

NPN SILICON LOW POWER TRANSISTOR

Qualified per MIL-PRF-19500/313

DEVICES

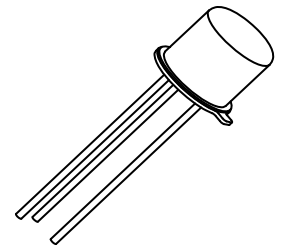
2N2432 **2N2432UB**
2N2432A **2N2432AUB**

LEVELS

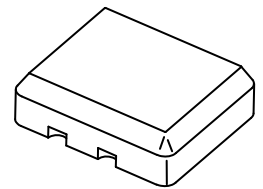
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ABSOLUTE MAXIMUM RATINGS ($T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	2N2432 2N2432UB	2N2432A 2N2432AUB	Unit
Collector-Emitter Voltage	V_{CEO}	30	45	Vdc
Collector -Base Voltage	V_{CBO}	30	45	Vdc
Emitter-Collector Voltage	V_{ECO}	15	18	Vdc
Collector Current	I_C	100		mAdc
Total Power Dissipation @				
$T_A = +83^\circ\text{C}$ 2N2432 - 2N2432A		360		mW
$T_C = +150^\circ\text{C}$ 2N2432 - 2N2432A	P_T	360		mW
$T_{SP} = +165^\circ\text{C}$ 2N2432UB - 2N2432AUB		360		mW
Operating & Storage Junction Temperature Range	T_j, T_{stg}	-65 to +200		$^\circ\text{C}$
Thermal Resistance, Junction-to-Case 2N2432 - 2N2432A	$R_{\theta JC}$	150		$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction-to-Solder Pads 2N2432UB - 2N2432AUB	$R_{\theta JSP}$	95		$^\circ\text{C}/\text{W}$



TO-18 (TO-206AA)



UB Package

NOTES:

- Derate linearly 2.0 mW/ $^\circ\text{C}$ above $T_A = +25^\circ\text{C}$.
- Derate linearly 3.08 mW/ $^\circ\text{C}$ above $T_C = +83^\circ\text{C}$.

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Emitter-Collector Breakdown Voltage $I_E = 100\mu\text{Adc}, I_B = 0$	$V_{(BR)ECO}$	15 18 10		Vdc
2N2432 - 2N2432UB				
2N2432A - 2N2432AUB				
$I_E = 10\text{mAdc}, I_B = 0$	Both			
Collector-Emitter Breakdown Voltage $I_C = 10\text{mAdc}$	$V_{(BR)CEO}$	30 45		Vdc
2N2432 - 2N2432UB				
2N2432A - 2N2432AUB				
Collector-Emitter Cutoff Current $V_{CB} = 25\text{Vdc}$	I_{CES}		10	ηAdc
2N2432 - 2N2432UB				
$V_{CB} = 40\text{Vdc}$			10	
2N2432A - 2N2432AUB				

ELECTRICAL CHARACTERISTICS ($T_A = +25^\circ\text{C}$, unless otherwise noted)

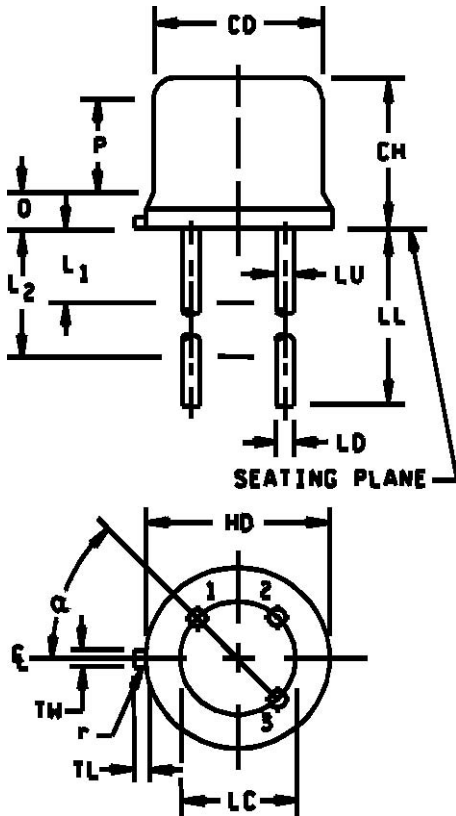
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector- Base Cutoff Current $V_{CB} = 30\text{Vdc}$ $V_{CB} = 25\text{Vdc}$ $V_{CB} = 40\text{Vdc}$ $V_{CB} = 45\text{Vdc}$	2N2432 - 2N2432UB 2N2432 - 2N2432UB 2N2432A - 2N2432AUB 2N2432A - 2N2432AUB	I_{CBO}	100 10 100 10	μAdc ηAdc μAdc ηAdc
Emitter-Collector Cutoff Current $V_{EC} = 15\text{Vdc}$, $V_{BC} = 0\text{Vdc}$		I_{ECS}	2.0	ηAdc
Emitter-Base Cutoff Current $V_{EB} = 15\text{Vdc}$		I_{EBO}	2.0	ηAdc
ON CHARACTERISTICS ⁽¹⁾				
Forward-Current Transfer Ratio $I_C = 10\mu\text{Adc}$, $V_{CE} = 5.0\text{Vdc}$ $I_C = 1.0\text{mA}$, $V_{CE} = 5.0\text{Vdc}$		h_{FE}	30 80	400
Forward-Current Transfer Ration (Inverted Connection) $I_E = 0.2\text{mA}$, $V_{CE} = 5.0\text{Vdc}$	2N2432 - 2N2432UB 2N2432A - 2N2432AUB	$h_{FE(inv)}$	2.0 3.0	
Collector-Emitter Saturation Voltage $I_C = 10\text{mA}$, $I_B = 0.5\text{mA}$	2N2432 - 2N2432UB 2N2432A - 2N2432AUB	$V_{CE(sat)}$	0.15	Vdc
Emitter-Collector Offset Voltage $I_E = 0\text{mA}$, $I_B = 200\mu\text{Adc}$ $I_E = 0\text{mA}$, $I_B = 1.0\text{mA}$	2N2432 - 2N2432UB 2N2432A - 2N2432AUB 2N2432 - 2N2432UB 2N2432A - 2N2432AUB	$V_{EC(ofs)}$	0.5 0.4 1.0 0.7	mVdc

DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Forward Current Transfer Ratio $I_C = 1.0\text{mA}$, $V_{CE} = 5.0\text{Vdc}$, $f = 20\text{MHz}$	$ h_{fe} $	2.0	10	
Output Capacitance $V_{CB} = 0\text{Vdc}$, $I_E = 0$, $100\text{kHz} \leq f \leq 1.0\text{MHz}$	C_{obo}		12	pF
Input Capacitance $V_{EB} = 0\text{Vdc}$, $I_C = 0$, $100\text{kHz} \leq f \leq 1.0\text{MHz}$	C_{ibo}		12	pF

(1) Pulse Test: Pulse Width = 300 μs , Duty Cycle \leq 2.0%.

PACKAGE DIMENSIONS

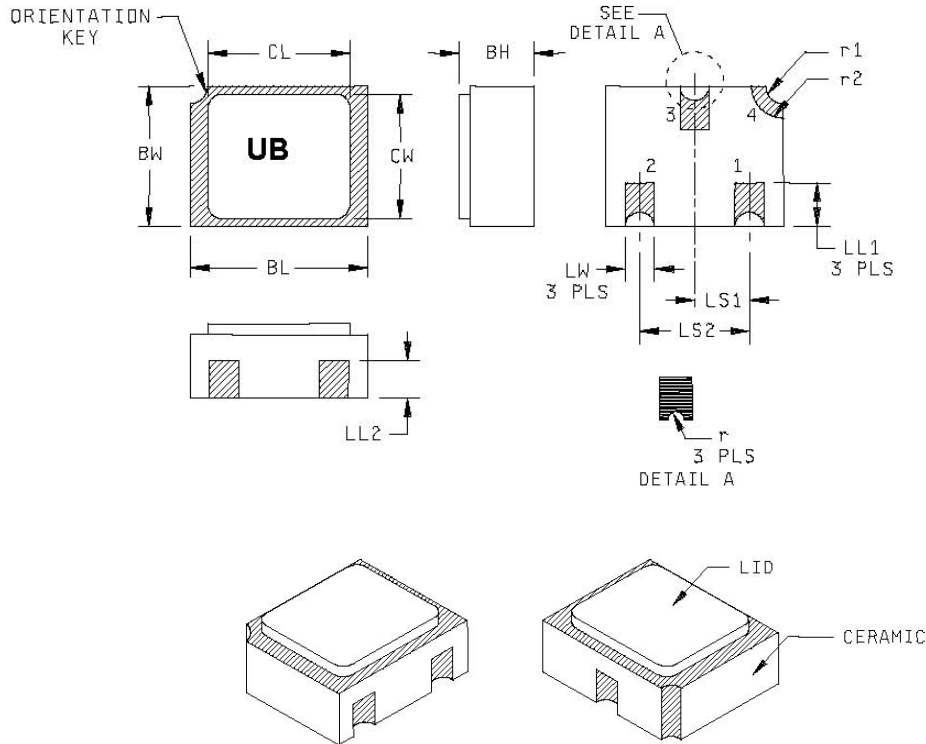


Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.178	.195	4.52	4.95	
CH	.170	.210	4.32	5.33	
HD	.209	.230	5.31	5.84	
LC	.100 TP		2.54 TP		6
LD	.016	.021	0.41	0.53	7,8
LL	.500	.750	12.70	19.05	7,8,13
LU	.016	.019	0.41	0.48	7,8
L ₁		.050		1.27	7,8
L ₂	.250		6.35		7,8
P	.100		2.54		
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

NOTES:

1. Dimension are in inches.
2. Millimeters are given for general information only.
3. Beyond r (radius) maximum, TW shall be held for a minimum length of .011 (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 -.000 inch (1.37 +0.03 -.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 L1 and L2. Dimension LD applies between L2 and LL minimum. Diameter is uncontrolled in L1 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.

FIGURE 1. Physical dimensions (similar to TO-18).



Symbol	Dimensions				Notes
	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	.115	.128	2.92	3.25	
CW	.085	.108	2.16	2.74	
LL ₁	.022	.038	0.56	0.96	
LL ₂	.017	.035	0.43	0.89	

Symbol	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
LS ₁	.035	.039	0.89	0.99	
LS ₂	.071	.079	1.80	2.01	
LW	.016	.024	0.41	0.61	
r		.008		.20	
r ₁		.012		.31	
r ₂		.022		.56	

NOTES:

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Hatched areas on package denote metallized 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.

FIGURE 2. Physical dimensions - surface mount (AUB and UB version).