



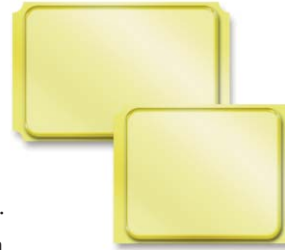
Silicon Switching Diode Series

1N4148UB



Features

- JAN, JANTX, and JANTXV qualification is available per MIL-PRF-19500/116. (See part nomenclature for all available options.)
- Surface mount equivalent of popular JEDEC registered 1N4148 number.
- Very low capacitance.
- Very fast switching speeds with minimal reverse recovery times.
- Unidirectional as well as doubler, common anode and common cathode polarities are available.
- RoHS compliant by design.



Description

This 1N4148UB switching/signal diode features ceramic bodied construction for military grade products per MIL-PRF-19500/116. This small low capacitance diode, with very fast switching speeds, is featured in a surface mount UB package with various polarities available.

Applications

- High frequency data lines.
- Low-profile ceramic surface mount package (see package illustration).
- RS-232 & RS-422 interface networks.
- Ethernet 10 Base T, LAN & computers.

Maximum Ratings @ 25 °C

Parameters/Test Conditions	Symbol	Value	Unit
Junction and Storage Temperature	T_J & T_{STG}	-65 to +200	°C
Thermal Resistance Junction-to-Ambient ⁽¹⁾	$R_{\theta JA}$	325	°C/W
Thermal Resistance Junction-to-Solder Pad ⁽¹⁾	$R_{\theta JSP}$	120	°C/W
Maximum Breakdown Voltage	$V_{(BR)}$	100	V
Working Peak Reverse Voltage	V_{RWM}	75	V
Average Rectified Current @ $T_A = 75$ °C ⁽²⁾	I_O	200	mA
Non-Repetitive Sinusoidal Surge Current ($t_p = 8.3$ ms)	I_{FSM}	2	A (pk)

- NOTES: 1. See Figure 2 for thermal impedance curves.
2. See Figure 1 for derating.



