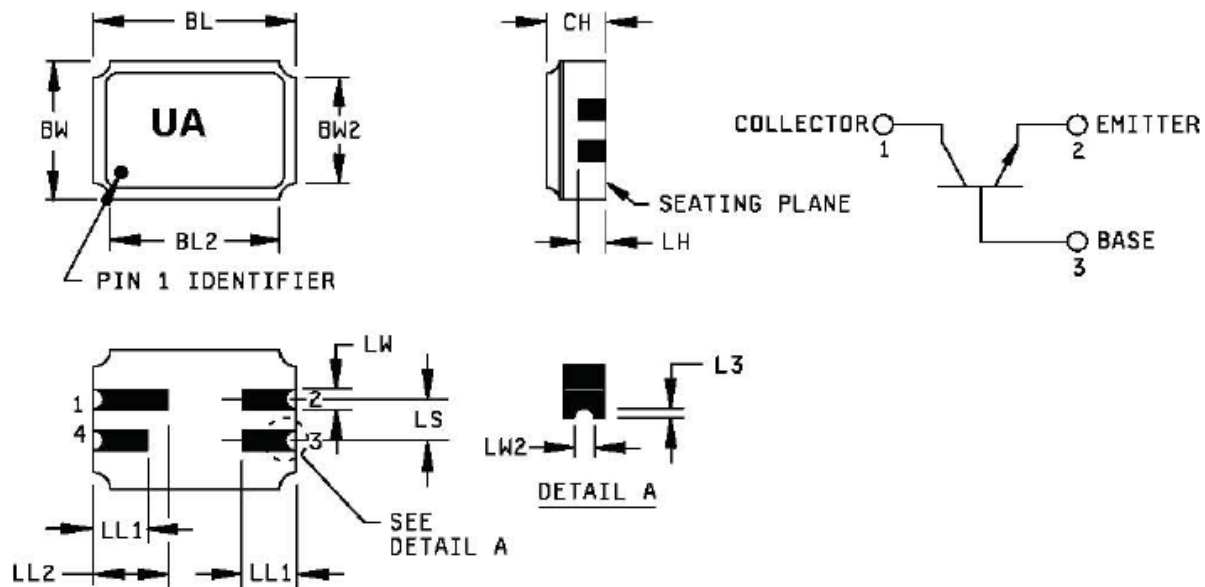
2N2484, 2N2484UA, 2N2484UB



NPN Low Power Silicon Transistor

Rev. V1

Outline Drawing (UA Surface Mount)



NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Dimension CH controls the overall package thickness. When a window lid is used, dimension CH must increase by a minimum of .010 inch (0.254 mm) and a maximum of .040 inch (1.020 mm).
4. The corner shape (square, notch, radius) may vary at the manufacturer's option, from that shown on the drawing.
5. Dimensions LW2 minimum and L3 minimum and the appropriate castellation length define an unobstructed three-dimensional space traversing all of the ceramic layers in which a castellation was designed. (Castellations are required on the bottom two layers, optional on the top ceramic layer.) Dimension LW2 maximum and L3 maximum define the maximum width and depth of the castellation at any point on its surface. Measurement of these dimensions may be made prior to solder dipping.
6. The co-planarity deviation of all terminal contact points, as defined by the device seating plane, shall not exceed .006 inch (0.15mm) for solder dipped leadless chip carriers.
7. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
BL	.215	.225	5.46	5.71	
BL2		.225		5.71	
BW	.145	.155	3.68	3.93	
BW2		.155		3.93	
CH	.061	.075	1.55	1.90	3
L3	.003	.007	0.08	0.18	5
LH	.029	.042	0.74	1.07	
LL1	.032	.048	0.81	1.22	
LL2	.072	.088	1.83	2.23	
LS	.045	.055	1.14	1.39	
LW	.022	.028	0.56	0.71	
LW2	.006	.022	0.15	0.56	5

Pin no.	1	2	3	4
Transistor	Collector	Emitter	Base	N/C

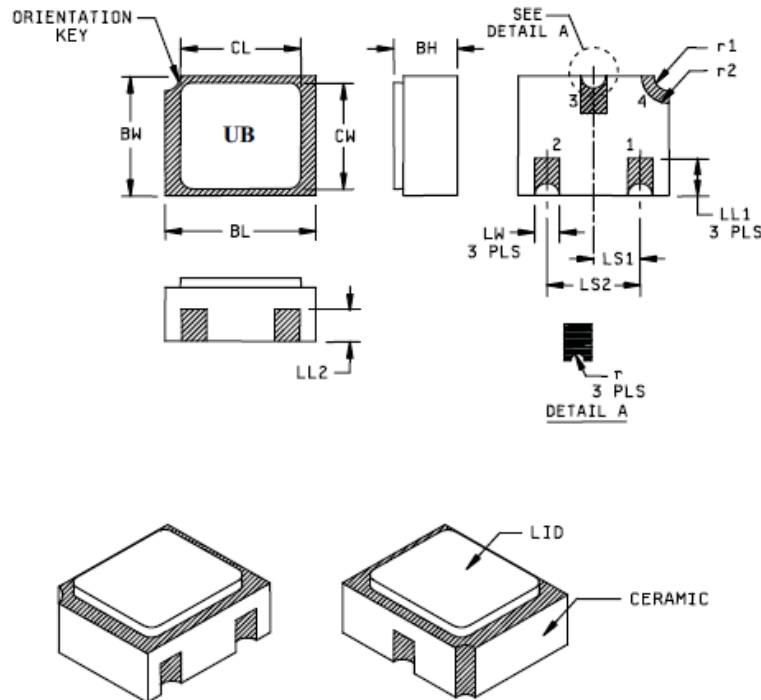
2N2484, 2N2484UA, 2N2484UB



NPN Low Power Silicon Transistor

Rev. V1

Outline Drawing (UB, UBC* (*ceramic lid version) Surface Mount)



Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
BH	.046	.056	1.17	1.42	
BL	.115	.128	2.92	3.25	
BW	.085	.108	2.16	2.74	
CL		.128		3.25	
CW		.108		2.74	
LL1	.022	.038	0.56	0.96	
LL2	.017	.035	0.43	0.89	

Symbol	Dimensions				Note
	Inches		Millimeters		
	Min	Max	Min	Max	
LS ₁	.036	.040	0.91	1.02	
LS ₂	.071	.079	1.81	2.01	
LW	.016	.024	0.41	0.61	
r		.008		.203	
r ₁		.012		.305	
r ₂		.022		.559	

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Hatched areas on package denote metalized areas.
4. Pad 1 = Base, Pad 2 = Emitter, Pad 3 = Collector, Pad 4 = Shielding connected to the lid.
5. In accordance with ASME Y14.5M, diameters are equivalent to ϕx symbology.

MACOM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with MACOM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.