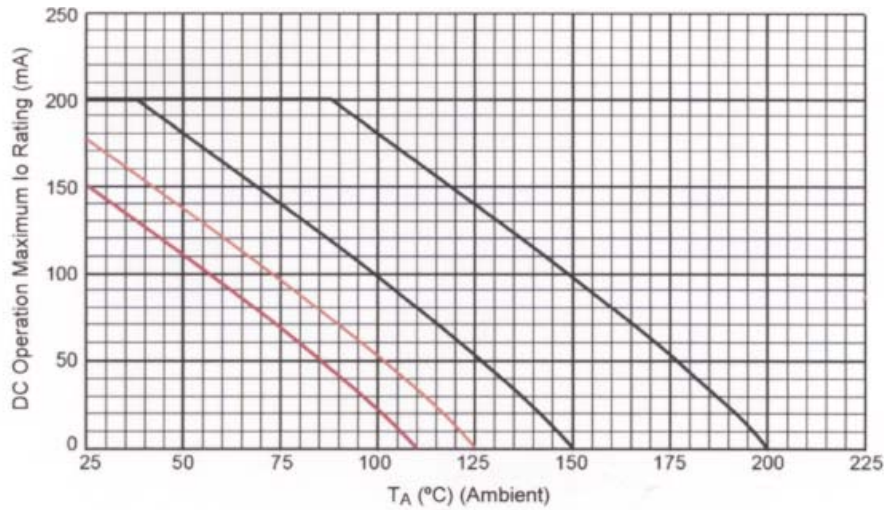


FIGURE 1 – Temperature – Current Derating

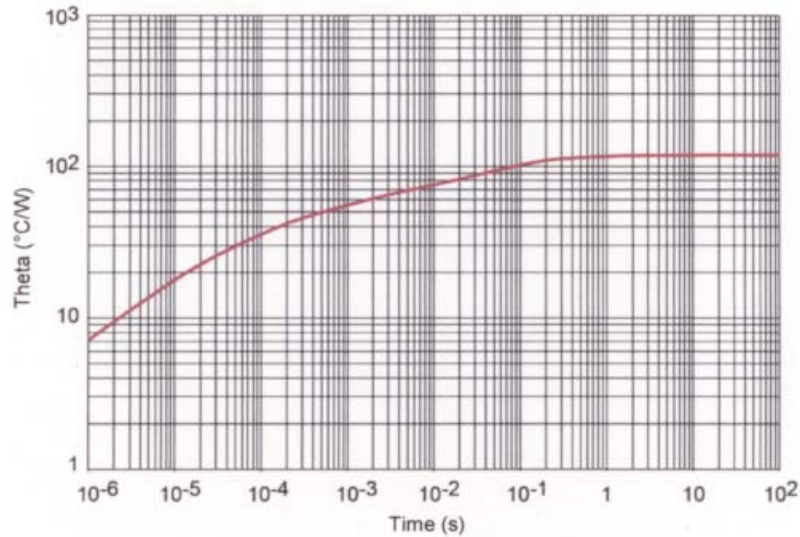


FIGURE 2 – Thermal Impedance

Electrical Specifications @ +25 °C (Unless Otherwise Specified)

Forward Voltage V_{F1} @ $I_F = 10 \text{ mA}$	Forward Voltage V_{F2} @ $I_F = 100 \text{ mA}$	Reverse Recovery Time t_{fr} (Note 1)	Reverse Recovery Time V_{fr} (Note 2)	Reverse Current I_{R1} @ 20 V	Reverse Current I_{R2} @ 75 V	Reverse Current I_{R3} @ 20 V $T_A = 150 \text{ °C}$	Reverse Current I_{R4} @ 75 V $T_A = 150 \text{ °C}$	Capacitance (Note 3)	Capacitance (Note 4)
V	V	ns	ns	nA	μA	μA	μA	pF	pF
0.8	1.2	5	20	25	0.5	35	75	4.0	2.8

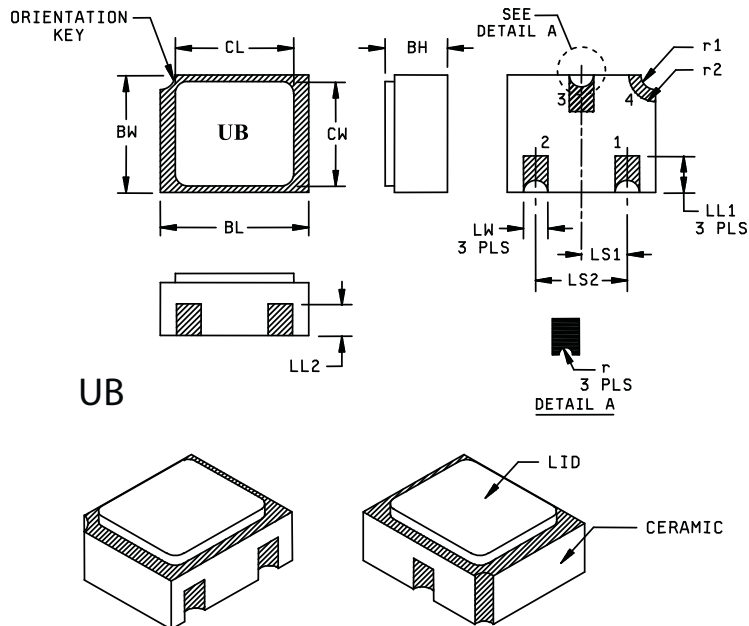
Note 1: $I_F = I_R = 10 \text{ mA}$, $R_L = 100 \text{ ohms } \pm 5 \%$.

Note 2: $I_F = 50 \text{ mA}$.

Note 3: $V_R = 0 \text{ V}$, $f = 1 \text{ MHz}$, $V_{SIG} = 50 \text{ mV}$ (pk to pk).

Note 4: $V_R = 1.5 \text{ V}$, $f = 1 \text{ MHz}$, $V_{SIG} = 50 \text{ mV}$ (pk to pk).

Outline Drawing



Symbol	Dimensions			
	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
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. Millimeters are given for general information only.
2. Ceramic package 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 ASMEY14.5M, diameters are equivalent to ϕx symbology.

Mechanical & Packaging

CASE: Ceramic

THERMALS: Gold plating over nickel under plate.

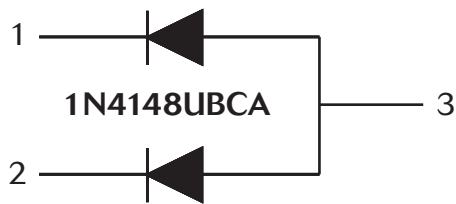
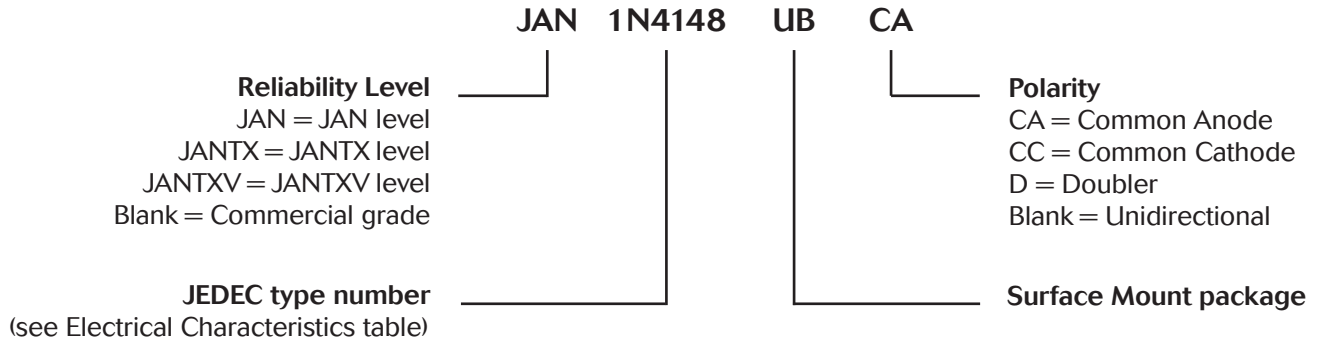
TAPE & REEL option: Standard per EIA-4180. Consult factory for quantities.

WEIGHT: < 0.04 Grams.

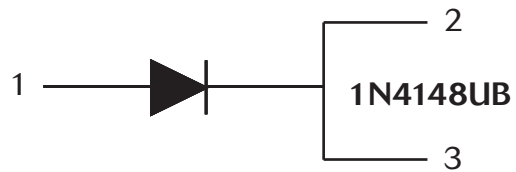
Symbols & Definitions

Symbol	Definitions
I_R	Reverse Current: The maximum reverse (leakage) current that will flow at the specified voltage and temperature.
I_O	Average Rectified Forward Current: The output current averaged over a full cycle with a 50 Hz or 60 Hz sine-wave input and a 180 degree conduction angle.
t_{rr}	Reverse Recovery Time: The time interval between the instant the current passes through zero when changing from the forward direction to the reverse direction and a specified decay point after a peak reverse current occurs.
V_F	Forward Voltage: The forward voltage the device will exhibit at a specified current (typically shown as maximum value).
V_R	Reverse Voltage: The reverse voltage de value, no alternating component.
V_{RWM}	Working Peak Reverse Voltage: The maximum peak voltage that can be applied over the operating temperature range excluding all transient voltages (ref JESD282-B). Also sometimes known as PIV.

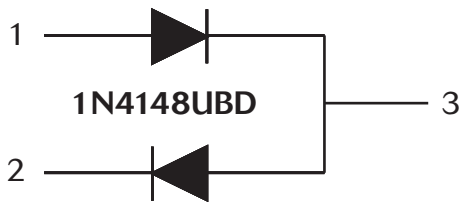
Parts Nomenclature



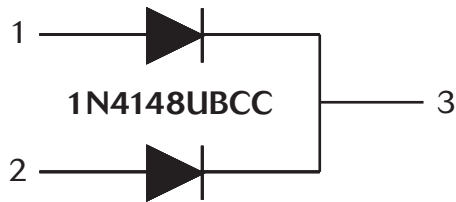
Common Anode



Unidirectional



Doubler



Common Cathode

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Our passion for performance is defined by three attributes represented by these three icons: solution-minded, performance-driven and customer-focused.